State Innovation Model (SIM)
Progress Report 2

(FY2020 Appropriation Act - Public Act 67 of 2019)

September 1, 2020

Sec. 1144. *(1) From the funds appropriated in part 1 for health policy administration, the department shall allocate the federal state innovation model grant funding that supports implementation of the health delivery system innovations detailed in this state's "Reinventing Michigan's Health Care System: Blueprint for Health Innovation" document. This initiative will test new payment methodologies, support improved population health outcomes, and support improved infrastructure for technology and data sharing and reporting. The funds will be used to provide financial support directly to regions participating in the model test and to support statewide stakeholder guidance and technical support.*

(2) Outcomes and performance measures for the initiative under subsection (1) include, but are not limited to, the following:

(a) Increasing the number of physician practices fulfilling patient-centered medical home functions.

(b) Reducing inappropriate health utilization, specifically reducing preventable emergency department visits, reducing the proportion of hospitalizations for ambulatory sensitive conditions, and reducing this state's 30-day hospital readmission rate.

(3) On a semiannual basis, the department shall submit a written report to the house and senate appropriations subcommittees on the department budget, the house and senate fiscal agencies, and the state budget office on the status of the program and progress made since the prior report.

(4) From the funds appropriated in part 1 for health policy administration, any data aggregator created as part of the allocation of the federal state innovation model grant funds must meet the following standards:

(a) The primary purpose of the data aggregator must be to increase the quality of health care delivered in this state, while reducing costs.

(b) The data aggregator must be governed by a nonprofit entity.

(c) All decisions regarding the establishment, administration, and modification of the database must be made by an advisory board. The membership of the advisory board must include the director of the department or a designee of the director and representatives of health carriers, consumers, and purchasers.

(d) The Michigan Data Collaborative shall be the data aggregator to receive health care claims information from, without limitation, commercial health carriers, nonprofit health care corporations, health maintenance organizations, and third party administrators that process claims under a service contract.

(e) The data aggregator must use existing data sources and technological infrastructure, to the extent possible.

MDHHS

Michigan Department of Health & Human Services

State Innovation Model (SIM)
Section 1144, MDHHS Budget Report 2

Policy and Planning Administration

State Innovation Model

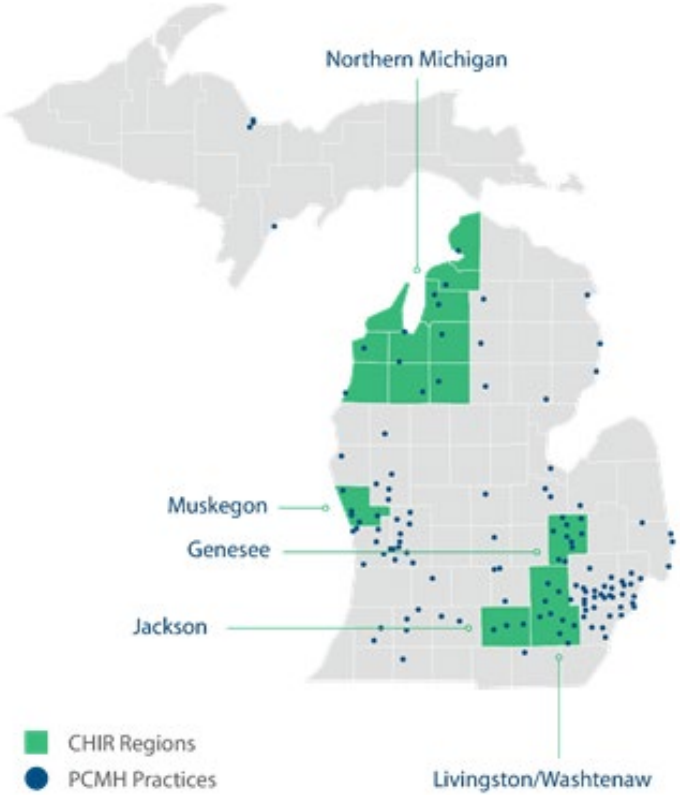
Contents

State Innovation Model Summary

In 2015, the Centers for Medicare and Medicaid Services (CMS) awarded the State of Michigan approximately $70 million over four years to test and implement an innovative model for delivering and paying for health care in the state. The award, made through the CMS SIM initiative, was based on a plan submitted by the state in 2014. Federal SIM funding from CMS concluded on January 31, 2020.

The state, through the Michigan Department of Health and Human Services (MDHHS), organized the work of implementing its SIM initiative under three main umbrellas: Population Health, Care Delivery, and Technology. The Population Health component has at its foundation community health innovation regions (CHIRS) or (pronounced "shires"), which are intended to build community capacity to drive improvements in population health. The Care Delivery component encompassed a patient-centered medical home (PCMH) initiative and the promotion of alternative payment models. The Technology component is where the state leveraged its statewide infrastructure and related health information exchange initiatives to enable and support advances in population health and payment and care delivery strategies.

Recognizing that 20 percent of the factors that influence a person's health outcomes are related to access and quality of care while socioeconomic, environmental, and behavioral factors account for 80 percent; the state has focused efforts in each of these areas on developing and strengthening connections among providers of clinical care (e.g., physician offices, health systems, and behavioral health providers) and community-based organizations that address non-medical factors impacting health



More than 300 medical practices across the state—representing more than 2,000 primary care providers—participated in the PCMH Initiative with a commitment to improving care delivery and care coordination. The initiative used SIM funding to incentivize participating providers to administer value-based care and to measure quality and utilization benchmarks associated with increased value-based care. Preliminary outcomes attributed to the PCMH initiative include fewer preventable emergency department visits, increased cervical cancer screenings, and improved breadth and robustness of social determinant of health (SDOH) screenings among Michigan primary care practices.

CHIRs in five areas across the state have formed and/or strengthened multisector collaborations with clinical-community linkages (CCLs), which help to identify and

achieve shared goals that improve community health—providing a foundation for better meeting residents' needs. In partnership with Medicaid health plans, SIM increased adoption of alternative payment models (APMs) to sustain the focus on value-based care.

SIM funding was used to provide administrative support for the initiative's operations, technical assistance to practices and providers, resource development, workforce training opportunities to build capacity for care management and coordination (CM/CC), and data aggregation and analysis to support the creation and execution of the performance incentive program.

SIM funded significant improvements in Michigan's health information exchange that have been critical to improving core use cases like the Active Care Relationship Service®; admission, discharge, and transfer messages; and the master person-indexing service, Common Key Service. Further, SIM's technology component has begun advancing the collection of SDOH data throughout the MDHHS. A highlight of this work is the collection of housing data from Michigan's Homeless Management Information System. These data are being combined with Medicaid claims and encounter data to show the connection between homelessness and Medicaid service usage.

Although the SIM initiative has ended, the challenges associated with addressing impediments to better health outcomes remain. MDHHS remains committed to its vision of delivering health and opportunity to all Michiganders in reducing intergenerational poverty and health inequity.

Budget

The SIM program and its component initiatives were funded entirely through a cooperative grant agreement with Centers for Medicare and Medicaid Services innovation center. The SIM program implemented component initiatives based on the Centers for Medicare and Medicaid Services approved operational plan and budget.

The table below highlights the specific budget and expenditures across standard Centers for Medicare and Medicaid Services grant budget categories. The contractual line includes the funding for numerous program and component planning, implementation, and operational teams as well as other specific contractual needs to support the broader SIM goals. The expenditures across the categories below represents only the budgeted and realized in the six months that are encompassed in this report. The spending includes engagements facilitated though both direct State of Michigan master and standard contractual agreements and other contracts and engagements through the designated SIM fiduciary, Michigan Public Health Institute).

Categories	12 mos. Budget	Updated 6 mos. Expenditures**
Personnel	$189,125.00	$72,022.82
Fringe Benefits	$103,026.00	$51,306.66
Equipment	$0.00	$0.00
Supplies	$40,000.00	$2,882.07
Travel	$18,627.00	$6,741.94
Other*	$0.00	$44,264.20

Contractual	$24,121,872.00	$13,478,067.18
Total Direct Charges	$24,472,650.00	**$13,655,284.87**
Indirect Cost	$0.00	$0.00
Total	$24,472,650.00	**$13,655,284.87**

* Other expenses are for cost allocation. $61,400 is budgeted for cost allocation in the fringe category.

** This report has been updated from previous reporting to reflect final numbers submitted to CMS during the grant closeout process.

The budget period is 12 months, beginning February 1, 2019 through January 31, 2020. The reporting period spans August 1, 2019 to January 31, 2020. Total expenditures from the first 6 months of the award year totaled $7,140,095.68. Adding this figure to the updated 6-month expenditure total for August 2019-January 2020, and the 12-month expenditure equals $20,795,380.55.

Evaluation Reports

Included with this status report is the final evaluation report (including six appendices) submitted to CMS for their review as part of our final reporting requirements. The state-evaluation was led by MPHI in collaboration with MDHHS, the team at Michigan State University led by Dr. Pennie Foster-Fishman, and the University of Michigan Child Health Evaluation and Research Center. The report covers findings that were emerging during implementation of the SIM model but does not contain final impact data.

The impact evaluation component aimed to collect and analyze information on emerging outcomes that would justify continued investment in the model by key stakeholders after the SIM program concludes. The formative evaluation component aimed to surface lessons learned along the way that provide real-time information to SIM stakeholders to aid in implementation and inform how the state and other stakeholders should modify, scale, and spread the models during and/or post-SIM.

The evaluation focused on three interrelated areas that cross both the PCMH and CHIR tracks:

1. Care Management and Coordination
2. Clinical-Community Linkages
3. Community Change

The evaluation of CM/CC and the CCLs included both process and outcome components. Process analyses were based on PCMH track reporting (Quarterly Reports and Practice Transformation Reports) and focus on implementation progress and barriers. Additional process analyses are based on both CHIR and PCMH submitted individual level data related to screening for social determinants of health, referrals for social services, and linkages opened and closed to address the identified needs. These metrics were tracked over time to measure changes in implementation of CCL activities.

Outcome evaluation of both CM/CC and CCLs includes PCMH provider and staff responses to survey items as well as patient reported outcomes through paper- and telephone-based patient/client experience surveys. In addition to the surveys, a key data source for the CCL outcome evaluation was also the individual-level CCLs data submitted by all five of the CHIRs and 11 PCMHs participating in the CCL outcomes study. Outcomes related to CM/CC and to CCL were also assessed by leveraging the State Medicaid Data Warehouse and

conducting analyses of Medicaid data of patients with CM/CC as well as of CCL clients served by a CHIR hub, and of CCL patients in the 11 PCMHs to determine the extent to which the SIM initiative required activities relate to individual level healthcare utilization and costs over time.

The evaluation of community change focused on the CHIR structure and leadership for collective impact; on community alignment, including the participation of PCMH, physician organizations, and health systems; and on sustainability and policy changes that were created because of these efforts. Process and outcome analyses were based on qualitative interviews, observations, review of CHIR meeting minutes and other documentation. In addition, Collective Impact surveys were used to assess the attitudes and experiences of CHIR members, partners, and stakeholders within each participating community.

Final Evaluation Report

April 2020

Submitted by:

Center for Data Management and Translational Research
Michigan Public Health Institute
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Okemos, MI 48864

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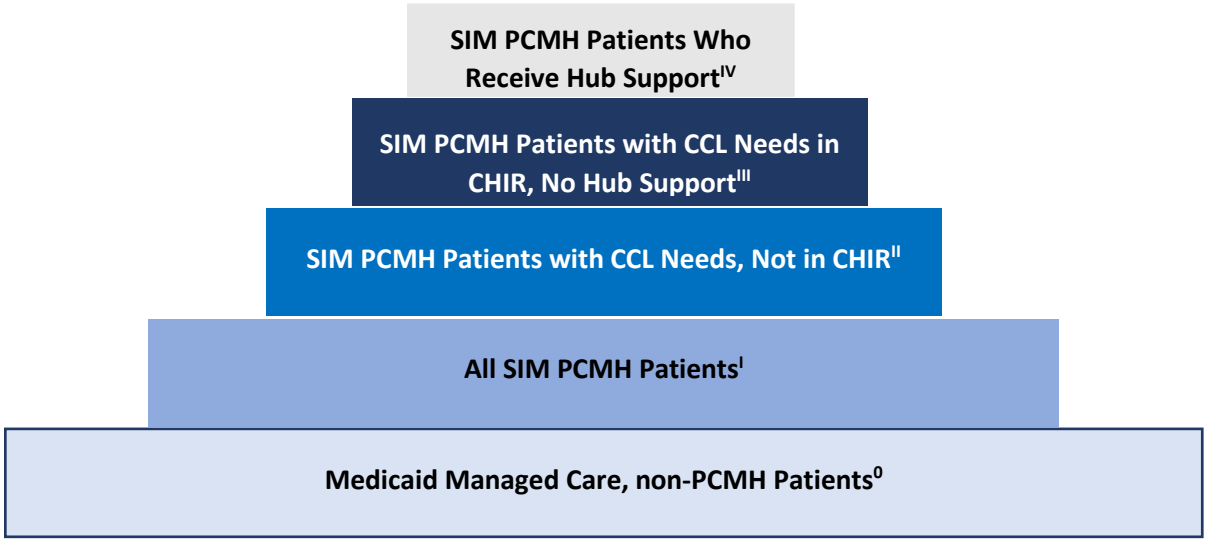
Introduction

In 2015, the Centers for Medicare and Medicaid Services (CMS) awarded Michigan $70 million over four years to test and implement an innovative model for delivering and paying for healthcare in the state. The award, made through the CMS State Innovation Model (SIM) initiative, was based on a plan submitted by the State in 2014 called *Reinventing Michigan's Health Care System: Blueprint for Health Innovation*.

The Michigan Department of Health and Human Services (MDHHS) has led the state's SIM initiative and has organized its work under three main umbrellas: Population Health, Care Delivery, and Technology. Community Health Innovation Regions, or CHIRs (pronounced "shires"), are intended to build community capacity to drive improvements in population health and are the basis of the Population Health component. Additionally, all CHIRs have pursued systems change to coordinate delivery of health and human services. The resulting coordinated referral networks are termed 'Hubs' throughout this report to distinguish this work from broader population health efforts pursued by CHIRs. Not all CHIRs use the term 'Hub' to refer to this work.



The Care Delivery component includes the Patient-Centered Medical Home (PCMH) initiative and the promotion of alternative payment models. The Technology component is where the Michigan leverages its statewide infrastructure and related health information exchange (HIE) initiatives to enable and support advances in population health and payment and care delivery strategies.

Michigan's CHIR and PCMH models are conceived of as additive. In other words, PCMHs, CHIRs and hubs are layered on top of a foundation of Medicaid Managed Care as depicted in the graph above. Starting from the foundation and moving up towards the peak, the components of Michigan's SIM model were articulated as follows:

0 As the foundation, Michigan Medicaid is a mature managed care model, in which contracted health plans are required to be certified and provide care management, CHW services, and work with community organizations.

I. SIM PCMH builds on Medicaid managed care and the Michigan Primary Care Transformation Project (MiPCT) model, a multi-payer demonstration in operation 2012 – 2016. A core component is provider delivered care management (CM) or care coordination (CC).

II. SIM PCMH goes further than MiPCT by screening for and addressing social needs by referring patients to social service providers.

III. Within a CHIR, population level root causes of poor health (social determinants of health) are addressed through systems, policy and environmental change initiatives organized by multi-sector collaborations.

IV. Within CHIRs, hubs or other entities coordinate health and social services to provide whole person care.

Moreover, the mechanism for implementing the SIM model is as follows:

- The state incentivizes and enables participation by organizations across health and other sectors through Medicaid payment reform, policy, shared learning, and infrastructure investment.

The evaluation provides data relevant to the theory of change of Michigan's SIM programming represented by this model. Each section of this report provides data relative to a 'layer' of the diagram above.

The following evaluation contractors contributed data to this report: Michigan Public Health Institute (MPHI), Michigan State University (MSU), and University of Michigan Child Health Evaluation and Research Center (UM-CHEAR). Data collection occurred towards the latter half of the SIM project period. The report covers findings that were emerging during implementation of the SIM model but does not contain final impact data. This report draws on numerous interim reports produced during 2018 – 2019, which can be found in the Appendices. See these reports for methodological details, including: data sources, calculations of key metrics, and analysis. Where relevant, completed evaluations of predecessor models are summarized and referenced.

Layer I: Michigan's SIM PCMH Model Built on the Successful MiPCT Demonstration

SIM built on the multi-payer demonstration pioneered during MiPCT, 2012 – 2016. A key feature of MiPCT was the provision of embedded care management services, with at least 2 trained care managers per 5000 patients. MiPCT Care Managers were physically located within the practice, documented patients' visits in their electronic health record, communicated directly with physicians and other care team members electronically and in person, and were provided lists of high-risk beneficiaries and encouraged to work with providers to target those who could most benefit. Other MiPCT requirements were to have an all-patient registry to address gaps in care and to provide advanced access (open access scheduling and options for care outside of business hours).

MiPCT Was Shown to Be Beneficial for Both Medicaid and Medicare Patients

Rigorous evaluation results of MiPCT were compelling and justified PCMH expansion under SIM. For both Medicare and Medicaid beneficiaries, savings and reduced hospitalizations were greatest among patients with multiple chronic conditions – the population targeted by Care Management. Findings from MiPCT included:

- The Michigan Primary Care Transformation project generated cost savings among adults in Medicaid managed care, particularly high-risk adults, while largely maintaining quality of care:[1]
  - Significant cost savings among adults, driven by savings among high-risk adults,
  - Significantly reduced risk of hospitalization among high-risk adults,
  - No cost savings or utilization reductions among children until the project's fourth year, and
  - Better or equal quality of care, but no improvement over time.
- The return on investment (ROI) for Medicare beneficiaries was estimated to be 4.53 (a net savings of nearly $230 million) relative to non-MiPCT PCMH, and 2.16 (a net savings of over $75 million) relative to non PCMH.
  - Cost savings were greatest among people with multiple chronic diseases.
- Adult patients of MiPCT practices reported statistically significant and superior experiences across many aspects of care when compared to similar non-PCMH patients, including:[2]
  - Better access to care,
  - Better communication,
  - More coordinated care,
  - Better support for self-management of care, and
  - More comprehensive care.

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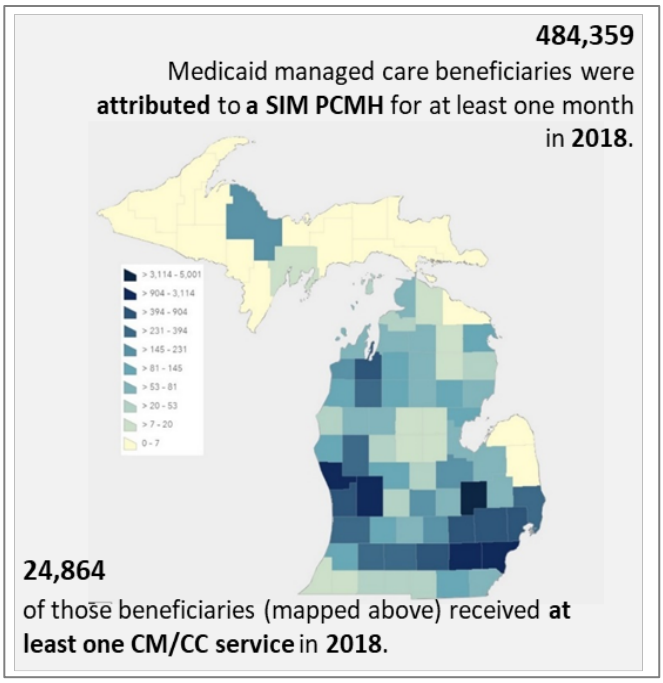
[1] Shaohui Zhai, PhD; Rebecca A. Malouin, PhD, MPH, MS; Jean M. Malouin, MD, MPH; Kathy Stiffler, MA; and Clare L. Tanner, PhD. Multipayer Primary Care Transformation: Impact for Medicaid Managed Care Beneficiaries. *American Journal of Managed Care.* 25, 11 (2019)

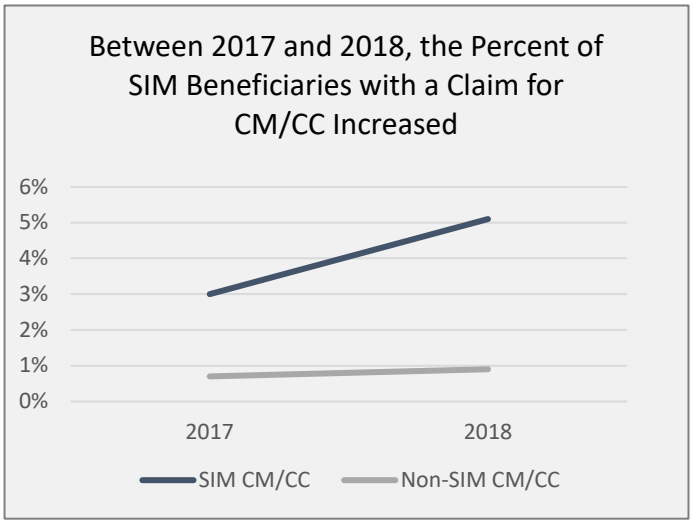
[2] Issidoros Sarinopoulos, PhD, Diane L. Bechel-Marriott, DrPH, MHSA, Jean M. Malouin, MD, MPH, Shaohui Zhai, PhD, Jason C. Forney, MA, Clare L. Tanner, PhD. Patient Experience with the Patient-Centered Medical Home in Michigan's Statewide Multi-Payer Demonstration: A Cross-Sectional Study. *Journal of General Internal Medicine* 32, 1202–1209 (2017)

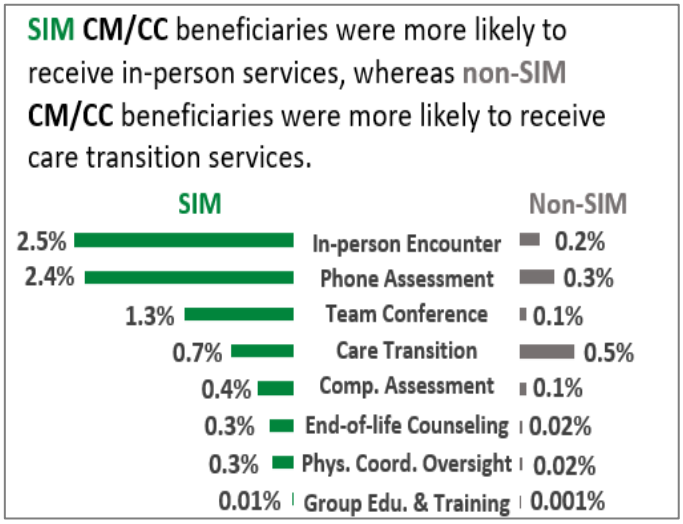
Under SIM, an Increasing Number of Beneficiaries Were Documented as Receiving Care Management/Coordination Services

SIM Care Delivery enhancements included several updates to the MiPCT model: tracking of Care Management and Care Coordination (CM/CC) services through the introduction of billing codes instead of the FTE and qualifications of individuals providing care management (as under MiPCT), and screening and referral for clinical community linkages. Evaluation of the latter is described below in Section II. Here we note that the use of billing codes enabled the evaluation to characterize the types of beneficiaries receiving Care Management or Care Coordination (Appendix I).



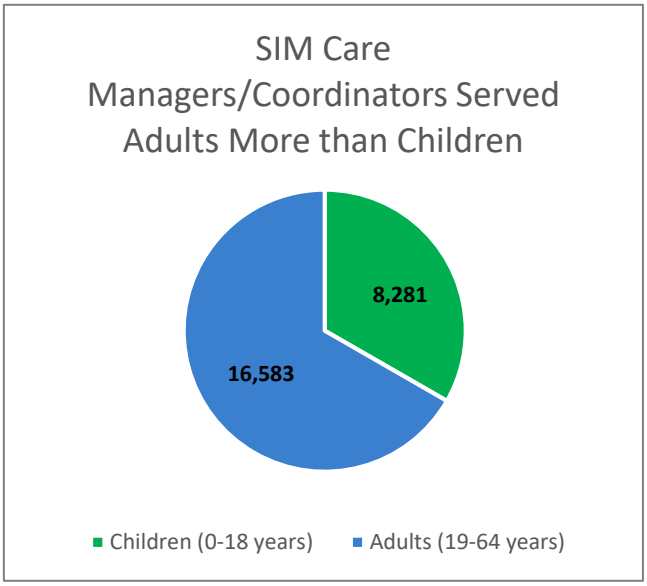
- CM/CC service documentation by SIM practices increased between 2017 and 2018.
- CM/CC service documentation did not increase appreciably among non-SIM patients.
- SIM and non-SIM patients received very different types of CM/CC, with the former receiving in-person encounters, phone assessments and team conferences; whereas non-SIM patients received primarily care transition services.
- Implementation of CM/CC billing codes varied greatly across participating PCMH provider organizations, ranging from .5% to 14%.
- 16% of SIM beneficiaries received CM after an acute hospitalization compared to 6% of non-SIM beneficiaries.

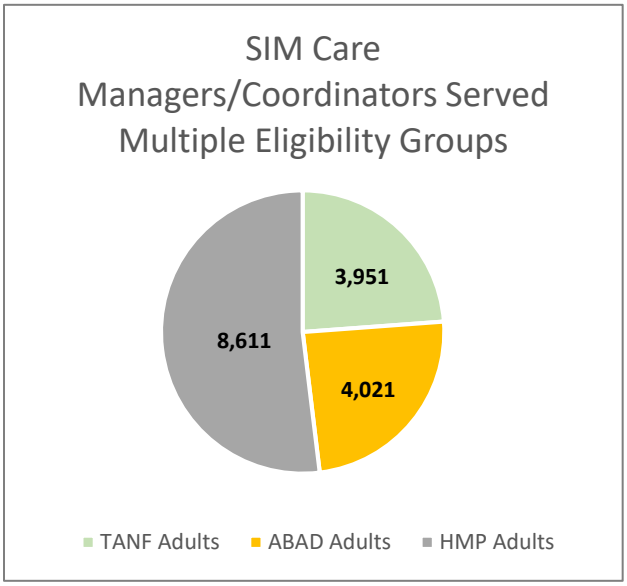




SIM Care Managers/Coordinators Served a Variety of Complex Patients

- SIM CM/CC focused on adults: with over 16,000 adults receiving CM/CC services in 2018 and 8,000 children receiving CM/CC services.
- SIM CM/CC served all eligibility categories; Healthy Michigan Plan (HMP) beneficiaries comprised half the CM/CC patient population.





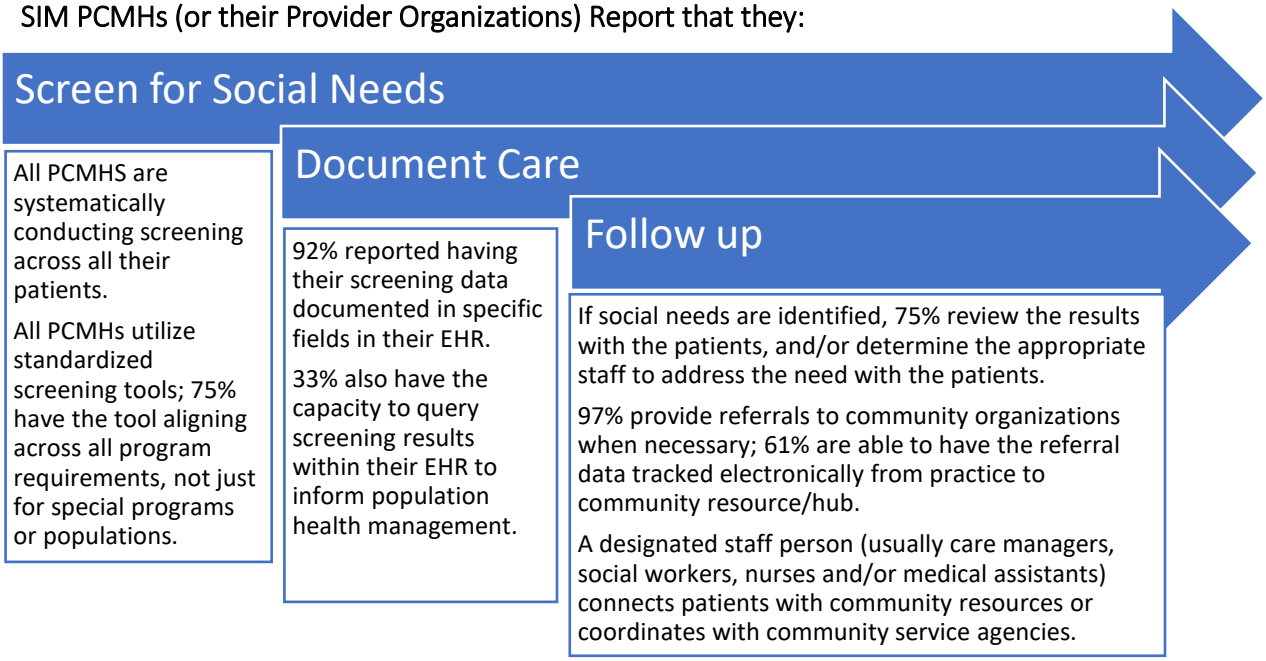
- SIM Care Managers/Coordinators addressed medically complex patients with multiple chronic conditions, including behavioral health conditions.

Top Pediatric Chronic Conditions (N=8,281)		Top Adult Chronic Conditions (N=16,583)	
ADHD, Conduct Disorders, and Hyperkinetic Syndrome	1,645	Depression	9,312
Asthma	1,642	Hypertension	8,283
Depression	1,202	Obesity	8,028
Anxiety Disorders	1,108	Anxiety Disorders	7,888
Intellectual, Learning, and Other Developmental Disabilities	784	Tobacco Use	7,244
Drug and Alcohol Use Disorders	495	Fibromyalgia, Chronic Pain, and Fatigue	6,630
Autism Spectrum Disorders	454	Drug and Alcohol Use Disorders	6,202
Obesity	437	Diabetes	4,908
Bipolar Disorder	410	Hyperlipidemia	4,763
Migraine and Chronic Headache	210	Rheumatoid Arthritis-Osteoarthritis	4,530

Layer II: SIM PCMHs Implemented Social Needs Screening to Understand and Address their Patients Holistically

PCMHs Implemented Screening and Referral Systems, Supported by Changes to EHRs

Most PCMHs were implementing screening for social referral starting in November 2017. In general, when healthcare organizations begin to address social needs, complicated choices are required related to identifying the roles of staff members, incorporating screening into patient care workflow, adapting technology, and having a plan in place to follow up. The MDHHS Care Delivery Team and its partners collected administrative data every 6 months to chart progress in these areas. MDHHS also worked with PCMHs and CHIRs to identify a set of 10 consistent areas of need that should be included: physical and mental health, healthcare affordability, food, employment, housing/shelter, utilities, family care, education, transportation, and safety. The figure below summarizes progress as of the end of 2019.



Screening Data Reveal that Many Patients Have Social Needs

Eleven POs/PCMHs worked with MPHI to provide individual level data on patients screened for social needs. Data for these 11 PCMHs/POs were summarized for the period March 1, 2017 – Sept. 30, 2019 (Appendix II). These PCMHs/POs screened 64,268 patients for social needs. Of those screened, 48% responded 'yes' to one or more of the needs in the 10 areas. The table to the right summarizes the

Needs Identified, N=64,268 Patients		
Individuals with Needs Identified	**N**	**%**
0 Needs	33,193	51.6%
Any Needs	31,075	48.4%
1 Need Only	11,934	18.6%
2-3 Needs	13,289	20.7%
4-5 Needs	4,525	7.0%
6+ Needs	1,327	2.1%

number and types of needs reported by patients.

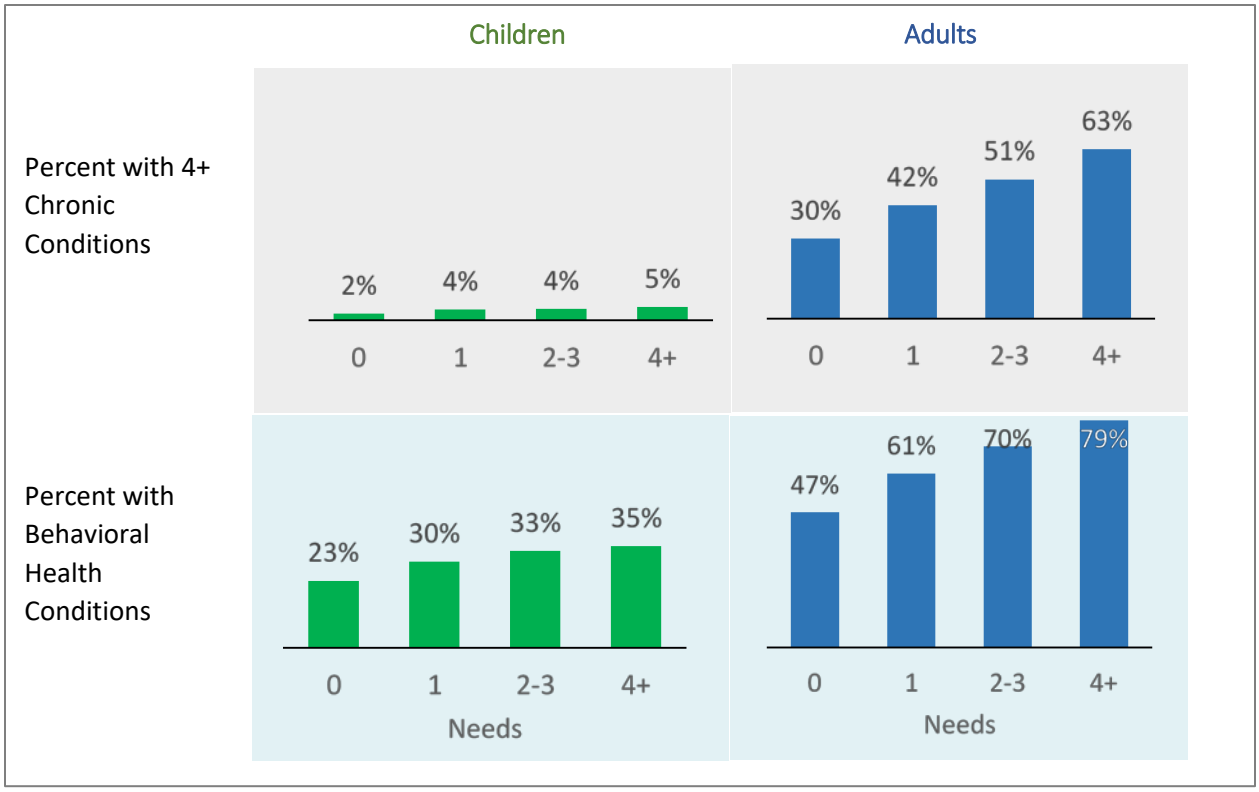
The top needs affirmed through screening relate to education, physical and mental health, and employment.

Needs Identified, N=64,268 Patients		
Areas of Need	**N**	**%**
Physical and Mental Health	11,496	17.9%
Healthcare Affordability	4,200	6.5%
Food	7,878	12.3%
Employment	10,910	17.0%
Housing/Shelter	5,106	7.9%
Utilities	6,696	10.4%
Family Care	3,396	5.3%
Education	12,456	19.4%
Transportation	6,585	10.2%
Safety	3,324	5.2%

Patients with More Social Needs Have Poorer Physical and Mental Health

MPHI matched individuals screened to the Medicaid Data Warehouse to compare how the presence of social needs coincided with the presence of medical and behavioral health conditions. MPHI categorized diagnoses in the Medicaid Data Warehouse into 48 mutually exclusive diagnostic groups based on the CMS Chronic Condition Warehouse. The top chronic conditions for children were found to be: ADHD, depression, asthma, anxiety disorders, drug and alcohol use disorders, and learning, intellectual, and other developmental disabilities. The top chronic conditions for adults were found to be: depression, obesity, anxiety disorders, tobacco use, hypertension, drug and alcohol use disorders, and fibromyalgia, chronic pain and fatigue.

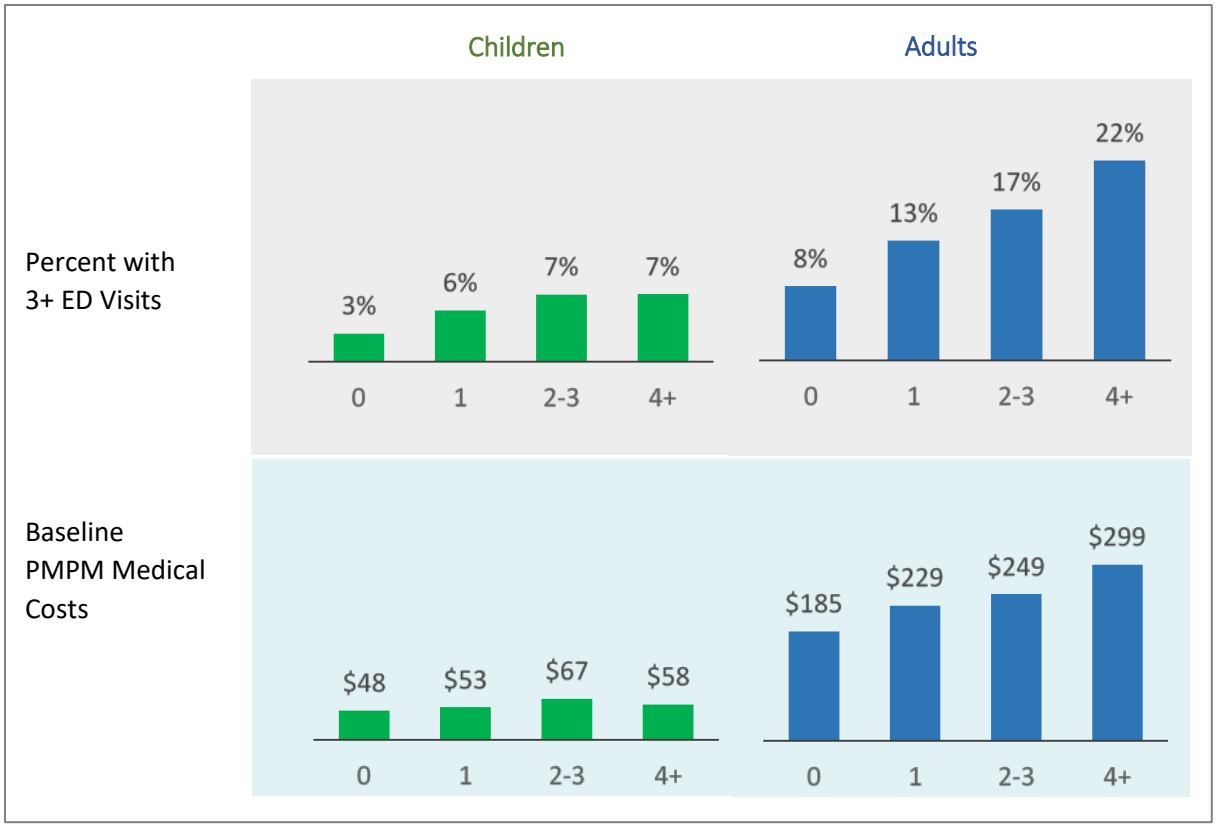
MPHI then summed the number of diagnostic groups found in the claims data per person. We further categorized conditions that fell into a 'behavioral' health category. Our methodology and full results are found in Appendix II. Overall there is a pattern: the more needs people report on the social needs screen, the more likely they are to have a number of chronic physical and behavioral health conditions. The chart below reports the relationship between number of social needs and likelihood of having multiple chronic conditions or a behavioral health condition. We found similar results across the most common individual diagnoses as well.



Patients with More Social Needs are Found to be More Likely to Visit Emergency Departments and Have Higher Average Medical Expenditures

For individuals who were screened and had a full year of Medicaid eligibility for the baseline year, MPHI counted the number of emergency department (ED) visits, acute hospitalizations, and computed average per member per month (PMPM) medical expenditures. We looked back through the claims history for each of these individuals for the one year prior to their social needs screening.

Consistent with the finding that people with more social needs are more likely to have multiple chronic health conditions, people with more social needs are more likely to have ED visits, acute hospitalizations, and higher medical expenditures. The figure below depicts this relationship for two indicators: the percent of adults and children with three or more ED visits, and the average medical expenditure. For instance adults reporting four or more social needs have on average $114 higher medical expenditures every month over a one year period than people reporting zero social needs (computed as $299-$185).



Both Patients and Providers Affirm the Importance of Social Needs Screening

Thus, the evaluation findings demonstrate an association between social needs, chronic health conditions, and medical service utilization and spending. The question becomes: should healthcare settings do anything about this association? The evaluation results note that a strong majority of both patients and primary care providers believe the SIM intervention - social needs screening and linkages to services by PCMHs – is important and appropriate.

Summary of Patient Feedback

UM-CHEAR conducted a survey of adult Medicaid beneficiaries and parents of child beneficiaries who had recent visits to their PCMH provider, and thus had an opportunity to have been screened for social needs (Appendix III). 1,883 adult patient & parents of children responded for a combined 16.5% response rate. Findings show that a large number of PCMH patients remember being asked about any concerns they had 'about food, housing, bills, or other life challenges', *and* believe it is appropriate for their primary care provider to ask about those needs. Specifically, of those responding:

- About 40% of patients and parents recalled SDOH screening at their PCMH.
- About half of adults, and 1 in 3 parents, said they reported having a social need when screened by their PCMH.
- 3 in 4 of those patients/parents said the PCMH talked with them about how to get help.
- 4 in 5 patients and parents feel that PCMHs *should* ask about SDOH.

Patients responding to the survey who reported social needs were also asked to participate in a telephone interview: 464 people completed those interviews. Key points from those patient interviews include:

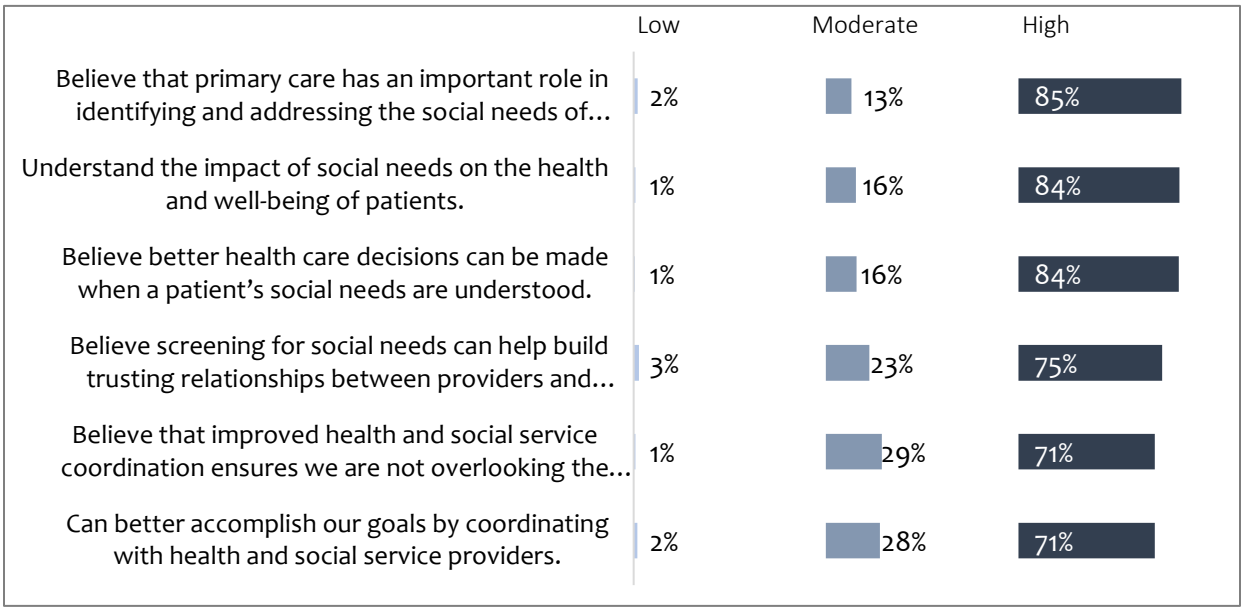
- Most patients/parents gave consistent information about social needs on both the survey and interview when the two data sources were compared.
- Patients/parents reported a variety of social needs; and that health problems often exacerbate other challenges.
- Over half of respondents had no other social screening.
- Among patients who said the PCMH addressed their social needs, most were referred to another agency.
- Among those who said they did not want help, over half felt they could handle it on their own OR thought the PCMH could not do anything.

Provider Feedback

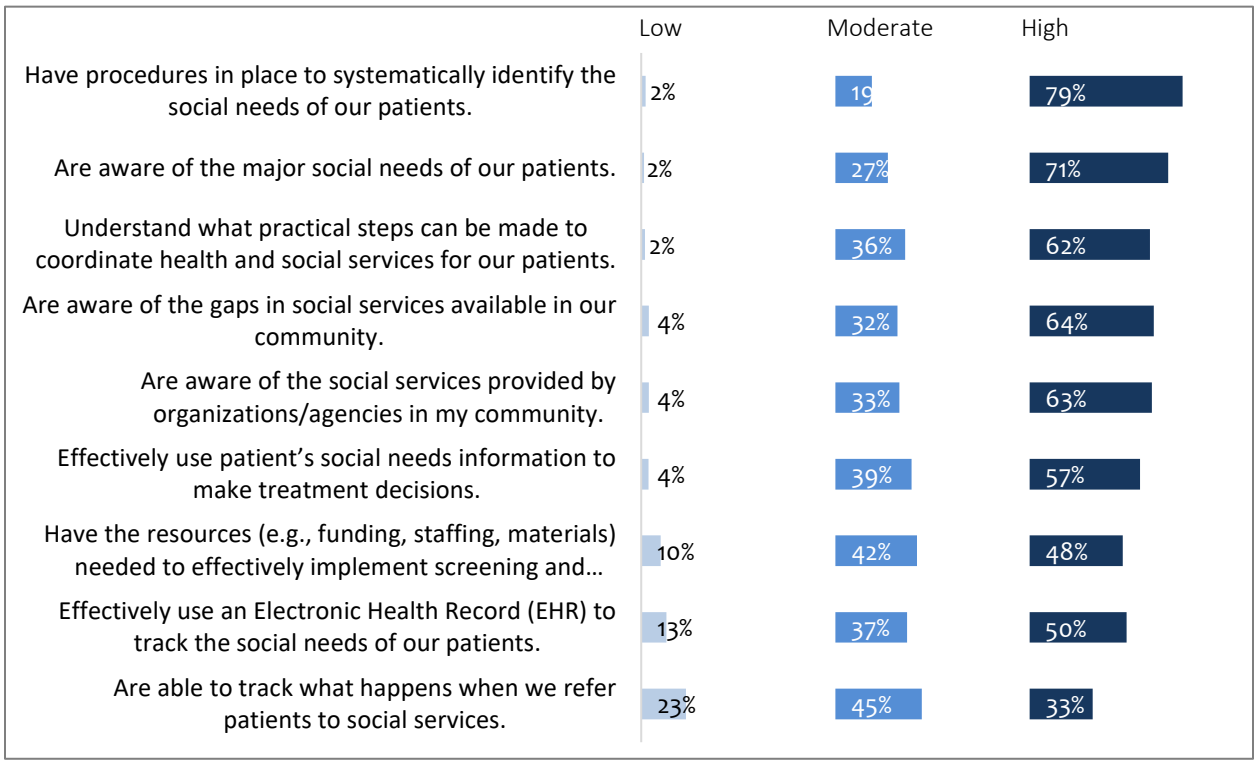
MPHI coordinated administration of a provider survey in 2018 and 2019 to assess attitudes and practices in PCMHs relative to CCL (Appendix IV). In 2018, 890 respondents included Primary Care Providers (PCPs) (n=125, 14.0%), care managers/care coordinators (CM/CCs) (n=205, 23%), Practice Administrators (n=104, 12%), and PO Staff (n=65, 7%). A total of 391 respondents did not provide a role. In 2019, 608 respondents included PCPs (n=170, 28%), CM/CCs (n=129, 21%), Practice Administrators (n=75, 12%), and PO Staff (n=112, 18%). A total of 122 respondents did not provide a role.

In 2019, as in 2018, responding PCMH professionals endorsed the importance of addressing patients' social needs as part of healthcare delivery. Providers reported varying capacity to conduct the CCL: while screening procedures were largely in place; providers reported less capacity in following up based on positive screens. Half reported being able to track patients' needs with their EHR; a minority reported being able to track referral outcomes. Resources were not always deemed sufficient.

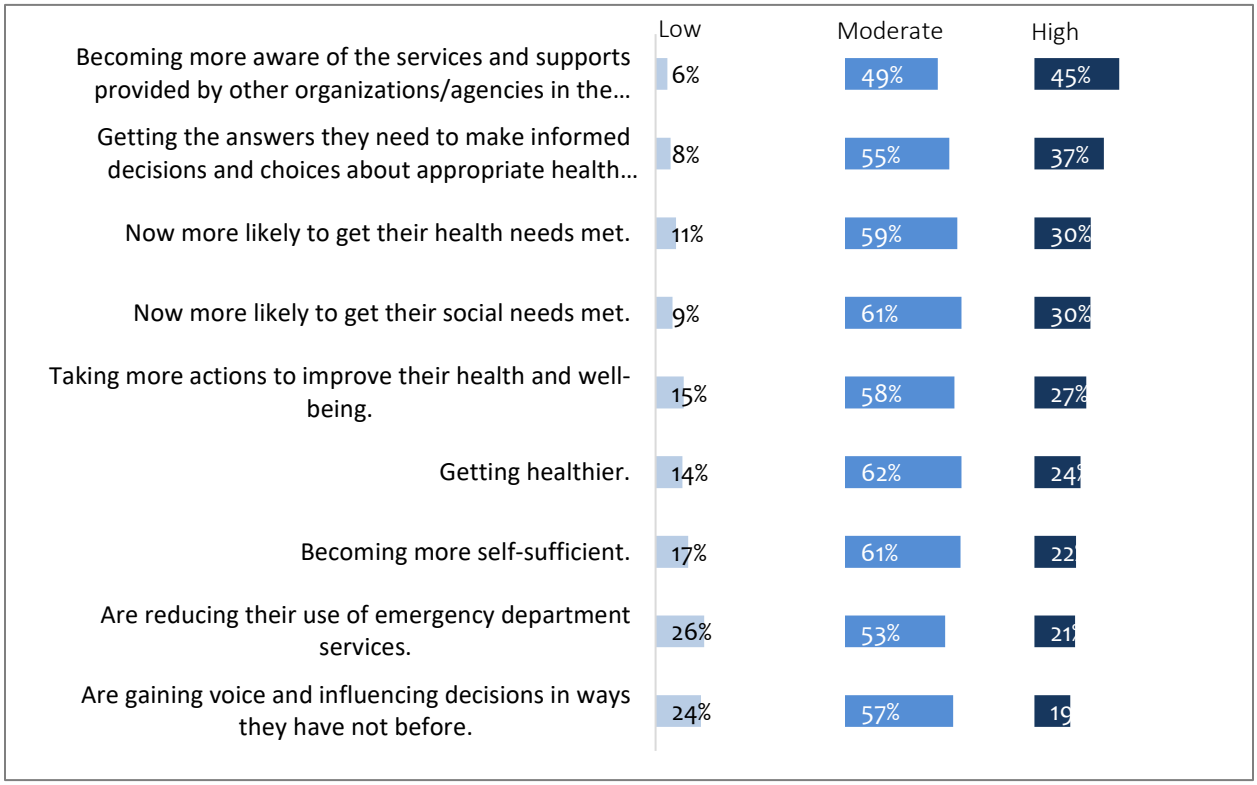
Providers report high levels of agreement when asked about the importance of addressing social needs



Providers report high capacity in some areas of CCL activity, and much lower capacity in other areas

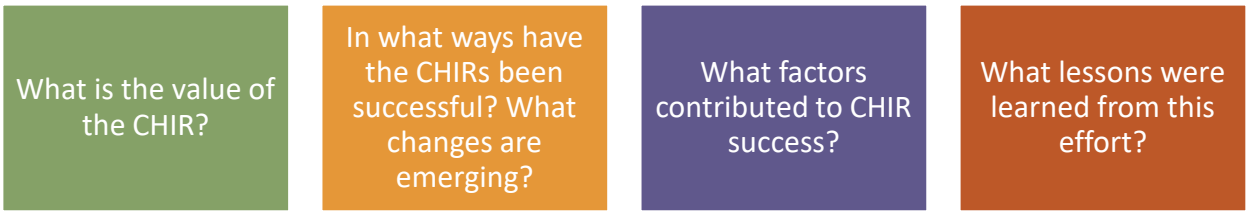


Providers are unsure if their CCL efforts are impacting patients



Layer III: CHIRs Coordinate Efforts to Improve Community Well-Being

Between 2017 and 2019 the System exChange team at Michigan State University evaluated the collective impact process and outcomes of the five Community Health Improvement Regions (CHIRs) in Michigan (Appendix V). Four questions guided this evaluation:



A mixed-methods approach was used to conduct this evaluation. Survey data, key informant interviews, and secondary data from CHIR documents were collected between 2017-2019. A state-level evaluation advisory committee, consisting of state and local CHIR representatives was formed to guide evaluation design. State and local CHIR members were engaged in making sense of evaluation findings. Below is a description of the evaluation framework and data collection methods.

CHIRs Convene Stakeholders, Facilitate Development of Shared Vision and Goals, Engage Partners, and Align Systems

The CHIR Transformative Change Framework was developed to understand and identify those factors that contribute to CHIR effectiveness. Following a comprehensive literature review of the collective impact, community change, systems change, coalition/collaboration, and SDOH literatures, six elements that need to be in place within CHIRs to ensure they create sustained, transformative change were identified:

1. **Effective Convening:** A combination of convening, implementation, and facilitation processes support the effective engagement of diverse stakeholders in collective efforts. Includes the presence of a trusted, effective backbone organization (BBO), an inclusive culture, ongoing communication efforts, and the development of a valued collective effort.
2. **Shared Vision & Goals:** The adoption and integration of a shared vision that guides aligned actions across diverse stakeholders. Also includes the ongoing championing of this vision by CHIR members and the development of public will for these goals.
3. **Engaged Diverse Partners:** The active inclusion of diverse stakeholders and sectors who hold different perspectives of the problem and possible solutions. Effective systems engage these stakeholders in multiple ways by soliciting input and supporting them to become empowered change agents themselves.
4. **Aligned Systems:** The capacity of local stakeholders to transform their local community, the initiation of needed policy/practice changes within and between local organizations, and the emergence of transformed conditions that

> *This is really important work. The fact that we're 2 years in and we have, in many respects, more individuals around the table than when we started - and continue to engage in excitement around the work - speaks volumes to the effectiveness of what the CHIR can do.* ***It is my hope that we can find a way to sustain and spread what we've been able to accomplish.***
>
> -Health Sector, Member

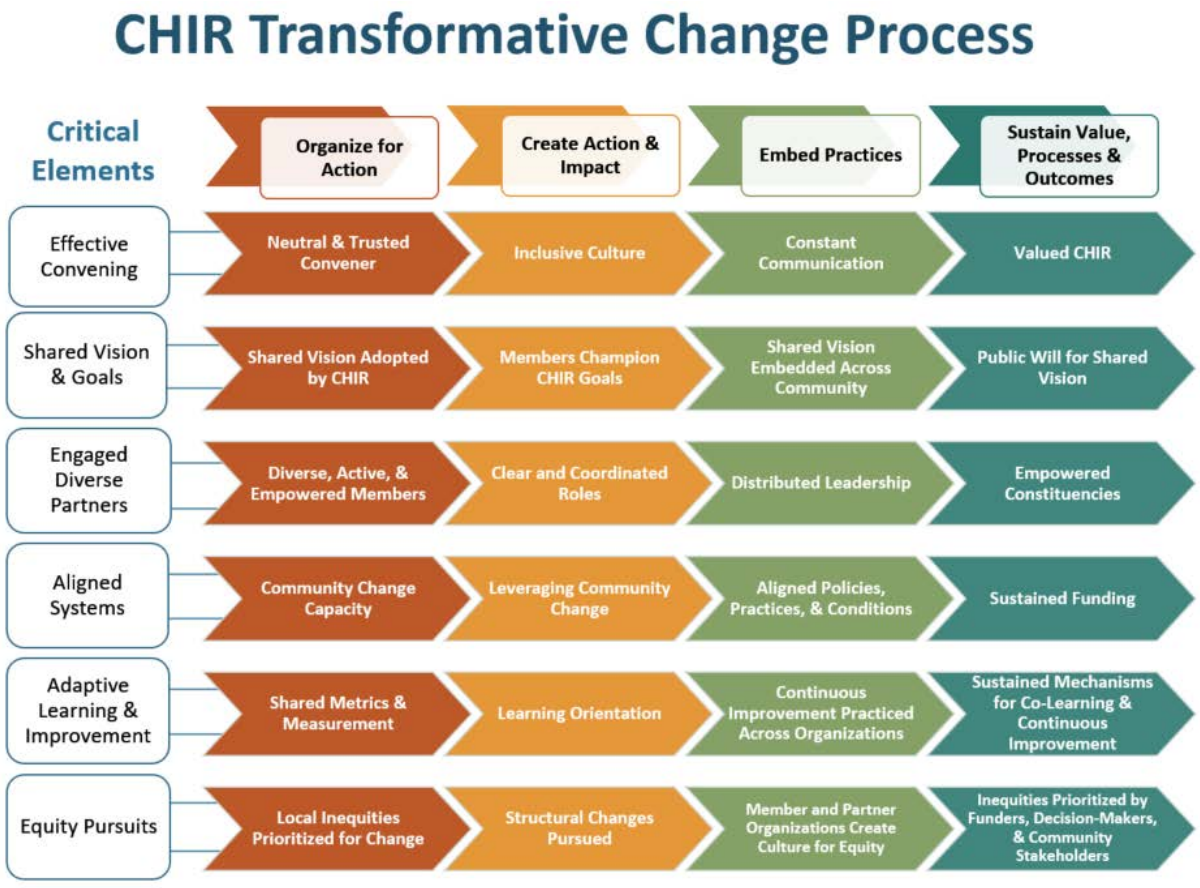
promote greater system integration and alignment around the shared vision.

5. **Adaptive Learning and Continuous Improvement:** The integration of a continuous learning orientation within the collective and participating organizations which includes effective use of feedback and data, rapid problem-solving, and adapting in response to insights and contextual shifts.
6. **Equity Pursuits:** A focus on understanding and targeting disparities in processes, outcomes and the sources of this disadvantage in the collective and participating organizations.

The CHIR evaluation also accommodates the developmental nature of the community/systems change process. Following a review of other community change developmental frameworks in the gray and academic literatures, four stages of change were identified:

- **Organize for Change:** Involves the foundational work of forming the collective and building the capacity to pursue a shared agenda
- **Create Action and Impact:** Involves the engagement of diverse stakeholders in initiating aligned actions in support of the shared agenda
- **Embed Practices:** Involves the integration of the collective agenda into the work of local organizations and surrounding community system
- **Sustain Value, Processes, and Outcomes**: Involves the alignment of public and key stakeholder support around the shared agenda and activation of a more empowered resident base

The figure below illustrates the CHIR Transformative Change Process Framework. This framework guided both the quantitative and qualitative data collection activities in 2018 and 2019.



CHIR Survey

To understand the form and functioning of each CHIR and the factors associated with CHIR success, a survey of key cross-sector representatives within each CHIR was conducted in 2018 and 2019. Survey items were developed to measure each of the 24 components of the CHIR framework. Items were adapted from existing measures whenever possible.

Data for the Collective Impact Survey was collected during two waves:

- Wave 1: Spring and Summer, 2018
- Wave 2: Fall, 2019

To determine who would receive a survey, the CHIRs provided rosters of community members, divided into the categories of **Member**, **Partner**, and **Stakeholder** based on their connection to the CHIR's work. Each of these groups received a survey unique to their perspectives on the work. Members and Partners were asked different questions about the transformative change process, appropriate to their broader role and level of involvement with the CHIR.

Key Informant Interviews

Backbone staff within each region nominated CHIR members, partners, and stakeholders to interview in 2018 and 2019. Interviewees were selected to ensure cross-sector representation and a longitudinal perspective. In all, 186 interviews were conducted between 2018 and 2019.

CHIR Members and Partners Report Paradigm Change; Increased Effectiveness, Integration and Efficiency; and Transformed Lives

Evaluation findings in 2018 and 2019 provide strong evidence for the value of the CHIR within the initial five regions. Survey and interview data indicate that CHIRs have significantly strengthened cross-sector partnerships, particularly between the health and social sectors. More importantly, through CHIR efforts, a community system is starting to emerge that is more aligned with moving health upstream:

- **Individuals from health and social sectors described a significant paradigm change** about health across their regions and reported **they are more likely to integrate a focus on the social determinants of health into their own work**. This impact is greatest for health sector representatives in 2019.

- Leaders reported that their organizations are becoming more effective because they are gaining knowledge and access to needed resources. Health sector organizations appear to be gaining the most benefits through their involvement.
- **CHIR members and partners reported that the community system has become more integrated and efficient, with significant improvements in service coordination and referral processes.** Even community stakeholders not engaged in CHIR efforts are reporting significant improvements in local health and social sector partnerships.
- CHIR members and partners reported that lives are starting to be transformed as individuals are gaining improved access to needed services/supports and are getting their needs met.

These outcomes emerged, in part, because CHIRs have created a collective innovation space for their region, a place where diverse stakeholders worked together to design innovative solutions to shared problems. CHIRs succeeded more in these collective efforts when they had:

- An effective backbone organization providing needed convening and implementation supports.
- A shared vision guiding collective efforts and integrated into local organizational operations.
- Empowered residents engaging in making decisions and taking action to improve their lives and communities.
- Local capacity to transform local conditions, including developing knowledge and skills related to policy/environment change, targeting local inequities, and leveraging resources for needed changes.
- An active learning culture within the collective and adopted by local organizations.
- A prioritization of equity and a reduction of local inequities.

Importantly, while multiple factors and conditions influenced CHIR effectiveness, two factors emerged as critical influencers: **Empowered Residents** and a **Continuous Learning Orientation**. Growth in these two factors significantly influenced simultaneous growth in all six outcomes examined in the CHIR survey. Interview data with key informants confirmed the critical role these two factors are playing in CHIR effectiveness. Because levels of these two factors remain relatively low across most CHIRS, continued efforts to strengthen these conditions within all regions seem important.

In addition, it is also important to note that our multilevel, multivariate longitudinal analyses suggest that changes in CHIR characteristics impact the range of CHIR outcomes differently: improvement in CHIR characteristics appear to have the **most effect on changes in organizational benefits** and the **least effects on changes in access to services**. When CHIR operations became more effective between 2018 and 2019 (e.g., better convening, stronger integration of the shared vision), these improved operations seem to have a powerful impact on the direct benefits derived by participating organizations. This finding is not surprising as CHIR operations create the context through which organizations can meaningfully gain the resources, information and relationships needed to improve their effectiveness. The low impact on access to services is also not surprising, as larger contextual forces (at the community, state, and federal level) constrain access to local resources (e.g., availability of affordable housing). Until the CHIR tackles these forces directly – through advocacy, policy change, or engagement of other sectors such as city officials – no matter how effective CHIR operations become, it is unlikely that significant improvement will happen in this outcome area.

In conclusion, CHIRs emerged as a worthwhile investment during this early implementation period. While CHIRs varied significantly in their strengths and accomplishments between 2017-2019, it appears they are creating the conditions needed for moving health upstream within their regions. Certainly, key

to their future success will be the ability to improve the social determinant of health conditions within their region. This is a far more daunting task and CHIRs would benefit from significant leadership and support from state-level stakeholders as state AND community-level solutions are needed.

Layer IV: CHIRs Coordinate Care between Healthcare Settings and Community Services

As described in the last section, a key purpose and outcome of the CHIR is to improve community referral systems, making them more integrated and efficient. This final section of the report provides quantitative data backing up CHIR member and partner perceptions.

CHIRs Identify Needs and Improve Access to Holistic Services

CHIRs Implemented Clinical Community Linkages (CCL) Models with Common Features

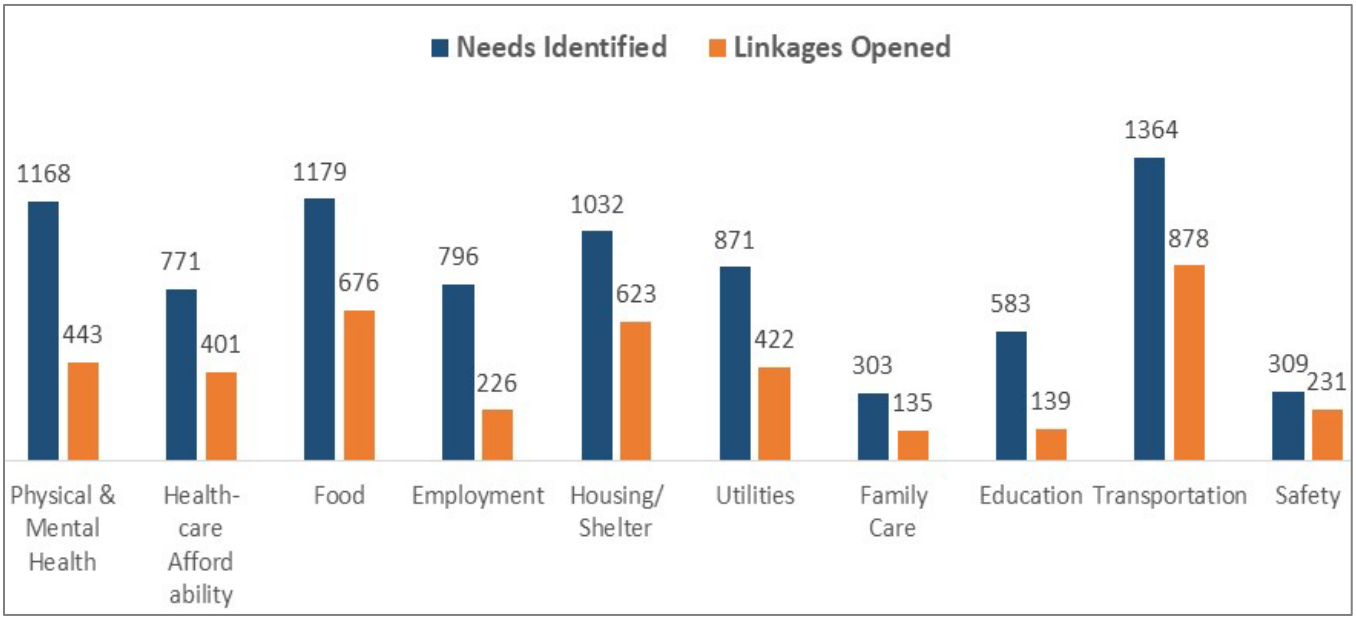
All CHIRs worked with healthcare providers and other partners to implement social needs screening and linking individuals to health and social care across the community, referred to as clinical-community linkage (CCL). The CCL models were co-designed with local partners, and necessarily varied in some details. They had in common mechanisms to identify people with both social and medical needs, refer those with greatest need to a centralized intake and referral system (often called a 'Hub'), assign a community health worker (CHWs) to coordinate their care, and track needs identified and addressed. Each CHIR described their system as follows:

- **Genesee CHIR** implemented **a universal SDOH screening tool across clinical and non-clinical providers**, worked with Great Lakes Health Connect to create **a Community Referral Platform**, and monitored the resulting **data repository** in order to quantify needs prevalent in the community and promote more efficient resource allocation.
- **Jackson CHIR** brought together front-line community and medical service staff, leaders, and IT professionals to develop a **shared technology platform** to allow for **screening and assessment at social and health service organizations across the CHIR**. The referral tool uses **Central Michigan's 2-1-1 service database**. They then confirm people are receiving needed services.
- **Livingston-Washtenaw CHIR** prospectively identifies **people at risk for frequent ED use and not currently engaged in care**. Care coordinators and CHWs in 'hublets' (organizations providing social and health services) reach out and **support individuals** to get their needs met.
- **Muskegon CHIR** also created an **IT platform** and implemented a **screening and referral process** to identify social and health needs. Providers and coordinators track patients throughout the process and share data with a central **repository**.
- **Northern Michigan CHIR** organized over 90 cross-sector partners into Action Teams to address priority SDOH. They implemented a **universal screening tool and referral process** across 10 counties. A Community Connection Hub assigns a **nurse, social worker or CHW** to **coordinate** services.

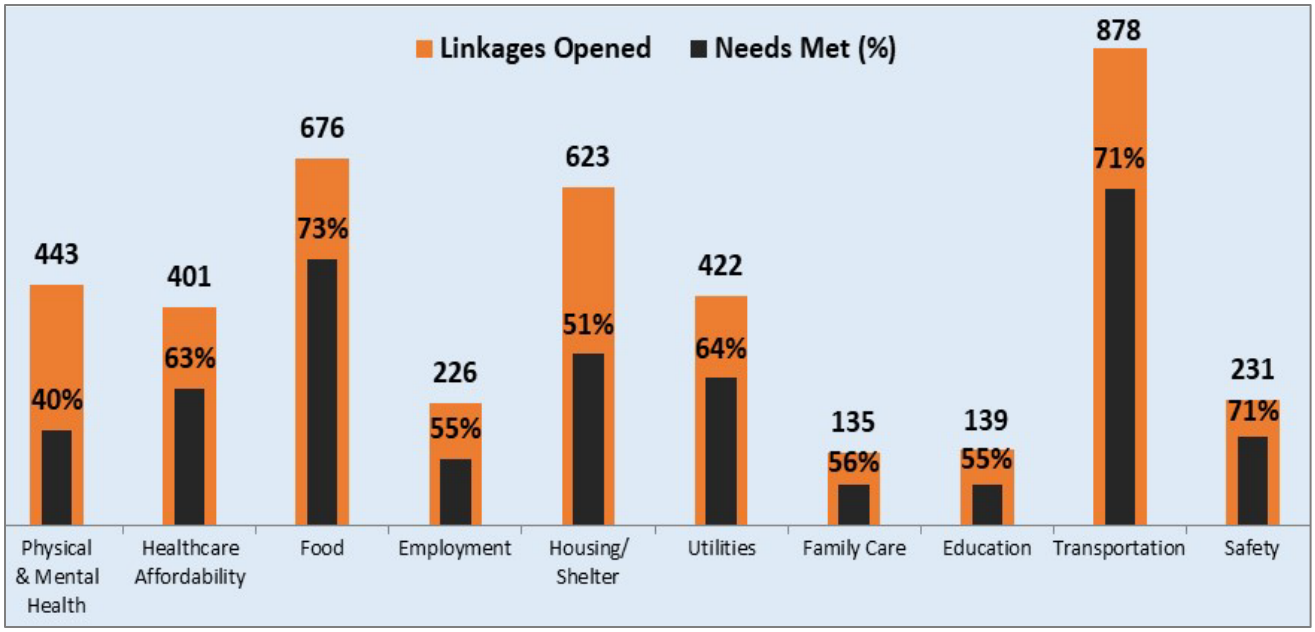
CHIRs use IT and coordinate care either through designated entities (referred to by the generic term 'hub'), or through provider or other entities in the community.

In this section we show data on the clients served by the designated hub-type entities in four CHIRs (Appendix VI). When needs were less extensive, PCMHs or other entities would generally provide the coordination themselves rather than refer to the hubs. The latter generally focusing on clients with higher needs. For purposes of creating a dataset that was consistent across all CHIRs we focused on a one-year period of activity July 2018 – June 2019. Exceptions were Genesee who provided data for an earlier time period (calendar year 2018) and Muskegon, whose repository was as yet unable to distinguish clients served by the hub and clients served by PCMHs.

During a one-year period, the four CHIR hubs served 3,422 clients. Most common needs were: transportation, food, physical and mental health and housing/shelter.

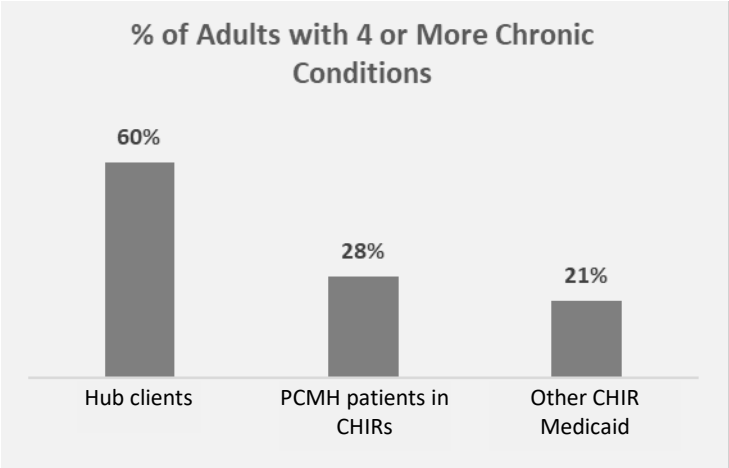


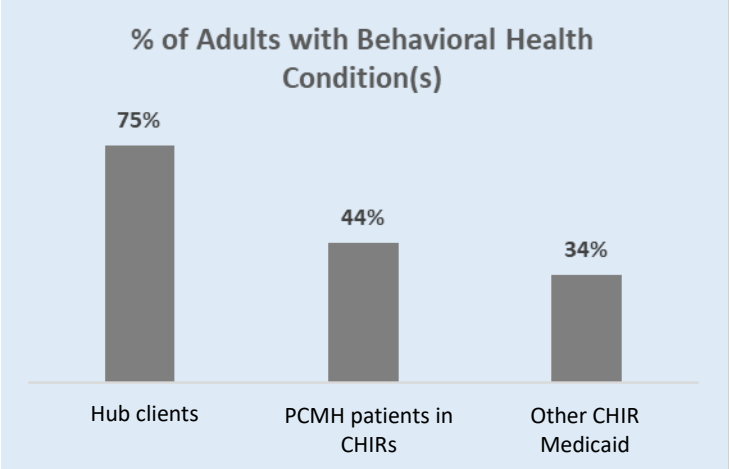
Ability to meet needs varied by domain (for instance housing is often in short supply). Areas of food and transportation were more frequently met (73% and 71% met, respectively), compared to other needs. Data here represent a snapshot in time, needs not 'met' may still be in process of being addressed.



CHIR Hubs Reach Adult Medicaid Beneficiaries with Chronic Medical and Behavioral Health Conditions

MPHI used information on clients provided by CHIRs to access and analyze Medicaid claims data. Incomplete or incorrect identifying numbers prevented a perfect linkage; but we were able to identify 2,335 clients in the Medicaid Data Warehouse. Using recorded diagnoses to identify chronic conditions, we noted the following among 778 adults with chronic condition information available.





Adults being served by the CHIR hubs have high rates of multiple chronic conditions and behavioral health conditions when compared to other Medicaid beneficiaries in CHIRs. In the figure (left) Hub clients are compared to other Medicaid beneficiaries in the CHIRs, including SIM PCMH patients (middle column) and patients not served by a PCMH (right column). The most common conditions are below.

Top 10 Chronic Conditions
Depression
Anxiety Disorders
Tobacco Use
Drug and Alcohol Use Disorders
Fibromyalgia, Chronic Pain, Fatigue
Hypertension
Obesity
Rheumatoid Arthritis/Osteoarthritis
Chronic Obstructive Pulmonary Disease and Bronchiectasis
Bipolar Disorders

Children Are a Major Focus of Some CHIR Hubs

Across the four CHIRs with linkage data, children comprised more than half the clients. This varied greatly by CHIR with both Jackson and Livingston/Washtenaw focusing more on adults. The justification for focusing on children has less to do with current chronic conditions than prevention of future ones. Even so, data on 1,381 CHIR hub pediatric clients show that they are more likely to have certain chronic conditions than the general Medicaid pediatric population. Among **pediatric hub clients** we found:

- **13%** have a diagnosis of **asthma compared to 6%** of other CHIR children enrolled in Medicaid
- **8%** have a diagnosis of **learning or developmental disability** compared to **4% of other** CHIR children enrolled in Medicaid

Evidence that Providers and Patients in CHIRs Experienced the PCMH CCL Process Differently than Providers and Patients Outside of CHIRs

One of the hypotheses that the SIM project tested is that CHIRs reduce the burden on health care settings by providing an organized community response to social needs screening and referral (the CCL process). Comparing both patient and provider survey findings from inside and outside of CHIRs provides some evidence for this – reinforcing the member and partner feedback summarized in the

previous chapter. We presented the main patient and provider survey findings in the second chapter (Layer II). Here we present additional findings from those two data sources.

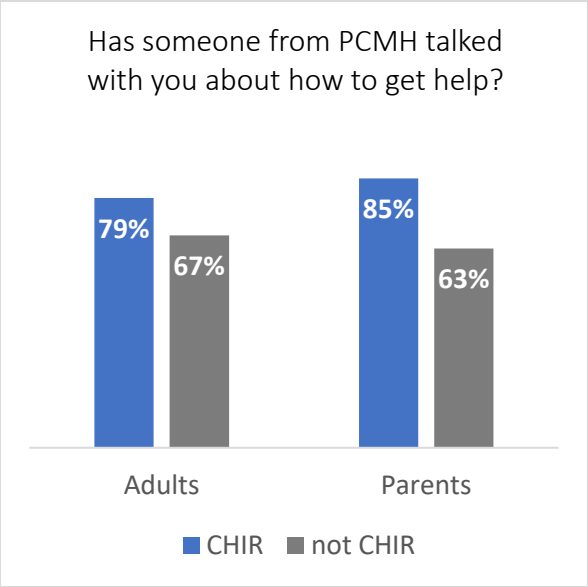
Providers in CHIRs More Supportive of CCL Process

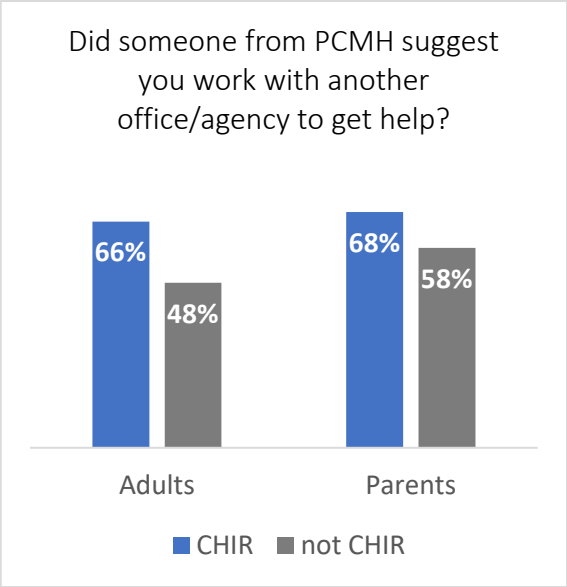
In terms of the provider findings, many of the differences inside and outside of CHIRs showed up in 2019 but were not present in 2018. This makes sense because the CCL models were still quite new in 2018, and their impact may not have been felt.

- In 2019, providers inside CHIRs were more likely to perceive the importance of social needs screening than providers outside CHIRs.
- In 2019, providers in CHIRs reported 4% higher levels of Implementation progress than providers outside CHIRs.
- In 2019, compared to providers located outside of a CHIR, providers located within a CHIR reported:
  - 21% higher scores for advocating for changes to make their community healthier
  - 18% higher scores for understanding what community investments are needed to improve patient access to needed services in their communities
  - 16% higher scores for advocating for local changes that would improve service access and/or coordination of their patients
  - Similar levels of supportiveness for efforts to implement screening and referrals for social services for their patients
- In 2018 and 2019, providers in CHIRs were more likely to recognize the role of a coordinating organization that helps coordinate systems change across the community and within the practice.
  - Respondents located inside CHIRs reported higher levels of agreement with statements related to the support of a coordinating organization in their community than did respondents living outside a CHIR
  - CM/CCs and primary care providers inside CHIRs were especially more likely to recognize the role of a coordinating organization as compared to CM/CCs and primary care providers outside CHIRs

PCMH Patients in CHIRs More Likely to Report Follow Up on Social Needs

Another piece of evidence of the role of the CHIR in increasing the capacity of PCMHs to effectively incorporate the CCL model comes from comparing responses to the survey conducted by UM-CHEAR with patients served by PCMHs inside and outside of CHIRs. The graph below compares how adult Medicaid beneficiaries and parents of child Medicaid beneficiaries answered two questions: 1) Has someone from the PCMH talked with you about how to get help [for social needs]? And 2) Did someone from PCMH suggest you work with another office/agency to get help? Patients/parents in CHIRs were more likely to answer yes to both of those questions than patients/parents outside of CHIRs.





What About Emergency Department Use Reduction and Cost Savings?

The work of the CHIRs drew heavily on an earlier clinical community linkages model in Michigan. Michigan Pathways to Better Health (MPBH) was implemented in three Michigan regions centered within Ingham, Muskegon, and Saginaw Counties beginning January 2013 through June 2016 with a $14 million Healthcare Innovation Award from the Centers for Medicare and Medicaid Innovation to serve Medicaid and Medicare beneficiaries with two or more chronic diseases. MPBH was a community-based care navigation model, implemented by multiple local agencies across a community, organized by a Hub that coordinates referrals and tracks outcomes using a central database. Community Health Workers were recruited from within the communities to engage participants to meet both medical and social service needs and ensure clients are linked to care.

MPHI conducted a retrospective evaluation of the effectiveness of MPBH among Medicaid adult participants, through selecting a matched comparison and estimating the relative changes in medical cost, emergency department visits, and acute hospitalizations. The evaluation found that

- Cumulative gross cost savings started at 3rd quarter post MPBH enrollment, though there was no significant net cost savings after discounting the intervention cost.
- Statistically significant reduced risk of hospitalization started at 8th post-quarter.
- There was no significant reduction in ED visits.

Based on this experience, foundations for a future evaluation of the CHIR CCL model were laid during SIM. Future analysis can build on this foundation to conduct a rigorous study – selecting a comparison group and statistically controlling for demographics, medical risk, and other factors. Here we describe: 1) statistical analysis of the requisite number of cases needed for cost savings analysis, and 2) baseline data from early CHIR Hub clients.

Power Analysis

A statistical power analysis was performed for sample size estimation for comparing two groups across time (CHIR CCL group and CHIR non-CCL comparison group), based on the method provided in Hedeker, Gibbons, & Waternaux (1999).[3] Power analysis is normally conducted before data collection. Power is the probability of detecting an effect, given that the effect is really there. The main purpose underlying power analysis is to determine the smallest sample size that is suitable to detect the effect at the desired level of power and statistical significance. If the smallest sample size is not met, the analysis would not be able to detect the effect, even if the effect is there.

Assuming four data points prior first CCL service date, and four data points after first CCL service date are analyzed, with an alpha = 0.05, power = 0.80, effect size = 0.10, and the correlation among repeated data points = 0.76 for pediatrics, 0.56 for adults (based on the first submitted Northern CHIR CCL data).

- **We found that the projected number of CHIR hub clients with complete data needed for analysis is approximately 1,234 children and 956 adults.**
- Based on this, a matched comparison group of similar numbers can be selected to enable an answer to the question with reasonable certainty: "What would cost and utilization have been like without the CHIR hub service?"
- In addition, we note the following constraints to future analysis:
  - The actual number served will need to be larger than the number of cases in the analysis for the following reasons: inaccuracy and incomplete capture of identifiers prevent matching all those served to the data; not all people are eligible for a long enough time to have enough data to analyze.
  - Final analysis should allow for approximately one year of data following service plus a six-month period of time after that for the claims data to accumulate and be complete.

Understanding Historical Cost and Utilization Points to Potential for Reduction

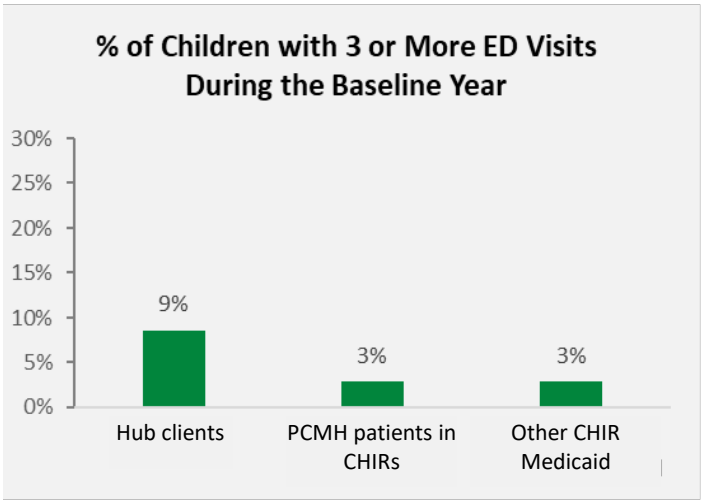
Understanding historical cost and utilization of emergency departments and hospitals by CHIR hub clients accomplished two things during SIM: 1) it demonstrates that costs and utilization can be tracked for this population, and 2) it helps us understand whether there is an opportunity for reduction from historical levels. Here we present raw data on ED visits, acute hospital admissions, and per member per month (PMPM) medical expenditures. We analyzed 940 CHIR hub pediatric clients and 544 CHIR hub clients who had four quarters of Medicaid eligibility before their first CHIR hub service.

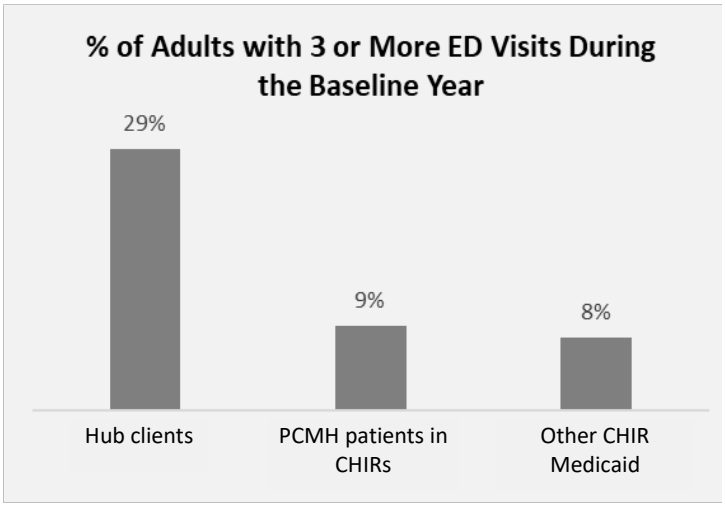
CHIR Residents Included in Cost /Utilization Analysis	Children	Adults
CHIR hub clients	940	544
CHIR residents, not hub clients, are SIM PCMH patients	70,420	66,992
CHIR residents, not hub clients, and not SIM PCMH patients	36,178	51,930

[3] Hedeker, Gibbons, & Waternaux (1999). Sample size estimation for longitudinal designs with attrition. *Journal of Educational and Behavioral Statistics*,24:70-93.

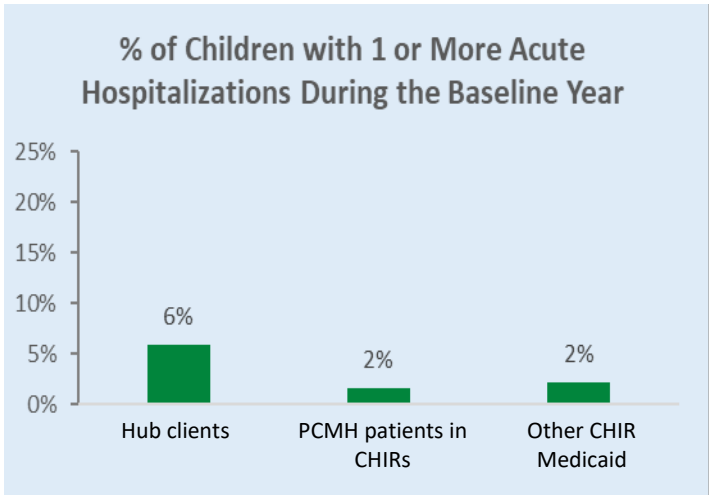
CHIR hub clients are represented in column 1 in the following charts. Column 2 summarizes data from CHIR residents with four quarters of Medicaid eligibility who were served by SIM PCMHs. Column 3 summarizes data on CHIR residents with four quarters of Medicaid eligibility who were not SIM PCMH patients. All charts depict data on the experience CHIR Hub clients during the year immediately prior to hub services relative to that of the general population in a comparable 1-year time frame.

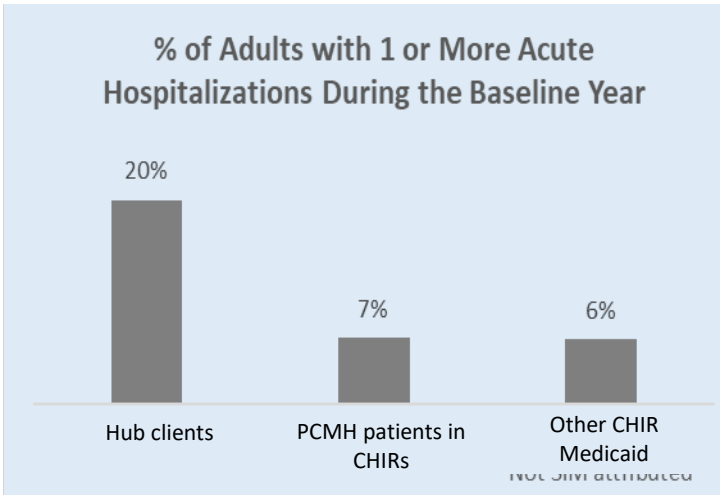
CHIR Hub Clients are Three Times More Likely to Have a History of Frequent ED Usage



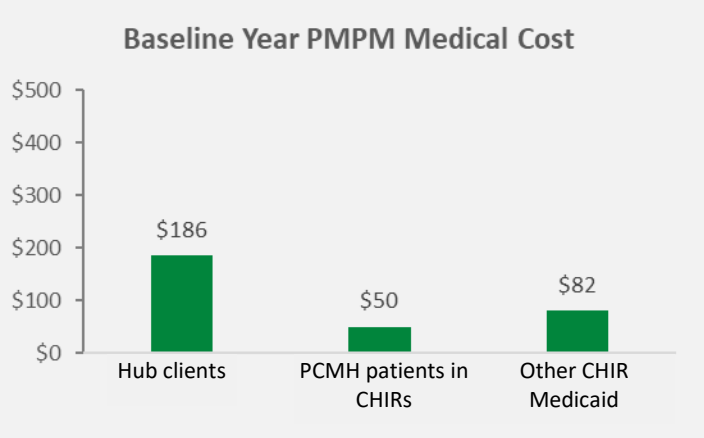


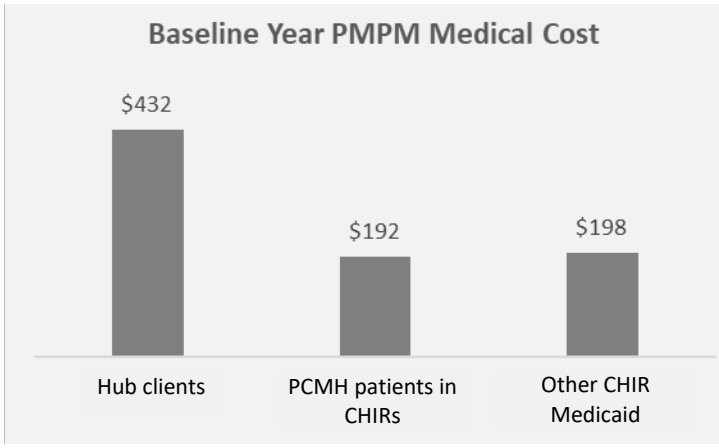
CHIR Hub Clients are 3-4 Times More Likely to Have a History of Acute Hospitalization





CHIR Hub Clients Have a History of Greater Medical Expenditures – Indicating Potential for Cost Savings





Conclusion

In summary, Michigan's CHIR and PCMH models were designed to work together to improve population health in the following ways:

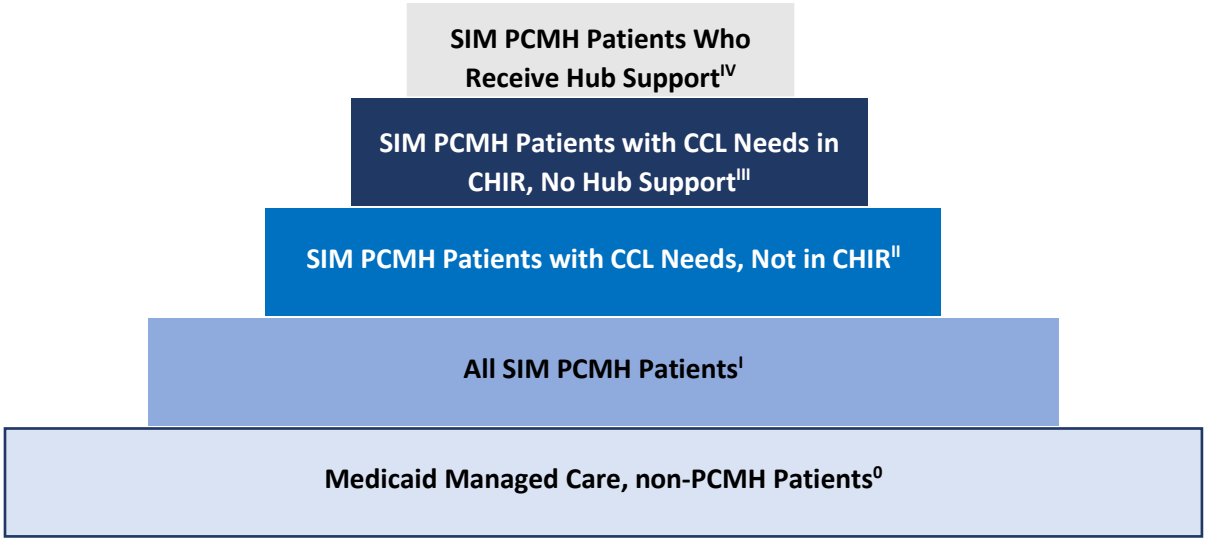
0 As the foundation, Michigan Medicaid is a mature managed care model, in which contracted health plans are required to be certified and provide care management, CHW services, and work with community organizations.

I. SIM PCMH builds on Medicaid managed care and the MiPCT model, a multi-payer demonstration in operation 2012 – 2016. A core component is provider delivered care management (CM) or care coordination (CC).

II. SIM PCMH goes further than MiPCT by screening for and addressing social needs by referring patients to social service providers.

III. Within a CHIR, population level root causes of poor health (social determinants of health) are addressed through systems, policy and environmental change initiatives organized by multi-sector collaborations.

IV. Within CHIRs, hubs or other entities coordinate health and social services to provide whole person care.



Data from the evaluation of SIM (as well as earlier foundational care models) support the hypotheses underlying the design of SIM components, while additional time will be required to measure improved health, quality and cost effectiveness.

Michigan's SIM PCMH Model Built on the Successful MiPCT Demonstration (Layer I).

- MiPCT was shown to be beneficial for both Medicaid and Medicare beneficiaries: reducing expenditures while maintaining quality of care.
- Under SIM, an increasing number of beneficiaries with complex medical and social needs were documented as receiving CM/CC services.

SIM PCMHs implemented social needs screening and referral processes to understand and address their patients holistically (referred to as 'clinical community linkages' [CCL], Layer II)

- Screening data revealed that many patients have a number of social needs.
- Patients with more social needs have poorer physical and mental health.
- Patients with more social needs were found to be more likely to visit emergency departments and had higher average medical expenditures.
- According to surveys, both patients and providers affirmed the importance of social needs screening in the PCMH setting.
  - 4 in 5 adult patients and parents of child patients feel that PCMHs *should* ask about SDOH.
  - Providers report high levels of agreement when asked about the importance of addressing social needs, but are mixed in their assessment of their progress in implementing the CCL process.

CHIRs were actively coordinating efforts across their communities to improve well-being and population health (Layer III).

- CHIRs convened stakeholders, facilitated development of shared vision and goals, engaged partners, and were aligning systems.
- CHIR members and partners reported that paradigms were changing, with increased attention being paid to social determinants of health.
- CHIR members and partners indicated that SIM programming increased organizational effectiveness, systems integration, and that lives were being transformed.

CHIRs helped to coordinate care between healthcare settings and community services (Layer IV).

- CHIRs implemented clinical community linkages (CCL) models that included screening for social determinants, referral to services, and information technology platforms that enabled closing referral loops and enhanced communication across settings.
- CHIR hubs reach adult Medicaid beneficiaries with multiple chronic medical and behavioral health conditions.
- Children were also a major focus of some CHIR hubs.
- There is evidence that providers and patients in CHIRs experienced the PCMH CCL process differently than providers and patients outside of CHIRs.
  - Providers in CHIRs were more supportive of CCL processes.
  - PCMH patients in CHIRs were more likely to report follow up on social needs.
- CHIRs demonstrated capacity to enable subsequent evaluation of emergency department use reduction and cost savings; however, a power analysis showed there were not yet enough cases to enable statistical analysis.

Appendix. Full Evaluation Reports

I. *SIM Care Management & Care Coordination Recipients Profile Report, October 2019*

II. *SIM PCMH Community Clinical Linkages (CCL): Report from the PCMH CCL Data Partnership, January 2020*

III. *SIM Patient Experience Surveys: Summary of Findings from SDOH-Focused Surveys and Interviews, January 2020*

IV. *Michigan State Innovation Model: Clinical Community Linkages Survey of Healthcare Providers and Associated Stakeholders, January 2020*

V. *Evaluation of the Collective Impact Efforts of the Michigan Community Health Innovation Regions (CHIRs), March 2020*

VI. *Michigan State Innovation Model: Clinical Community Linkages Report, January 2020*

SIM Care Management & Care Coordination Recipients Profile Report, 2018

October, 2019

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Profile of SIM Care Management & Care Coordination Services

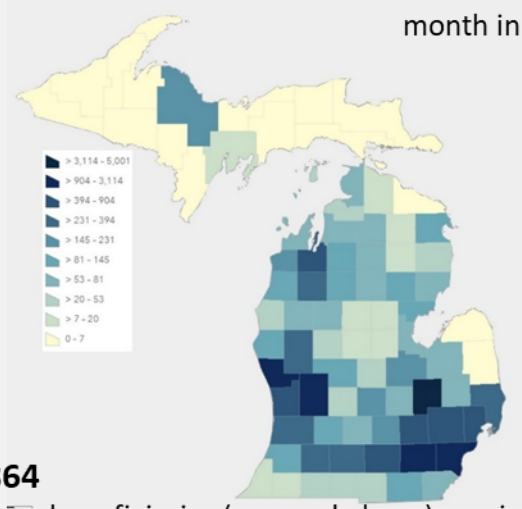
Produced in May 2019 based on 2018 data. Data are based on SIM PCMH beneficiaries receiving CM/CC codes in 2018 unless otherwise noted.

Overview

Michigan is committed to improving Medicaid services. A core strategy is to invest in **care management and care coordination** (CM/CC) services delivered within **patient-centered medical homes** (PCMH) participating in the State Innovation Model (SIM). This report utilizes **2018** Medicaid claims data to understand:

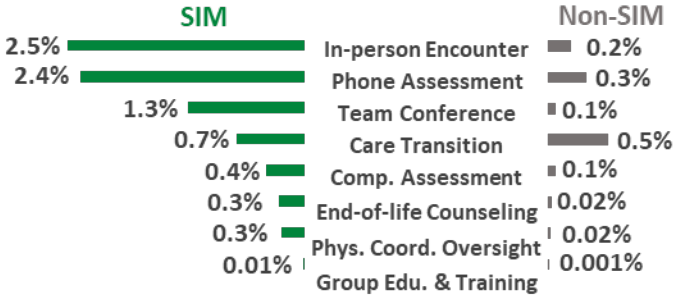
1. How **CM/CC services** are **distributed** across **managed care beneficiaries**
2. What is **different** about **CM/CC services** funded by **SIM**
3. What the **health and demographic characteristics** of SIM beneficiaries are who receive CM/CC services

484,359
Medicaid managed care beneficiaries were **attributed** to **a SIM PCMH** for at least one month in **2018**.

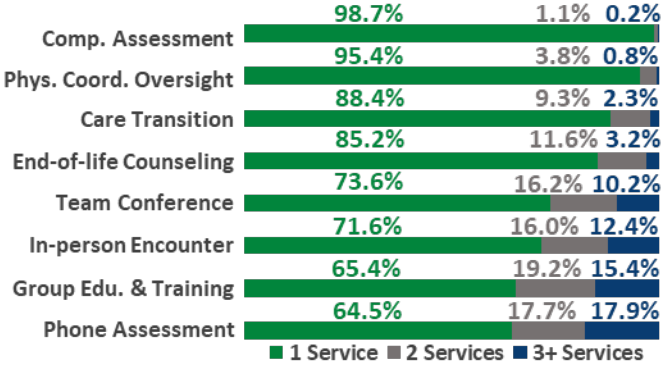


24,864
of those beneficiaries (mapped above) received **at least one CM/CC service** in **2018**.

SIM CM/CC beneficiaries were more likely to receive in-person services, whereas **non-SIM CM/CC** beneficiaries were more likely to receive care transition services.



SIM-attributed beneficiaries receiving **CM/CC** services were **more likely** to receive just **one service**.



Health plans ranged from **4%** to **9%** of SIM clients **receiving CM/CC services**. **Physician Organizations** ranged from **0.5%** to **14%** of SIM clients **receiving CM/CC services**.

For beneficiaries **discharged** from an **acute inpatient hospitalization** in **2018**:

SIM beneficiaries were more likely to receive a **CM/CC service** within **2 weeks** of their **discharge** than **non-SIM** beneficiaries.

1. Overview

Michigan is committed to improving Medicaid services. A core strategy is to invest in **care management and care coordination** (CM/CC) services delivered within **patient-centered medical homes** (PCMH) participating in the State Innovation Model (SIM). This report utilizes **2018** Medicaid claims data to understand:

1. How **CM/CC services** are **distributed** across **managed care beneficiaries**;
2. What is **different** about **CM/CC services** funded by **SIM** from other CM/CC services;
3. What the **health and demographic characteristics** of SIM beneficiaries are who receive CM/CC services.

2. Methods

2.1 Study Design

This profile report is a descriptive comparison of Medicaid enrollment and claims data for beneficiaries attributed to a SIM Patient Centered Medical Home (PCMH) and similar Medicaid beneficiaries but who were not attributed to a SIM PCMH.

2.2 Study Populations

General Inclusion and Exclusion Criteria. The inclusion criteria were as follows: (1) Medicaid beneficiaries 0 to 64 years of age, (2) enrolled in Medicaid managed care or Healthy Michigan Plan (HMP) managed care for at least one month in 2018, and (3) with no other insurance. The exclusion criteria are to exclude any enrollment months for which beneficiaries were on Medicaid Spenddown plan, in a hospice or long-term care, or who were incarcerated in 2018.

The results in this report focus on two Medicaid sub-populations:

SIM-attributed Beneficiaries included beneficiaries who met the criteria listed above and were attributed to a primary care provider who was part of a SIM PCMH practice for at least one month during 2018.

Non-SIM-attributed Beneficiaries included beneficiaries who met the criteria listed above but were not attributed to a primary care provider of a SIM PCMH practice in any month during 2018.

2.3 Data Acquisition

Data for this report were primarily based on claims/encounters obtained from the State of Michigan's Medicaid Data Warehouse. The PCMH Initiative required all participating practices to track Care Management and Coordination Service provision using a designated set of HCPCS/CPT codes. Starting in 2017, these codes included: G9001, G9002, G9007, 98966, 98967,

98968, 99495, and 99496. In 2018, four HCPCS/CPT codes were added: G9008, 98961, 98962, and S0257. Below is a brief description of each of these 12 codes:

- G9001: Comprehensive assessment, coordinated care fee, initial rate
- G9002: In-person encounter, coordinated care fee, maintenance rate
- G9007: Team conference, coordinated care fee, scheduled team conference
- 98966: Telephone assessment and management service to an established patient, parent, or guardian; 5-10 minutes of medical discussion
- 98967: Telephone assessment and management service, 11-20 minutes of medical discussion
- 98968: Telephone assessment and management service, 21-30 minutes of medical discussion
- 99495: Transitional care management services with moderate medical decision complexity, patient contact within two business days of discharge, and a face-to-face within 14 calendar days of discharge
- 99496: Transitional care management services with high medical decision complexity, patient contact within two business days of discharge, and a face-to-face within seven calendar days of discharge

Added in 2018:

- G9008: Coordinated care fee, physician coordinated care oversight services
- 98961: Formalized educational sessions led by qualified non-physician personnel for patient self-management for 2-4 patients
- 98962: Formalized educational sessions led by qualified non-physician personnel for patient self-management for 5-8 patients
- S0257: Face-to-face or telephonic counseling and discussion regarding advance directives or end-of-life care planning and decisions

The initial query pulled all Medicaid eligibility data for all beneficiaries matching the inclusion/exclusion criteria listed above. A subquery was also run that included all claims/encounters for the targeted Medicaid population that matched any of the 12 HCPCS/CPT codes related to a CM/CC service for the period of January 1, 2018 to December 31, 2018. Data were further processed to count any one CM/CC service a maximum of one time on any one day.

Also included in the query were a number of demographic and geographic characteristics, Medicaid eligibility information, and which Medicaid Health Plan (MHP) the beneficiary was enrolled in at the time the CM/CC service was provided. The resulting data file was then matched to a patient attribution list provided by the Michigan Data Collaborative to identify beneficiaries who were attributed to a SIM PCMH in 2018.

Additional Medicaid Data Warehouse queries were executed to extract data (i.e. procedure codes, revenue codes, diagnosis codes, and other relevant data items) for all study groups, pertinent to the identification of inpatient stays and chronic conditions. The hospitalization stays excluded maternity and/or newborn/delivery-related hospitalizations. Please see Appendix III for information on how individuals with chronic conditions were identified.

3. Results

3.1 Distribution of CM/CC Services across Study Populations

3.1.1 CM/CC services and beneficiary characteristics

In 2018, 24,864 SIM attributed Medicaid beneficiaries 0 to 64 years of age received a CM/CC service. This was a 62.4% increase over the 15,312 SIM beneficiaries who received a CM/CC service in 2017 (Table 1a). While the overall percentage of SIM beneficiaries who received a CM/CC service was 5.1%, this percentage increased for adults 19 to 64 years of age to 6.8%. Children 0 to 18 years of age (3.4%) received a CM/CC service about half as often as adults. For both adults and children, the 2018 percentages were substantially higher than the 2017 percentages.

By contrast, of the Medicaid beneficiaries included in the non-SIM-attributed PCMH category for 2018, only 0.9 percent (14,644) received a CM/CC service during 2018. Furthermore, when stratifying by age, the percentage of non-SIM-attributed children who received a CM/CC service in 2018 showed a modest increase from 2017 at 0.5% compared to 0.4%, respectively. Similarly defined adults showed a larger increase going from 0.9% in 2017 to 1.3% in 2018.

Table 1a. Number and percent of children (0-18 years) and adults (19-64 years) receiving at least one CM/CC service during 2018 and 2017

Age Category	SIM			Non-SIM		
	N	CM/CC	%	N	CM/CC	%
2018						
Total	484,359	24,864	5.1	1,589,164	14,644	0.9
Children	240,490	8,281	3.4	664,947	3,001	0.5
Adults	243,869	16,583	6.8	924,217	11,643	1.3
2017						
Total	507,371	15,312	3.0	1,639,247	11,072	0.7
Children	256,697	5,177	2.0	693,043	2,466	0.4
Adults	250,674	10,135	4.0	946,204	8,606	0.9

3.1.2 Type and intensity of CM/CC services

To better understand the populations of pediatric and adult beneficiaries getting CM/CC services, the type and intensity of the CM/CC services received were also examined. Table 1b shows the number and percent of beneficiaries who received at least one CM/CC service for each CM/CC code. For children less than 19 years of age, G9002 (In-person encounter, coordinated care) was the most often CM/CC service provided to those attributed to a SIM PCMH, accounting for 4,447 (1.8%) children receiving this service. Telephone follow up of any duration was the next most common CM/CC service provided to these children with 4,089 (1.7%) children receiving this service. While telephone follow up was the most common CM/CC service provided to children who were not attributed to a SIM PCMH, this service was provided at a much lower percentage of the population (0.2%).

CM/CC services provided to the adult SIM PCMH population followed a similar pattern to children but at a somewhat higher level. For example, G9002 was the most common CM/CC service provided to SIM adults at 3.2% (7,900) of the population and telephone follow up the next most common service at 3.1%.

Table 1b. Number and percent of beneficiaries by type of CM/CC services received during 2018

CM/CC Service	SIM		Non-SIM	
	N	%	N	%
Children (0 to 18 years)				
Total beneficiaries	240,490		664,947	
Type of Service				
Telephone assessment	4,089	1.7	1,647	0.2
Telephone 98966	3,374	1.4	1,450	0.2
Telephone 98967	864	0.4	313	<0.1
Telephone 98968	353	0.1	77	<0.1
Care transition	642	0.3	809	0.1
Care transition 99495	395	0.2	525	0.1
Care transition 99496	270	0.1	288	<0.1
Comprehensive assessment G9001	418	0.2	144	<0.1
In-person encounter G9002	4,447	1.8	790	0.1
Team conference G9007	3,170	1.3	353	0.1

CM/CC Service	SIM		Non-SIM	
	N	%	N	%
Coordinated care fee Physician coordinated care oversight services G9008	281	0.1	108	<0.1
End-of-life counseling S0257	18	<0.1	-*	
Group education and training	13	<0.1	-*	
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 2-4 patients 98961	-*		-*	
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 5-8 patients 98962	11	<0.1	-*	
Adults (19 to 64 years)				
Total beneficiaries	243,869		924,217	
Type of Service				
Telephone assessment	7,643	3.1	3,145	0.3
Telephone 98966	5,556	2.3	2,360	0.3
Telephone 98967	2,992	1.2	1,130	0.1
Telephone 98968	1,179	0.5	415	<0.1
Care transition	2,915	1.2	6,742	0.7
Care transition 99495	1,536	0.6	3,346	0.4
Care transition 99496	1,535	0.6	3,707	0.4
Comprehensive assessment G9001	1,612	0.7	795	0.1
In-person encounter G9002	7,900	3.2	2,080	0.2
Team conference G9007	2,947	1.2	612	0.1
Coordinated care fee Physician coordinated care oversight services G9008	966	0.4	252	<0.1
End-of-life counseling S0257	1,366	0.6	390	<0.1
Group education and training	13	<0.1	12	<0.1
Formalized educational sessions led by qualified non-physician personnel for	10	<0.1	10	<0.1

CM/CC Service	SIM		Non-SIM	
	N	%	N	%
patient self-management for 2-4 patients 98961				
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 5-8 patients 98962	-*		-*	

*Suppressed if a non-zero numerator <10 or a non-zero denominator <20.

In general, the majority of beneficiaries who received a particular CM/CC service during 2018 tended to only have received that service once during the year. However, a few CM/CC services were provided multiple times per year on a fairly regular basis. Table 1c shows that slightly more than one-quarter (26.4%) of children and four out of ten (40.4%) adults who were attributed to a SIM PCMH received 2 or more telephone follow up calls during the year.

Table 1c. Number of services received by SIM beneficiaries for each CM/CC service type

CM/CC Service	N	1 Service		2 Services		3+ Services	
		#	%	#	%	#	%
Children (0 to 18 years)							
Type of Service							
Telephone assessment	4,089	3,010	73.6	647	15.8	432	10.6
Telephone 98966	3,374	2,623	77.7	463	13.7	288	8.5
Telephone 98967	864	715	82.8	104	12.0	45	5.2
Telephone 98968	353	296	83.9	35	9.9	22	6.2
Care transition	642	579	90.2	54	8.4	-*	
Care transition 99495	395	371	93.9	19	4.8	-*	
Care transition 99496	270	252	93.3	15	5.6	-*	
Comprehensive assessment G9001	418	417	99.8	-*		0	
In-person encounter G9002	4,447	3,465	77.9	576	13.0	406	9.1
Team conference G9007	3,170	2,489	78.5	461	14.5	220	6.9
Coordinated care fee Physician coordinated care oversight services G9008	281	279	99.3	-*		0	
End-of-life counseling S0257	-*	-*		-*		0	

CM/CC Service	N	1 Service		2 Services		3+ Services	
		#	%	#	%	#	%
Group education and training	-*	-*		-*		-*	
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 2-4 patients 98961	-*	-*		0		-*	
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 5-8 patients 98962	-*	-*		-*		-*	
Adults (19 to 64 years)							
Type of Service							
Telephone assessment	7,643	4,555	59.6	1,425	18.6	1,663	21.8
Telephone 98966	5,556	3,713	66.8	944	17.0	899	16.2
Telephone 98967	2,992	2,048	68.4	488	16.3	456	15.2
Telephone 98968	1,179	892	75.7	164	13.9	123	10.4
Care transition	2,915	2,565	88.0	278	9.5	72	2.5
Care transition 99495	1,536	1,418	92.3	103	6.7	15	1.0
Care transition 99496	1,535	1,406	91.6	108	7.0	21	1.4
Comprehensive assessment G9001	1,612	1,586	98.4	21	1.3	-*	
In-person encounter G9002	7,900	5,379	68.1	1,394	17.6	1,127	14.3
Team conference G9007	2,947	2,014	68.3	532	18.1	401	13.6
Coordinated care fee Physician coordinated care oversight services G9008	966	911	94.3	45	4.7	10	1.0
End-of-life counseling S0257	1,366	1,162	85.1	160	11.7	44	3.2
Group education and training	-*	-*		-*		0	
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 2-4 patients 98961	-*	-*		0		0	

CM/CC Service	N	1 Service		2 Services		3+ Services	
		#	%	#	%	#	%
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 5-8 patients 98962	-*	-*		0		0	

*Suppressed if a non-zero numerator <10 or a non-zero denominator <20.

Tables 2a (children) and 2b (adults) present the number and percent of Medicaid beneficiaries who received at least one CM/CC service in 2018 by Medicaid enrollment and demographic characteristics. Across all age, race, gender, and Medicaid program categories, findings consistently indicate a greater proportion of SIM-attributed beneficiaries receiving CM/CC services.

Table 2a. Demographic characteristics and program enrollment of children 0 to 18 years of age with at least one CM/CC service during 2018

Demographic Characteristics	Attributed to SIM PCMH			Not Attributed to SIM PCMH		
	Total Beneficiaries	Bens. with 1+ CM/CC Service	%	Total Beneficiaries	Bens. with 1+ CM/CC Service	%
Total	240,490	8,281	3.4	664,938	3,000	0.5
Age						
≤2	43,619	2,040	4.7	122,047	883	0.7
3 to 7	71,258	2,308	3.2	185,893	750	0.4
8 to 12	63,765	1,983	3.1	173,848	644	0.4
13 to 18	61,848	1,950	3.2	183,159	724	0.4
Gender						
Male	122,554	4,277	3.5	339,469	1,538	0.5
Female	117,936	4,004	3.4	325,478	1,463	0.4
Race						
White	135,116	4,557	3.4	330,137	1,770	0.5
Black	61,621	2,610	4.2	204,470	578	0.3
American Indian	1,028	34	3.3	2,889	21	0.7
Hispanic	20,868	526	2.5	59,385	310	0.5
Asian-Pacific Islander	3,200	63	2.0	11,699	38	0.3

Demographic Characteristics	Attributed to SIM PCMH			Not Attributed to SIM PCMH		
	Total Beneficiaries	Bens. with 1+ CM/CC Service	%	Total Beneficiaries	Bens. with 1+ CM/CC Service	%
Unknown	18,657	491	2.6	56,367	284	0.5
Group						
TANF	231,876	7,696	3.3	641,484	2,826	0.4
ABAD	8,614	585	6.8	23,454	174	0.7
HMP	*	*		*	*	
Beneficiary Monitoring Program (BMP)	*	*		*	*	
Flint Indicator or TCMF	15,163	1,466	9.7	11,138	49	0.4

*Censored data.

Table 2b. Demographic characteristics and program enrollment of adults 19 to 64 years of age with at least one CM/CC service during 2018

Demographic Characteristics	Attributed to SIM PCMH			Not Attributed to SIM PCMH		
	Total Beneficiaries	Bens. with 1+ CM/CC Service	%	Total Beneficiaries	Bens. with 1+ CM/CC Service	%
Total	243,869	16,583	6.8	924,217	11,643	1.3
Age						
19 to 24	42,359	1,356	3.2	156,833	728	0.5
25 to 34	72,416	3,241	4.5	274,737	1,947	0.7
35 to 44	50,769	3,210	6.3	190,119	2,178	1.1
45 to 54	40,120	4,039	10.1	157,310	2,945	1.9
55 to 64	36,086	4,531	12.6	137,072	3,712	2.7
Gender						
Male	102,514	5,865	5.7	409,847	4,672	1.1
Female	141,355	10,718	7.6	514,370	6,971	1.4
Race						
White	153,260	10,624	6.9	518,443	7,713	1.5
Black	56,856	4,225	7.4	265,098	2,479	0.9
American Indian	1,372	101	7.4	4,682	78	1.7
Hispanic	9,966	535	5.4	40,134	384	1.0

Demographic Characteristics	Attributed to SIM PCMH			Not Attributed to SIM PCMH		
	Total Beneficiaries	Bens. with 1+ CM/CC Service	%	Total Beneficiaries	Bens. with 1+ CM/CC Service	%
Asian-Pacific Islander	3,109	123	4.0	15,289	94	0.6
Unknown	19,306	975	5.1	80,571	895	1.1
Group						
TANF	71,224	3,951	5.5	264,719	2,379	0.9
ABAD	28,585	4,021	14.1	111,706	3,033	2.7
HMP	144,060	8,611	6.0	547,792	6,231	1.1
Beneficiary Monitoring Program (BMP)	418	101	24.2	1,237	73	5.9
Flint Indicator or TCMF	5,741	426	7.4	8,423	58	0.7

3.1.3 CM/CC services by health plan, PO, CHIR, and prosperity region

Table 3 shows the number and percent of Medicaid beneficiaries 0 to 64 years of age who received at least one CM/CC service in 2018 by Medicaid Health Plan (MHP). The table includes beneficiaries who were enrolled in Medicaid managed care or HMP managed care and had no other insurance for both the SIM-attributed and non-SIM beneficiaries. Tables 4, 5, and 6 present the beneficiaries by physician organization (PO), CHIR, and prosperity region, respectively. For a further breakdown of the MHP members who received a CM/CC service by CHIR and prosperity region residency, please see Appendices I and II.

Table 3. Health plan enrollment of beneficiaries 0 to 64 years of age with at least one CM/CC claim during 2018†

MHP Name	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
Aetna Better Health of Michigan	3,423	145	42.4	34,084	256	7.5
Blue Cross Complete of Michigan, LLC	57,369	3,291	57.4	135,886	1,577	11.6
HAP Midwest Health Plan, Inc.	1,036	51	49.2	1,624	12	7.4
Harbor Health Plan	243	-*		7,296	33	4.5

MHP Name	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
McLaren Health Plan, Inc.	39,383	2,664	67.6	145,229	1,430	9.8
Meridian Health Plan of Michigan	125,716	7,378	58.7	340,952	3,567	10.5
Molina Healthcare of Michigan, Inc.	84,463	5,023	59.5	241,953	2,095	8.7
Priority Health Choice, Inc.	42,826	3,878	90.6	70,433	3,347	47.5
Total Health Care, Inc.	5,932	450	75.9	43,445	453	10.4
United Healthcare Community Plan, Inc.	34,103	1,749	51.3	203,077	1,639	8.1
Upper Peninsula Health Plan, Inc.	4,879	227	46.5	37,163	235	6.3

*Suppressed if a non-zero numerator <10 or a non-zero denominator <20.

†Beneficiaries may be counted more than once if their MHP enrollment changed during the year; beneficiaries were also excluded if they were not attributed to an MHP at the time of the CM/CC service.

Table 4. Physician organization (PO) affiliation of beneficiaries 0 to 64 years of age with at least one CM/CC claim during 2018

Physician Organization	SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
Affinia Health Network Lakeshore	30,502	1,393	45.7
Alcona Health Center	5,002	178	35.6
Answer Health	847	121	142.9
Ascension Medical Group Promed	4,094	122	29.8
Beaumont Medical Group	2,304	47	20.4
Bronson Network, LLC	4,345	246	56.6
Cherry Health	10,442	549	52.6
Covenant Healthcare Partners	2,831	135	47.7
East Jordan Family Health Center	2,188	71	32.5
Genesee Community Health Center	3,623	46	12.7

Physician Organization	SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
Genesys	8,374	484	57.8
Great Lakes OSC	2,680	213	79.5
Hackley Community Care Center	7,426	716	96.4
Henry Ford Medical Group	23,874	359	15.0
Holland PHO	946	83	87.8
Huron Valley Physicians Association	6,927	254	36.7
Integrated Health Associates	16,243	568	35.0
Integrated Health Partners	5,068	275	54.3
Jackson Health Network	17,732	658	37.1
MDHHS	10,290	1,433	139.3
Medical Network One	3,269	123	37.6
Metro Health Integrated Network	10,509	733	69.8
Michigan State University Health Team	11,056	142	12.8
Northern Physicians Organization	10,301	697	67.7
Oakland Southfield Physicians	6,798	375	55.2
Physician Healthcare Network, PC	4,601	23	5.0
Professional Medical Corporation, PC	28,173	3,770	133.8
Spectrum Health Medical Group	12,961	881	68.0
St. John Providence Partners in Care, LLC	18,581	1,065	57.3
St. Mary's of Michigan	833	11	13.2
United Physicians, Inc.	5,207	27	5.2
University of Michigan Health System	22,783	1,519	66.7
U.P. Health System - Marquette	3,181	121	38.0
Wexford PHO	28,300	1,214	42.9
Not Attributed to a PO	66,707	6,212	93.1

Table 5. CHIR affiliation of beneficiaries 0 to 64 years of age with at least one CM/CC claim during 2018*

CHIR	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
Genesee	46,283	5,173	111.8	50,547	475	9.4
Jackson	19,097	936	49.0	9,179	267	29.1
Muskegon	30,001	3,259	108.6	5,723	456	79.7
Northern	30,542	1,878	61.5	12,214	242	19.8
Washtenaw/ Livingston	33,730	2,182	64.7	12,743	290	22.8
Non-CHIR†	239,720	11,436	47.7	1,170,736	12,914	11.0
Total	399,373	24,864	62.3	1,261,142	14,644	11.6

*Only includes months when beneficiaries were enrolled in an MHP.
†Medicaid beneficiary had a Zip Code of residency outside of the CHIR boundaries.

Table 6. Prosperity region residency of beneficiaries 0 to 64 years of age with at least one CM/CC claim during 2018†

Prosperity Region	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
1. Upper Peninsula	4,897	227	46.4	37,156	236	6.4
2. Northwest Lower Peninsula	30,580	1,873	61.2	12,156	248	20.4
3. Northeast Lower Peninsula	14,803	589	39.8	24,281	215	8.9
4. West/West Central	103,215	7,700	74.6	117,243	4,611	39.3
5. East Central	8,412	440	52.3	88,923	740	8.3
6. East	57,015	5,710	100.1	109,067	962	8.8
7. South Central	16,758	528	31.5	48,868	543	11.1
8. Southwest	17,781	913	51.3	113,448	1,060	9.3
9. Southeast	57,898	3,413	58.9	58,169	1,165	20.0
10. Detroit Metro	87,808	3,468	39.5	651,158	4,863	7.5
Unknown Region	205	-*		674	-*	

†Beneficiaries were excluded if they were not attributed to an MHP at the time of the CM/CC service or living in an unassigned prosperity region.
*Suppressed if a non-zero numerator <10 or a non-zero denominator <20.

3.2 Description of CM/CC Services Received by SIM and Non-SIM Beneficiaries

3.2.1 Type and intensity of CM/CC services among beneficiaries with inpatient stays

The extent to which beneficiaries with an inpatient stay who were discharged in 2018 received CM/CC services during the first two weeks following discharge was also examined. Table 7a shows the number and percent of inpatient hospital discharges that were followed up with at least one CM/CC service within 14 days.

For this analysis, an inpatient stay was defined according to the HEDIS 2018 inpatient stay value set. Additional data processing was performed to collapse claim/encounters with overlapping admission and/or discharge dates or transfers between facilities to ensure unique inpatient stays were represented. A non-acute inpatient stay was defined if any claim/encounter that was part of the unique visit matched any criteria included in the HEDIS 18 non-acute inpatient value set. An acute inpatient stay was identified if no claim/encounter matched the same HEDIS non-acute value set. All inpatient claims/encounters related to maternity or delivery were excluded. Additionally, all unique inpatient stays with a readmission within 14 days of discharge were also excluded.

Table 7a. Number and percent of children and adults receiving CM/CC services within 14 days of an inpatient hospitalization during 2018

Inpatient Stays	SIM			Non-SIM		
	N	Follow-up CM/CC Service	%	N	Follow-up CM/CC Service	%
Children (≤18 years)						
Total inpatient stays	3,087	444	14.4	7,830	208	2.7
Acute	2,794	402	14.4	6,569	175	2.7
Non-acute	293	42	14.3	1,261	33	2.6
Adults (19 to 64 years)						
Total inpatient stays	17,985	2,942	16.4	65,985	3,926	5.9
Acute	14,570	2,399	16.5	50,861	3,018	5.9
Non-acute	3,415	543	15.9	15,124	908	6.0

Table 7b shows the CM/CC services provided to pediatric and adult SIM beneficiaries within 14 days of discharge from their inpatient stay.

Table 7b. Number and percent of pediatric and adult SIM beneficiaries receiving CM/CC services within 14 days of an inpatient stay by type of service received

CM/CC Service	≤18 Years		19 to 64 Years	
	N	%	N	%
Total inpatient stays	3,087		17,985	
Type of Service				
Telephone assessment				
Telephone 98966	93	3.0	727	4.0
Telephone 98967	23	0.7	427	2.4
Telephone 98968	-*		164	0.9
Care transition				
Care transition 99495	196	6.3	908	5.0
Care transition 99496	143	4.6	931	5.2
Comprehensive assessment G9001	-*		89	0.5
In-person encounter G9002	65	2.1	458	2.5
Team conference G9007	58	1.9	252	1.4
Coordinated care fee Physician coordinated care oversight services G9008	-*		29	0.2
End-of-life counseling S0257	0		18	0.1
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 2-4 patients 98961	0		†	
Formalized educational sessions led by qualified non-physician personnel for patient self-management for 5-8 patients 98962	0		†	

†Censored data.

*Suppressed if a non-zero numerator <10 or a non-zero denominator <20.

3.3. Health Conditions and Place-based Risk Factors among SIM Populations with and without CM/CC Services

3.3.1 Prevalence of chronic conditions

This section compares SIM-attributed beneficiaries who had a CM/CC service of any type during the year, with other SIM-attributed beneficiaries without such a service. First, beneficiaries are categorized according to the presence and number of chronic conditions. As Table 8 shows, over 29 percent of SIM-attributed pediatric and over 92 percent of SIM-attributed adult CM/CC service recipients had two or more chronic conditions, whereas the corresponding percentages for other SIM-attributed beneficiaries who did not receive CM/CC services were 11 percent and 52 percent, respectively.

Please note that the methodology for classifying chronic conditions in this report was upgraded to the Center for Medicare & Medicaid Services (CMS) Chronic Condition Warehouse (CCW) which adds an additional level of rigor around identifying Medicaid beneficiaries with each condition. The 2017 SIM CM Profile Report was based on AHRQ's Clinical Classification System (CCS) which classified an individual as having a condition if a particular diagnosis code was found only once during the measurement period. A more detailed description of the CMS CCW methodology along with its associated list of chronic conditions can be found in Appendix III.

Table 8. Number of chronic conditions by SIM beneficiaries with and without a CM/CC service

Number of Conditions	SIM Beneficiaries with 1+ CM/CC Services		SIM Beneficiaries with No CM/CC Service	
	N	%	N	%
Children (0 to 18 years)				
Total beneficiaries	8,281		232,209	
0 chronic conditions	3,469	41.9	165,057	71.1
1 chronic condition	2,358	28.5	41,255	17.8
2 to 3 chronic conditions	1,835	22.2	21,240	9.1
4 to 5 chronic conditions	486	5.9	3,946	1.7
6+ chronic conditions	133	1.6	711	0.3
Adults (19 to 64 years)				
Total beneficiaries	16,583		227,286	
0 chronic conditions	351	2.1	71,516	31.5

Number of Conditions	SIM Beneficiaries with 1+ CM/CC Services		SIM Beneficiaries with No CM/CC Service	
	N	%	N	%
1 chronic condition	830	5.0	37,893	16.7
2 to 3 chronic conditions	2,995	18.1	52,601	23.1
4 to 5 chronic conditions	3,564	21.5	32,189	14.2
6+ chronic conditions	8,843	53.3	33,087	14.6

Tables 9a and 9b lists the 10 most common chronic conditions among pediatric and adult SIM PCMH attributed beneficiaries who received a CM/CC service in 2018 along with those who did not receive such a service. For both pediatric and adult beneficiaries, CM/CC service recipients had a higher prevalence than SIM-attributed beneficiaries without CM/CC service for each of the selected chronic conditions.

Table 9a. Ten most common chronic conditions among children (0-18 years) attributed to a SIM PCMH service during 2018

Chronic Condition*	SIM Beneficiaries with 1+ CM/CC Services		SIM Beneficiaries with No CM/CC Service	
	N	%	N	%
Total beneficiaries	8,281		232,209	
ADHD, Conduct Disorders, and Hyperkinetic Syndrome	1,645	19.9	23,228	10.0
Asthma	1,642	19.8	14,277	6.1
Depression	1,202	14.5	14,128	6.1
Anxiety Disorders	1,108	13.4	12,760	5.5
Intellectual, Learning, and Other Developmental Disabilities	784	9.5	8,780	3.8
Drug and Alcohol Use Disorders	495	6.0	6,861	3.0
Autism Spectrum Disorders	454	5.5	4,766	2.1
Obesity	437	5.3	4,455	1.9
Bipolar Disorder	410	5.0	4,197	1.8
Migraine and Chronic Headache	210	2.5	2,957	1.3

*Chronic conditions are listed in order of prevalence among the CM/CC service recipients, with most frequent condition listed first.

Table 9b. Ten most common chronic conditions among adults (19-64 years) attributed to a SIM PCMH service during 2018

Chronic Condition	SIM Beneficiaries with 1+ CM/CC Services		SIM Beneficiaries with No CM/CC Service	
	N	%	N	%
Total beneficiaries	16,583		227,286	
Depression	9,312	56.2	62,646	27.6
Hypertension	8,283	49.9	39,368	17.3
Obesity	8,028	48.4	48,410	21.3
Anxiety Disorders	7,888	47.6	53,369	23.5
Tobacco Use	7,244	43.7	53,970	23.7
Fibromyalgia, Chronic Pain, and Fatigue	6,630	40.0	38,948	17.1
Drug and Alcohol Use Disorders	6,202	37.4	39,060	17.2
Diabetes	4,908	29.6	16,831	7.4
Hyperlipidemia	4,763	28.7	19,026	8.4
Rheumatoid Arthritis-Osteoarthritis	4,530	27.3	22,527	9.9
Chronic Kidney Disease	4,528	27.3	14,486	6.4
Chronic Obstructive Pulmonary Disease and Bronchiectasis	3,074	18.5	11,153	4.9
Asthma	2,963	17.9	16,847	7.4
Anemia	2,917	17.6	13,325	5.9
Ischemic Heart Disease	2,713	16.4	10,012	4.4
Bipolar Disorder	2,573	15.5	15,825	7.0
Migraine and Chronic Headache	2,534	15.3	15,522	6.8
Liver Disease, Cirrhosis, and Other Liver Conditions (excluding Hepatitis)	1,751	10.6	6,273	2.8
Eye Disease-Cataract and Glaucoma	1,665	10.0	8,825	3.9

Results presented in Table 10 show that the overall prevalence of mental disorders among SIM beneficiaries receiving CM/CC services (10.7%) is more than four times the rate among non-SIM beneficiaries receiving CM/CC services (2.3%). The overall prevalence of developmental disabilities/neurological disorders among SIM beneficiaries receiving CM/CC services (7.4%) is more than five times the rate among non-SIM beneficiaries receiving CM/CC services (1.4%). The overall prevalence of drug/alcohol use disorders among SIM beneficiaries receiving CM/CC

services (12.7%) is more than four times the rate among non-SIM beneficiaries receiving CM/CC services (3.0%).

Table 10. Prevalence of mental disorders among beneficiaries attributed to a SIM PCMH service during 2018

Mental & Developmental Disorders	SIM			Non-SIM		
	Total Members	Members with CM/CC Service	%	Total Members	Members with CM/CC Service	%
Children (0 to 18 years)						
Mental disorders	25,590	1,869	7.3	55,929	685	1.2
Developmental disabilities/neurological disorders	33,644	2,303	6.8	72,388	786	1.1
Drug/alcohol use disorders	7,356	495	6.7	16,393	356	2.2
Adults (19 to 64 years)						
Mental disorders	98,297	11,382	11.6	317,925	7,938	2.5
Developmental disabilities/neurological disorders	15,110	1,288	8.5	45,709	907	2.0
Drug/alcohol use disorders	45,262	6,202	13.7	148,154	4,637	3.1
Total (0 to 64 years)						
Mental disorders	123,887	13,251	10.7	373,854	8,623	2.3
Developmental disabilities/neurological disorders	48,754	3,591	7.4	118,097	1,693	1.4
Drug/alcohol use disorders	52,618	6,697	12.7	164,547	4,993	3.0

3.3.2. CM/CC services by geographic factors

A fundamental assumption of the SIM PCMH model is that health and other outcomes are determined by more than individual proclivities for disease. Health is also determined by the environments in which people study, live, work, play, and pray. To better understand whether CM/CC services are being targeted to SIM-attributed beneficiaries subject to social risk factors, a census block-level Area Deprivation Index (ADI) scoring methodology was used to quantify a beneficiary's residential social economic environment, and a census block-level urbanicity classification (urban, large rural, and isolated and small rural) based on Rural-Urban Commuting Area (RUCA) codes were also used.

The area deprivation index represents a geographic area-based measure of the socioeconomic deprivation experienced by a neighborhood. Higher index values represent higher levels of deprivation, which have been associated with an increased risk of adverse health and health care outcomes. The index adapted for the current report is the HIPxChange version from the University of Wisconsin. This was based on the original index developed by Singh[1] using 17 different markers of socioeconomic status from the 1990 Census data. HIPxChange generated an updated index using 2000 Census block group-level data and the original Singh coefficients from the 1990 data. For this report, an ADI grouping was generated from the database of ADI scores for Michigan census blocks. SIM-attributed recipients of CM/CC services and other SIM-attributed beneficiaries are compared by these geographic markers of residence in Table 11.

Table 11. Residential characteristics of Medicaid beneficiaries 0 to 64 years of age attributed to a SIM PCMH service during 2018

Geography	SIM			Non-SIM		
	Total Members	Members with CM/CC Service	%	Total Members	Members with CM/CC Service	%
Urbanicity						
Children (0 to 18 years)						
Isolated and small rural	15,725	251	1.6	39,881	118	0.3
Large rural	16,198	495	3.1	38,345	236	0.6
Urban	190,175	7,133	3.8	537,010	2,501	0.5
Other/unknown	18,392	402	2.2	49,711	146	0.3
Adults (19 to 64 years)						
Isolated and small rural	17,464	946	5.4	51,796	631	1.2
Large rural	18,618	1,299	7.0	45,442	701	1.5
Urban	171,406	12,793	7.5	686,979	9,223	1.3
Other/unknown	36,381	1,545	4.2	140,000	1,088	0.8
Area Deprivation Index (API)						
Children (0 to 18 years)						
Top 10% API	27,510	1,372	5.0	98,761	251	0.3
Remaining 90% API	194,586	6,507	3.3	516,450	2,604	0.5
Other/Unknown	18,394	402	2.2	49,736	146	0.3

[1]Singh, G. K. (2003). Area deprivation and widening inequalities in US mortality, 1969-1998. *American Journal of Public Health*, 93, 1137-1143.

Geography	SIM			Non-SIM		
	Total Members	Members with CM/CC Service	%	Total Members	Members with CM/CC Service	%
Adults (19 to 64 years)						
Top 10% API	26,951	2,311	8.6	123,539	1,249	1.0
Remaining 90% API	180,401	12,726	7.1	660,089	9,303	1.4
Other/Unknown	36,517	1,546	4.2	140,589	1,091	0.8

4. Next Steps

The 2018 CM/CC data will be combined with the 2017 CM/CC data as the basis for two sets of analyses. The first will focus primarily on tracking the use of CM/CC services among the Medicaid managed care population (both SIM and non-SIM attributed beneficiaries) over time. Additionally, these analyses will focus on identifying which subpopulations are receiving CM/CC services at disproportionate levels and to determine potential reasons for the disproportionate CM/CC service delivery.

The second set of analyses will focus on whether or not the provision of CM/CC services is having an impact on overall health care utilization and costs when compared to Medicaid beneficiaries who are: 1) SIM attributed beneficiaries who do not receive a CM/CC service, and 2) non-SIM attributed beneficiaries who also did not receive a CM/CC service. While a number of these analyses have already been conducted using 2017 data, to the extent possible, 2018 will be added to these analyses to produce the most complete picture possible. However, the amount of 2018 data that gets included in these analyses will be limited by post CM/CC service delivery timelines, claim reconciliation, and time for rerunning these analyses in relation to the due date of the final report.

APPENDIX I. Health Plan by CHIR

Health Plan	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
			Genesee			
Aetna Better Health of Michigan	44	0		154	0	
Blue Cross Complete of Michigan, LLC	88,450	639	7.2	62,914	60	1.0
HAP Midwest Health Plan, Inc.	9,098	27	3.0	11,173	-*	
Harbor Health Plan	-*	0		37	0	
McLaren Health Plan, Inc.	106,334	1,246	11.7	196,418	154	0.8
Meridian Health Plan of Michigan	116,477	1,043	9.0	122,546	90	0.7
Molina Healthcare of Michigan, Inc.	216,110	2,086	9.7	183,075	146	0.8
Priority Health Choice, Inc.	42	-*		72	0	
Total Health Care, Inc.	67	0		158	0	
United Healthcare Community Plan, Inc.	18,751	130	6.9	29,963	19	0.6
Upper Peninsula Health Plan, Inc.	23	0		48	0	
			Jackson			
Aetna Better Health of Michigan	11,013	50	4.5	6,604	29	4.4
Blue Cross Complete of Michigan, LLC	19,687	71	3.6	18,236	33	1.8
HAP Midwest Health Plan, Inc.	30	0		215	0	
Harbor Health Plan	-*	-*		516	0	
McLaren Health Plan, Inc.	8,756	31	3.5	5,025	-*	
Meridian Health Plan of Michigan	150,735	650	4.3	66,929	166	2.5
Molina Healthcare of Michigan, Inc.	11,838	33	2.8	2,994	11	3.7
Priority Health Choice, Inc.	553	-*		528	-*	
Total Health Care, Inc.	32	0		1,354	0	
United Healthcare Community Plan, Inc.	26,479	98	3.7	7,551	17	2.3
Upper Peninsula Health Plan, Inc.	43	0		199	0	
			Muskegon			
Aetna Better Health of Michigan	-*	0		-*	0	
Blue Cross Complete of Michigan, LLC	15,274	34	2.2	6,949	-*	
Harbor Health Plan	0	0		-*	0	
McLaren Health Plan, Inc.	13,238	135	10.2	2,269	13	5.7
Meridian Health Plan of Michigan	137,845	1,168	8.5	19,241	81	4.2
Molina Healthcare of Michigan, Inc.	50,775	570	11.2	5,397	41	7.6
Priority Health Choice, Inc.	123,358	1,172	9.5	28,335	265	9.4
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	19,502	180	9.2	6,464	48	7.4
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
			Northern			
Aetna Better Health of Michigan	-*	0		-*	0	
Blue Cross Complete of Michigan, LLC	179	0		130	0	
HAP Midwest Health Plan, Inc.	0	0		-*	0	

Health Plan	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
Harbor Health Plan	-*	0		-*	0	
McLaren Health Plan, Inc.	51,249	274	5.3	52,003	66	1.3
Meridian Health Plan of Michigan	248,018	1,305	5.3	72,327	142	2.0
Molina Healthcare of Michigan, Inc.	51,601	253	4.9	9,858	20	2.0
Priority Health Choice, Inc.	260	0		216	0	
Total Health Care, Inc.	-*	0		21	0	
United Healthcare Community Plan, Inc.	15,096	45	3.0	11,885	14	1.2
Upper Peninsula Health Plan, Inc.	84	-*		120	0	
			Washtenaw/Livingston			
Aetna Better Health of Michigan	4,346	32	7.4	3,069	-*	
Blue Cross Complete of Michigan, LLC	247,418	1,348	5.4	54,808	118	2.2
HAP Midwest Health Plan, Inc.	-*	0		-*	0	
Harbor Health Plan	-*	0		73	0	
McLaren Health Plan, Inc.	10,031	53	5.3	6,873	14	2.0
Meridian Health Plan of Michigan	63,114	348	5.5	43,566	72	1.7
Molina Healthcare of Michigan, Inc.	56,797	297	5.2	24,341	55	2.3
Priority Health Choice, Inc.	26	0		59	0	
Total Health Care, Inc.	39	0		278	0	
United Healthcare Community Plan, Inc.	22,943	103	4.5	19,813	26	1.3
Upper Peninsula Health Plan, Inc.	35	-*		31	0	
			Non-CHIR			
Aetna Better Health of Michigan	25,663	63	2.5	399,176	222	0.6
Blue Cross Complete of Michigan, LLC	317,420	1,199	3.8	1,487,594	1,358	0.9
HAP Midwest Health Plan, Inc.	3,300	24	7.3	8,095	-*	
Harbor Health Plan	2,896	-*		86,924	33	0.4
McLaren Health Plan, Inc.	282,993	925	3.3	1,480,162	1,174	0.8
Meridian Health Plan of Michigan	792,408	2,864	3.6	3,766,817	3,016	0.8
Molina Healthcare of Michigan, Inc.	626,429	1,784	2.8	2,677,771	1,822	0.7
Priority Health Choice, Inc.	389,671	2,702	6.9	815,985	3,080	3.8
Total Health Care, Inc.	71,032	450	6.3	519,525	453	0.9
United Healthcare Community Plan, Inc.	306,470	1,193	3.9	2,361,243	1,515	0.6
Upper Peninsula Health Plan, Inc.	58,352	225	3.9	445,540	235	0.5

*Suppressed if a non-zero numerator <10 or a non-zero denominator <20.

APPENDIX II. Health Plan by Prosperity Region

Health Plan	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
	Eastern/Central/Western Upper Peninsula					
Blue Cross Complete of Michigan, LLC	-*	-*		-*	0	
HAP Midwest Health Plan, Inc.	0	0		0	0	
McLaren Health Plan, Inc.	-*	-*		27	0	
Meridian Health Plan of Michigan	20	0		32	0	
Molina Healthcare of Michigan, Inc.	-*	0		-*	-*	
Priority Health Choice, Inc.	-*	0		-*	0	
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	-*	0		-*	0	
Upper Peninsula Health Plan, Inc.	4,850	225	46.4	37,053	235	6.3
	Northwest Lower Peninsula					
Aetna Better Health of Michigan	0	0		-*	0	
Blue Cross Complete of Michigan, LLC	-*	0		-*	0	
HAP Midwest Health Plan, Inc.	0	0		0	0	
Harbor Health Plan	0	0		0	0	
McLaren Health Plan, Inc.	4,247	268	63.1	4,214	65	15.4
Meridian Health Plan of Michigan	20,701	1,304	63.0	6,041	148	24.5
Molina Healthcare of Michigan, Inc.	4,337	255	58.8	854	22	25.8
Priority Health Choice, Inc.	-*	0		-*	0	
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	1,270	45	35.4	1,019	13	12.8
Upper Peninsula Health Plan, Inc.	-*	-*		-*	0	
	Northeast Lower Peninsula					
Aetna Better Health of Michigan	-*	0		-*	0	
Blue Cross Complete of Michigan, LLC	-*	0		-*	0	
HAP Midwest Health Plan, Inc.	0	0		0	0	
Harbor Health Plan	0	0		0	0	
McLaren Health Plan, Inc.	3,762	185	49.2	9,692	80	8.3
Meridian Health Plan of Michigan	8,033	294	36.6	9,890	83	8.4
Molina Healthcare of Michigan, Inc.	2,573	95	36.9	3,361	30	8.9
Priority Health Choice, Inc.	-*	0		-*	0	
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	420	15	35.7	1,312	22	16.8
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
	West/West Central					
Aetna Better Health of Michigan	-*	0		-*	0	
Blue Cross Complete of Michigan, LLC	5,785	200	34.6	5,628	131	23.3
HAP Midwest Health Plan, Inc.	0	0		-*	0	
Harbor Health Plan	0	0		0	0	

Health Plan	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
McLaren Health Plan, Inc.	4,162	249	59.8	6,477	90	13.9
Meridian Health Plan of Michigan	30,957	2,007	64.8	27,217	614	22.6
Molina Healthcare of Michigan, Inc.	15,304	1,131	73.9	13,606	504	37.0
Priority Health Choice, Inc.	40,192	3,772	93.9	59,248	3,123	52.7
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	6,808	341	50.1	5,044	149	29.5
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
			East Central			
Aetna Better Health of Michigan	-*	-*		-*	0	
Blue Cross Complete of Michigan, LLC	-*	-*		36	0	
HAP Midwest Health Plan, Inc.	0	0		-*	0	
Harbor Health Plan	0	0		-*	0	
McLaren Health Plan, Inc.	2,110	96	45.5	27,278	309	11.3
Meridian Health Plan of Michigan	2,103	116	55.2	23,075	194	8.4
Molina Healthcare of Michigan, Inc.	3,310	200	60.4	29,996	206	6.9
Priority Health Choice, Inc.	-*	0		22	0	
Total Health Care, Inc.	0	0		-*	0	
United Healthcare Community Plan, Inc.	865	26	30.1	8,501	31	3.6
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
			East			
Aetna Better Health of Michigan	-*	0		-*	0	
Blue Cross Complete of Michigan, LLC	7,762	637	82.1	9,405	91	9.7
HAP Midwest Health Plan, Inc.	1,032	51	49.4	1,617	12	7.4
Harbor Health Plan	-*	0		-*	0	
McLaren Health Plan, Inc.	10,288	1,351	131.3	32,347	269	8.3
Meridian Health Plan of Michigan	15,550	1,312	84.4	33,619	311	9.3
Molina Healthcare of Michigan, Inc.	18,749	2,145	114.4	20,073	168	8.4
Priority Health Choice, Inc.	-*	-*		-*	0	
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	3,618	212	58.6	11,972	111	9.3
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
			South Central			
Aetna Better Health of Michigan	-*	0		-*	0	
Blue Cross Complete of Michigan, LLC	4,976	78	15.7	12,621	148	11.7
HAP Midwest Health Plan, Inc.	0	0		0	0	
Harbor Health Plan	0	0		0	0	
McLaren Health Plan, Inc.	8,473	289	34.1	24,633	292	11.9
Meridian Health Plan of Michigan	2,442	148	60.6	9,366	89	9.5
Molina Healthcare of Michigan, Inc.	847	13	15.3	2,191	14	6.4
Priority Health Choice, Inc.	-*	0		-*	0	
Total Health Care, Inc.	0	0		-*	0	
United Healthcare Community Plan, Inc.	-*	0		34	0	

Health Plan	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
			Southwest			
Aetna Better Health of Michigan	343	-*		2,828	25	8.8
Blue Cross Complete of Michigan, LLC	-*	-*		26	-*	
Harbor Health Plan	0	0		-*	0	
McLaren Health Plan, Inc.	1,578	33	20.9	8,622	62	7.2
Meridian Health Plan of Michigan	7,819	451	57.7	63,361	528	8.3
Molina Healthcare of Michigan, Inc.	215	-*		3,311	18	5.4
Priority Health Choice, Inc.	2,568	104	40.5	11,054	224	20.3
Total Health Care, Inc.	0	0		-*	0	
United Healthcare Community Plan, Inc.	5,241	311	59.3	24,240	202	8.3
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
			Southeast			
Aetna Better Health of Michigan	1,377	85	61.7	1,309	43	32.8
Blue Cross Complete of Michigan, LLC	23,612	1,518	64.3	9,701	192	19.8
HAP Midwest Health Plan, Inc.	0	0		-*	0	
Harbor Health Plan	-*	0		-*	0	
McLaren Health Plan, Inc.	1,553	92	59.2	2,165	33	15.2
Meridian Health Plan of Michigan	20,839	1,132	54.3	33,533	672	20.0
Molina Healthcare of Michigan, Inc.	5,859	353	60.3	4,655	81	17.4
Priority Health Choice, Inc.	-*	0		-*	0	
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	4,643	232	50.0	6,769	144	21.3
Upper Peninsula Health Plan, Inc.	-*	-*		-*	0	
			Detroit Metro			
Aetna Better Health of Michigan	1,695	51	30.1	29,909	188	6.3
Blue Cross Complete of Michigan, LLC	15,145	854	56.4	98,371	1,014	10.3
HAP Midwest Health Plan, Inc.	-*	0		-*	0	
Harbor Health Plan	240	-*		7,286	33	4.5
McLaren Health Plan, Inc.	3,188	100	31.4	29,701	230	7.7
Meridian Health Plan of Michigan	17,177	612	35.6	134,592	928	6.9
Molina Healthcare of Michigan, Inc.	33,232	826	24.9	163,803	1,051	6.4
Priority Health Choice, Inc.	-*	0		-*	0	
Total Health Care, Inc.	5,912	450	76.1	43,382	453	10.4
United Healthcare Community Plan, Inc.	11,206	567	50.6	144,082	966	6.7
Upper Peninsula Health Plan, Inc.	-*	0		-*	0	
			Unknown			
Aetna Better Health of Michigan	-*	0		-*	0	
Blue Cross Complete of Michigan, LLC	31	-*		69	0	
HAP Midwest Health Plan, Inc.	0	0		-*	0	
Harbor Health Plan	0	0		-*	0	

Health Plan	SIM			Non-SIM		
	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members	Average Monthly Members	Members with CM/CC	Rate / 1,000 Members
McLaren Health Plan, Inc.	-*	0		74	0	
Meridian Health Plan of Michigan	76	-*		227	0	
Molina Healthcare of Michigan, Inc.	31	0		87	0	
Priority Health Choice, Inc.	21	0		48	0	
Total Health Care, Inc.	-*	0		-*	0	
United Healthcare Community Plan, Inc.	-*	0		92	-*	
Upper Peninsula Health Plan, Inc.	-*	0		48	0	

*Suppressed if a non-zero numerator <10 or a non-zero denominator <20.

APPENDIX III. CMS Chronic Condition Warehouse (CCW) Methodology for Identifying Chronic Conditions

The Centers for Medicare & Medicaid Services (CMS) Chronic Conditions Data Warehouse (CCW) classification categories and algorithms were adapted to identify the chronic conditions of the beneficiaries. The CCW condition indicators have been developed to facilitate researchers in identifying Medicaid and/or Medicare beneficiaries with specific conditions.

The CMS-CCW defines two sets of conditions from claims data: (1) a set of 27 common chronic conditions, and (2) a second set of over 40 (to date) other chronic or potentially disabling conditions which includes additional chronic health, mental health, disability-related, and substance abuse conditions. The condition indicators are developed from algorithms that search administrative claims data for specific diagnosis codes, Medicare severity-diagnosis related group (MS-DRG) codes, or procedure codes. ICD-9 code-based algorithms are used for services that occurred prior to October 1, 2015. Starting in 2016, chronic conditions are identified based on ICD-10 codes. More information on the identification of the conditions including the detailed algorithms for each condition can be downloaded from the Chronic Condition Data Warehouse website (www.ccwdata.org).

The table below lists each of the CCW conditions in the first column. While there are almost 70 conditions (to date) listed in CCW, several of these conditions are not mutually exclusive and have been designed to enhance research of specific Medicare and Medicaid populations. Some conditions are considered specific subsets of other larger conditions. To create mutually exclusive categories, several of these conditions have been combined to form a broader category along the line of other similar studies, or the specific subset of a condition has been subsumed into the broader condition. The second column lists the final set of 48 mutually exclusive conditions used in the analysis which were identified using the CCW algorithms.

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Acquired Hypothyroidism	1. Acquired Hypothyroidism
Acute Myocardial Infarction	2. Ischemic Heart Disease (Acute MI subsumed under larger category of Ischemic Heart Disease)
Ischemic Heart Disease	
Alzheimer's Disease	3. Alzheimer's Disease and Related Disorders or Senile Dementia (Alzheimer's Disease subsumed under larger category of Alzheimer's Disease and Related Disorders or Senile Dementia)
Alzheimer's Disease and Related Disorders or Senile Dementia	
Anemia	4. Anemia
Asthma	5. Asthma
Atrial Fibrillation	6. Atrial Fibrillation

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Benign Prostatic Hyperplasia	7. Benign Prostatic Hyperplasia
Cancer, Breast	8. Cancer
Cancer, Colorectal	
Cancer, Endometrial	
Cancer, Lung	
Cancer, Prostate	
Leukemias and Lymphomas	
Cataract	9. Eye Disease-Cataract and Glaucoma
Glaucoma	
Chronic Kidney Disease	10. Chronic Kidney Disease
Chronic Obstructive Pulmonary Disease and Bronchiectasis	11. Chronic Obstructive Pulmonary Disease and Bronchiectasis
Diabetes	12. Diabetes
Heart Failure	13. Heart Failure
Hip/Pelvic Fracture	14. Hip/Pelvic Fracture
Hyperlipidemia	15. Hyperlipidemia
Hypertension	16. Hypertension
Osteoporosis	17. Osteoporosis
Rheumatoid Arthritis/Osteoarthritis	18. Rheumatoid Arthritis/Osteoarthritis
Stroke/Transient Ischemic Attack	19. Stroke/Transient Ischemic Attack
ADHD, Conduct Disorders, and Hyperkinetic Syndrome	20. ADHD, Conduct Disorders, and Hyperkinetic Syndrome
Alcohol Use Disorders	21. Substance Use Disorders
Drug Use Disorders	
Opioid Use Disorder	
Anxiety Disorders	22. Anxiety Disorders (PTSD subsumed under larger category of Anxiety Disorders)
Post-traumatic Stress Disorders (PTSD)	
Autism Spectrum Disorders	23. Autism Spectrum Disorders
Bipolar Disorder	24. Bipolar Disorder
Cerebral Palsy	25. Cerebral Palsy
Cystic Fibrosis and Other Metabolic Developmental Disorders	26. Cystic Fibrosis and Other Metabolic Developmental Disorders
Depression	

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Depressive Disorders	27. Depression (Depressive disorders subsumed under larger category of depression)
Epilepsy	28. Epilepsy
Fibromyalgia, Chronic Pain, and Fatigue	29. Fibromyalgia, Chronic Pain, and Fatigue
Human Immunodeficiency Virus and/or Acquired Immunodeficiency Syndrome (HIV/AIDS)	30. Human Immunodeficiency Virus and/or Acquired Immunodeficiency Syndrome (HIV/AIDS)
Intellectual Disabilities and Related Conditions	31. Intellectual, Learning, and Other Developmental Disabilities
Learning Disabilities	
Other Developmental Delays	
Liver Disease, Cirrhosis and Other Liver Conditions (excluding Hepatitis)	32. Liver Disease, Cirrhosis and Other Liver Conditions (excluding Hepatitis)
Migraine and Chronic Headache	33. Migraine and Chronic Headache
Mobility Impairments	34. Mobility Impairments
Multiple Sclerosis and Transverse Myelitis	35. Multiple Sclerosis and Transverse Myelitis
Muscular Dystrophy	36. Muscular Dystrophy
Obesity	37. Obesity
Peripheral Vascular Disease (PVD)	38. Peripheral Vascular Disease (PVD)
Personality Disorders	39. Personality Disorders
Pressure and Chronic Ulcers	40. Pressure and Chronic Ulcers
Schizophrenia	41. Schizophrenia and Other Psychotic Disorders (Schizophrenia subsumed under larger category of Schizophrenia & Other Psychotic Disorders)
Schizophrenia and Other Psychotic Disorders	
Sensory – Blindness and Visual Impairment	42. Sensory – Blindness and Visual Impairment
Sensory – Deafness and Hearing Impairment	43. Sensory – Deafness and Hearing Impairment
Spina Bifida and Other Congenital Anomalies of the Nervous System	44. Spina Bifida and Other Congenital Anomalies of the Nervous System
Spinal Cord Injury	45. Spinal Cord Injury
Tobacco Use	46. Tobacco Use
Traumatic Brain Injury and Nonpsychotic Mental Disorders due to Brain Damage	47. Traumatic Brain Injury and Nonpsychotic Mental Disorders due to Brain Damage
Viral Hepatitis (broken into Hepatitis A, B, C, D and E)	48. Viral Hepatitis (general – covers all types of Hepatitis from A to E)

SIM PCMH Community Clinical Linkages (CCL): Report from the PCMH CCL Data Partnership

All Physician Organizations and Practices

January 2020

Support

This project was supported by Grant Number CMS-1G1-14-001 from the Department of Health and Human Services, Centers for Medicare & Medicaid Services. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies. The research presented here was conducted by the awardee. Findings might or might not be consistent with or confirmed by the findings of the independent evaluation contractor.

About

Michigan Public Health Institute (MPHI) is a Michigan-based and nationally engaged non-profit public health institute that is dedicated to a vision of building a world where tomorrow is healthier than today. MPHI's mission is to advance population health through innovation and collaboration.

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11 Physician Organizations
Clinical Community Linkages

Produced: January 2020

Overview

11 Physician organizations (POs) were included in the report[1]

293,743 individuals were attributed to the 11 POs (from 3/2017 to 9/2019)

64,268 individuals were screened between 3/2017 and 9/2019

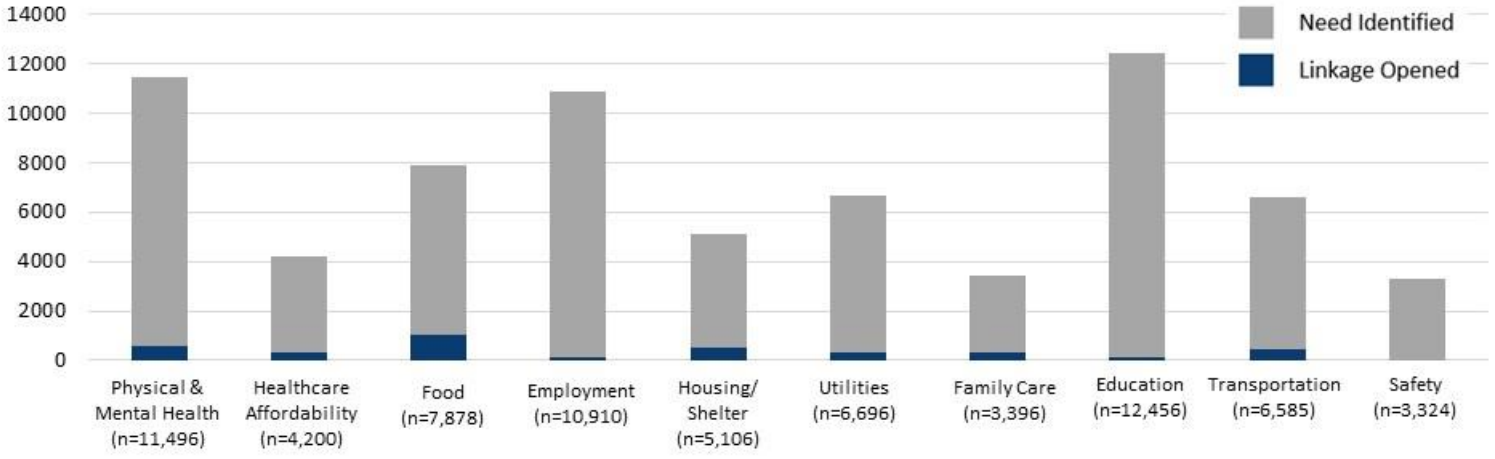
31,075 (48%) individuals had 1 or more needs; **19,141 (30%)** individuals had 2 or more needs

Only 5 POs provided CCL linkage data for **1,837 (3%)** individuals

[1] POs who participated in the PCMH Community Clinical Linkages (CCL) Data Partnership study and provided data on 64,268 individuals screened.

Needs Identified & Linkages Opened

(N=31,075 with at least one need; 1,837 with linkage data)



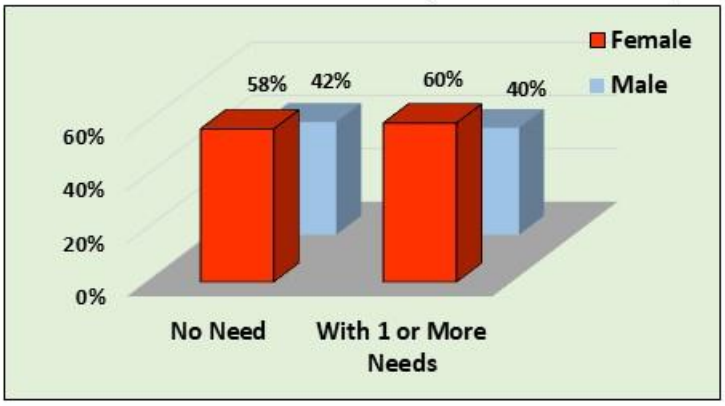
Of the 1,837 individuals with a linkage opened, only 153 (8%) had documentation (from only two POs) that a need was met or handled internally.

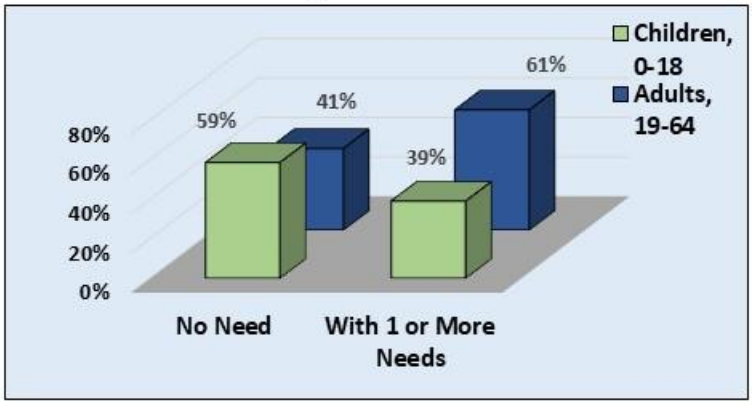
The project described was supported by Grant Number CMS-1G1-14-001 from the Department of Health and Human Services, Centers for Medicare & Medicaid Services. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies. The research presented here was conducted by the awardee. Findings might or might not be consistent with or confirmed by the findings of the independent evaluation contractor. If you have any questions about the results, please contact Clare Tanner, Ph.D. at Michigan Public Health Institute: ctanner@mphi.org or 517-324-7381.

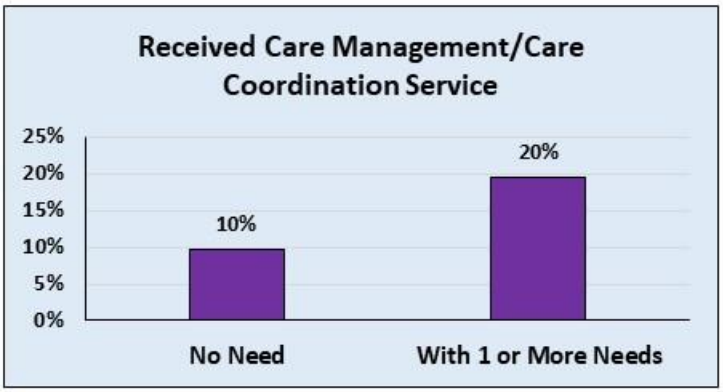
Characteristics of Individuals Screened

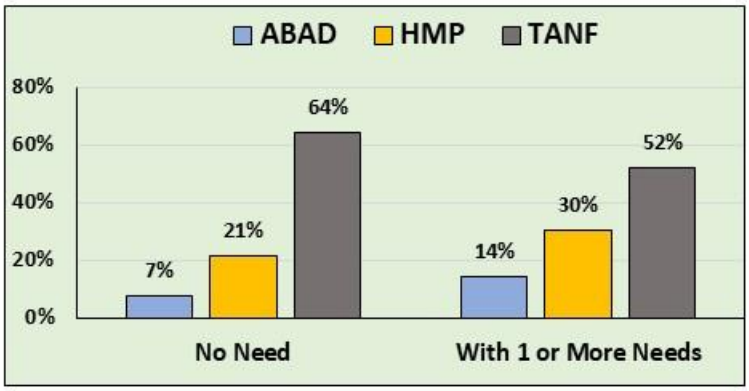
Demographic and Medicaid Program Information

(N=61,165 individuals matched to Medicaid ID in the Medicaid Data Warehouse: 30,962 with no need; 30,203 with at least 1 need)





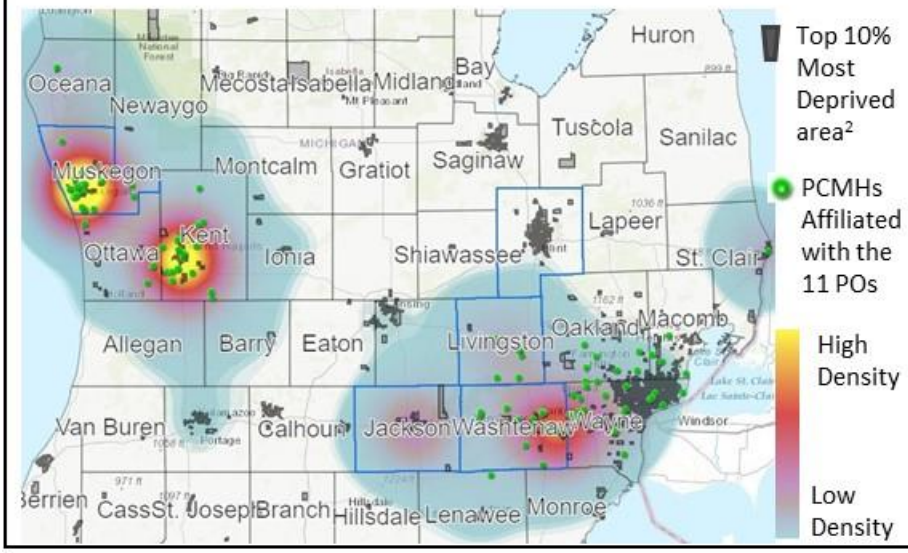




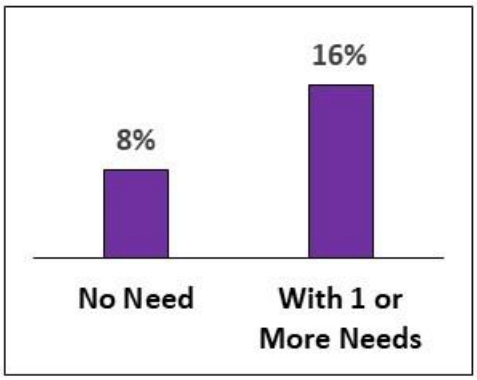
Residential Geographic Information

(N=57,075 individuals matched to Medicaid ID in the Medicaid Data Warehouse with Geo Code: 28,630 with no need; 28,399 with at least 1 need)

Concentration of Individuals Screened with 1 or More Needs (N=28,399)



Individuals with a Social Need are twice as likely to live in the top 10% most deprived areas as individuals with no social need



[2] The Area Deprivation Index (ADI) represents a geographic area-based measure of the socioeconomic deprivation experienced by aa neighborhood. ADI is used as a proxy measure for socioeconomic status to capture individual-level social risk factors. It includes factors for the theoretical domains of income, education, employment, and housing quality.

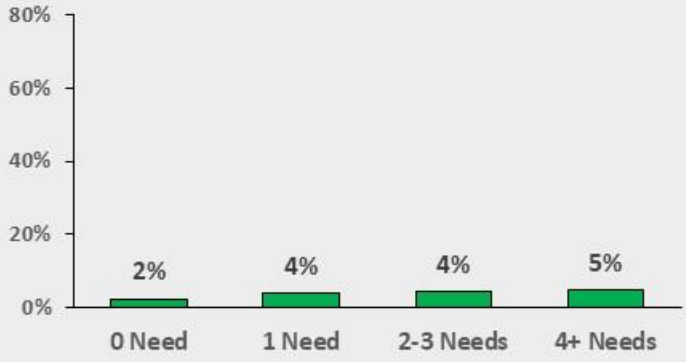
Health Conditions

Children

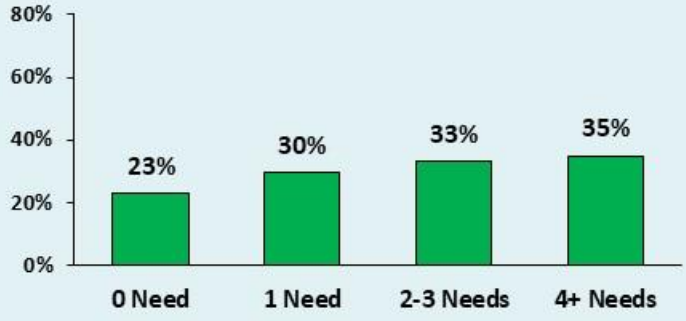
(N=29,063 individuals with health condition information in the Medicaid Data Warehouse:

17,471 with no need; 5,446 with 1 need; 4,963 with 2-3 needs; 1,183 with 4 or more needs)

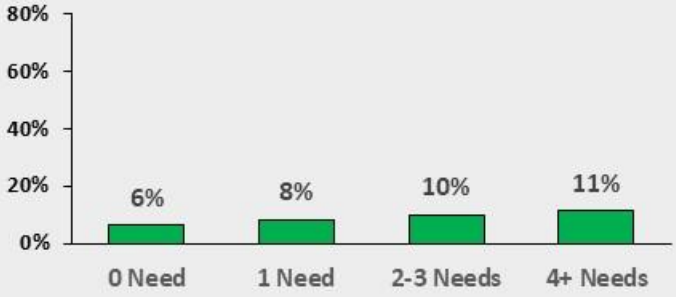
% of Children with 4 or More Chronic Conditions



% of Children with Behavioral Health Condition(s)



% of Children with Co-occurring Behavioral and Physical Health Conditions

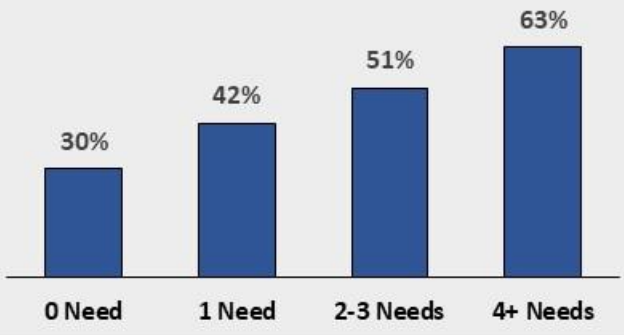


Adults

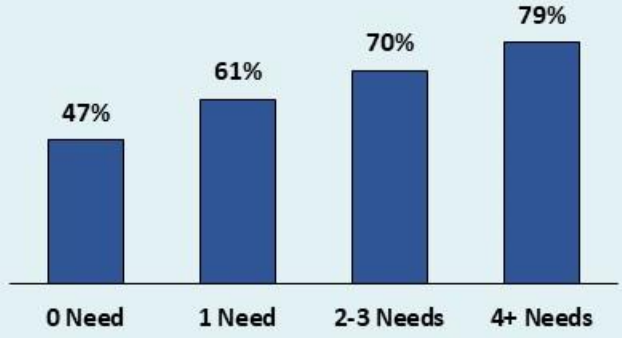
(N=28,967 individuals with health condition information in the Medicaid Data Warehouse:

11,807 with no need; 5,583 with 1 need; 7,315 with 2-3 needs; 4,262 with 4 or more needs)

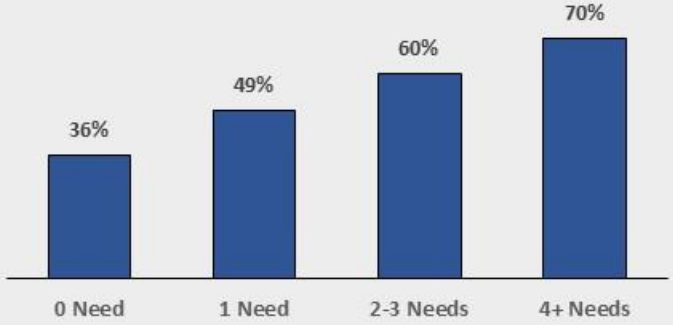
% of Adults with 4 or More Chronic Conditions



% of Adults with Behavioral Health Condition(s)



% of Adults with Co-occurring Behavioral and Physical Health Conditions



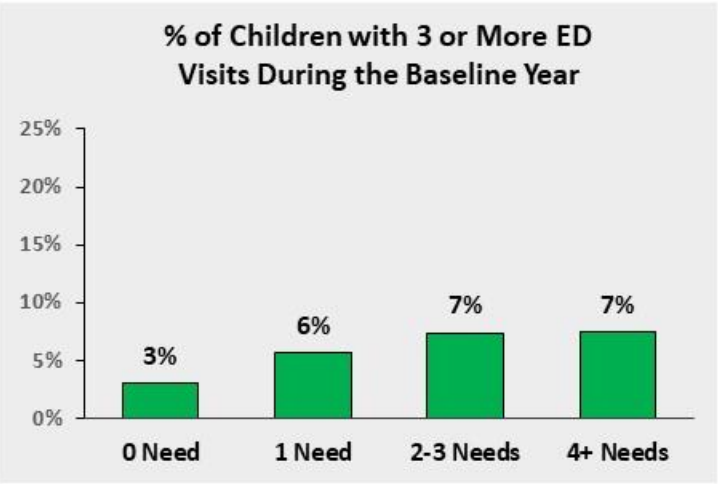
Baseline Year Healthcare Utilization and Costs

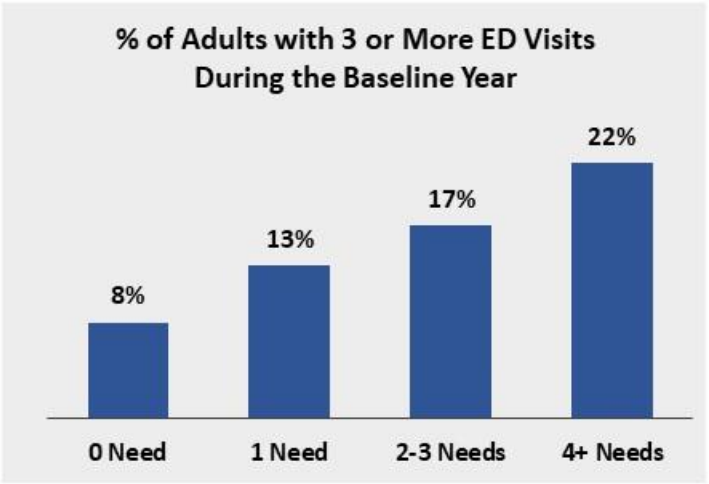
Children

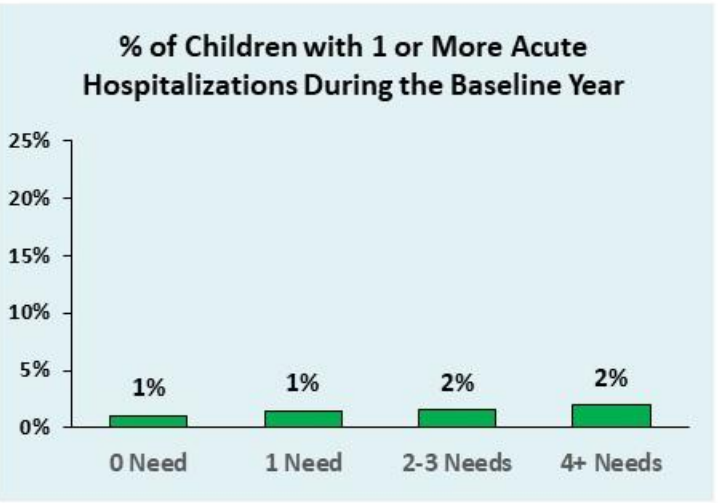
(N=23,053 individuals with full 4 quarters of Medicaid eligibility prior to the 1st screening date: 13,645 with no need; 4,436 with 1 need; 4,036 with 2-3 needs; 934 with 4 or more needs)

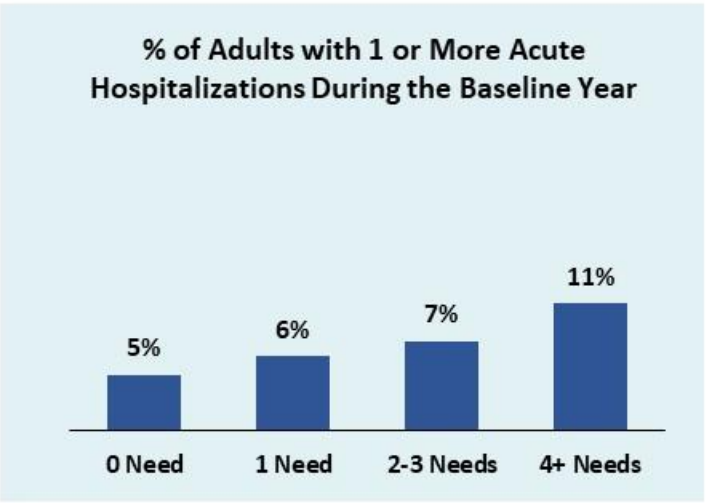
Adults

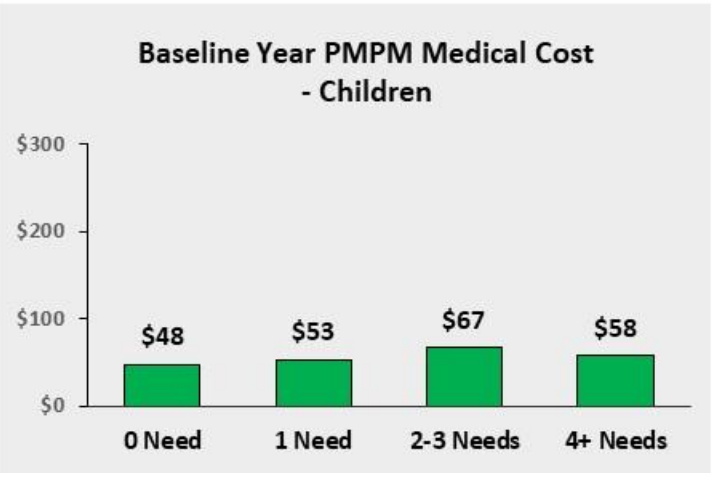
N=22,948 individuals with full 4 quarters of Medicaid eligibility prior to the first screening date: 9,112 with no need; 4,523 with 1 need; 5,975 with 2-3 needs; 3,338 with 4 or more needs)

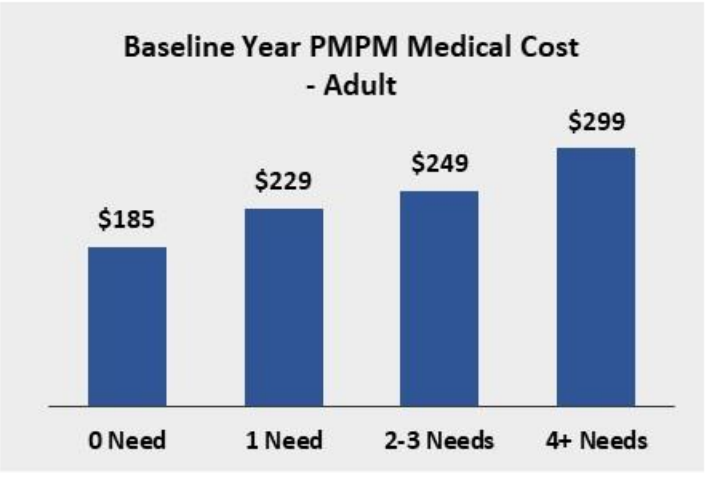




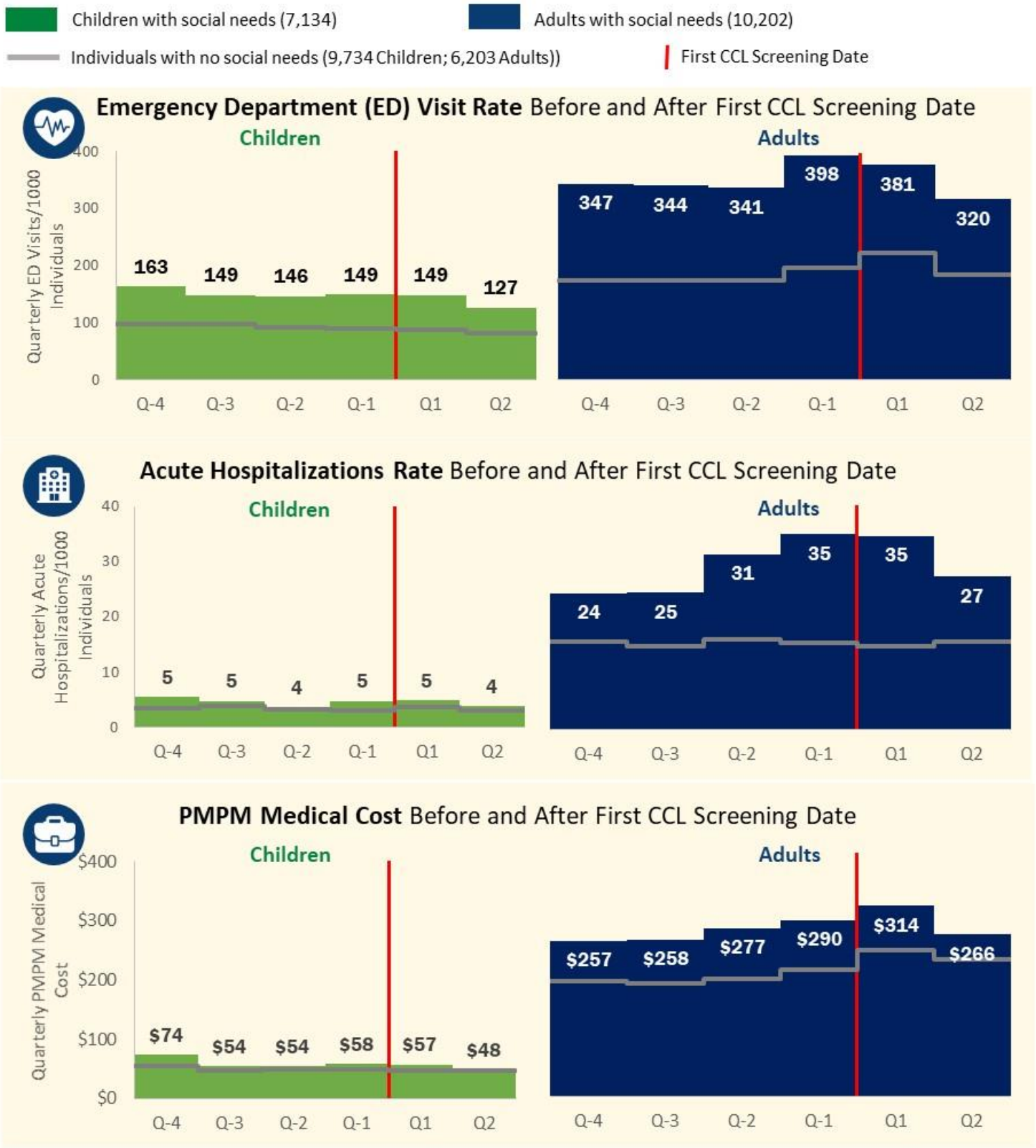








Quarterly[1] Utilization and Cost Outcomes for Individuals with Social Needs, Compared to Individuals with No Social Needs, for Those Who Had Full Four Quarters Before and Two Full Quarters After First CCL Screening Date



Q-4 to Q2 are normalized quarters of 90-day periods, Q-4 to Q-1 are prior to the first CCL screening date, and Q1 to Q2 are after the first CCL screening date.

Table of Contents

Executive Summary

About this Report

This is the second report produced based on Medicaid individuals served through the SIM Patient Centered Medical Home (PCMH) Clinical Community Linkage (CCL) systems change initiatives.

The primary purpose of this report is to provide a window into:

- The developing capacity of data systems to track services and report on CCL processes and outcomes
- The reach and scale of PCMH CCL programming
- The needs being identified in the participating PCMHs, and the extent to which they are able to address them through linkage to community services
- Information on the characteristics of individuals screened, including:
    - Exposure to place-based risk: living in the geographic areas that have the highest amount of socioeconomic stress (also referred to as 'deprivation')
    - Prevalence of chronic health and behavioral health conditions
    - Having high levels of ED and hospital use, and cost

Findings across POs

- The eleven POs included in this report provided social needs screening data on 64,268 individuals.
- Only five POs - Answer Health, Huron Family Practice Center, IHA Health Services Corporation, Metro Health Integrated Network, and Michigan Medicine - provided some linkage information requested (i.e. dates linkages were opened, dates linkages were closed, and status of closed linkages).
- Slightly over half of the individuals (52%) screened did not have any need identified; however, almost a third of the individuals screened (30%) indicated having 2 or more needs.
- The most common needs identified through screening were education (19%), physical and mental health (18%), employment (17%), food (12%), utilities (10%) and transportation (10%).
- The most common linkages opened were to address needs for food, physical and mental health, housing and transportation.
- Compared to individuals with zero need, individuals with one or more needs were more likely to have
    - Received care management/coordination services (20% vs. 10%),
    - Four or more chronic conditions (51% vs. 30% for adults, 4% vs. 2% for children),
    - Lived in the Michigan's top 10% most deprived neighborhoods (16% vs. 8%),
    - Three or more ED visits during baseline year (17% vs. 8% for adults, 7% vs. 3% for children), and
    - Higher baseline year PMPM medical cost ($255 vs. $185 for adults, $60 vs. $48 for children).

- ADHD, depression, asthma, and anxiety disorders were the top chronic conditions for pediatric population; depression, obesity, anxiety disorders, tobacco use, and hypertension consistently ranked as top chronic conditions for adults
- Some differences were noted across POs:
    - Affinia Health Network, Answer Health, Hackley Community Care Center, Henry Ford, Metro Health Integrated Network, and Michigan Medicine provided complete Medicaid IDs and other identifiers, therefore had perfect matching rate to Medicaid Data Warehouse
    - Most POs served about equal percentage of adults 19-64 and children 0-18; whereas Ascension Medical Group and Michigan Medicine served predominantly children (93%, and 69%, respectively), and Huron Practice Center and Muskegon Family Care served predominantly adults (96% and 86%, respectively)
    - Higher percentage of individuals served by Hackley Community Care Center and Muskegon Family Care came from the most deprived neighborhoods (34% and 29%, respectively), compared to 3-14% for the other POs.

Introduction

Michigan Department of Health and Human Services (MDHHS) has placed considerable emphasis on supporting Patient Centered Medical Homes (PCMHs) to develop systems to screen individuals for unmet social needs and ensure they are linked to appropriate resources to meet their needs. Within Michigan's State Innovation Model (SIM), participating PCMHs have been required to develop systematic processes and build on existing or new community partnerships to address individual's needs and promote overall well-being by coordinating care across settings. This is referred to as Clinical-Community Linkages (CCL). The SIM evaluation is collecting and reporting data that will help PCMHs and their Physician Organizations (POs) understand the impact of their CCL activities, and to support program improvement and sustainability efforts.

This report is based on the submission of data from physician organizations and practices participating in the PCMH CCL Data Partnership. PCMHs were instructed to provide data on all individuals with a CCL activity during 2017 up to the third quarter of 2019.

This is the second PCMH CCL report, based on the CCL data from each PO/PCMH, covering CCL screening dates from 3/1/17 to 9/30/19. The first PCMH CCL report reported on individuals with CCL screening dates from 3/1/17 to 12/31/18.

Section 1 provides a summary of CCL process metrics. Section 2 leverages the MDHHS Medicaid encounter and eligibility data to summarize individual demographics, chronic conditions and geographic characteristics. Section 3 summarizes medical service cost and utilization before and after having a linkage open that responds to a social need.

Definition of Terms

CCL Activity. A CCL activity is the occurrence of a date or any other form of documentation that any one of the following activities took place: (a) a social needs screening conducted, (b) a social needs linkage opened, or (c) a social needs linkage closed.

Need Identified. A need identified is a documented positive response on the screening/assessment question. Multiple screening records for the same individual are aggregated into one record, counting each distinct need only once.

Linkage Opened. A linkage for a specific need has been initiated and a date entered to indicate the earliest date a linkage activity started to address the need. This activity can include communicating an individual's specific need to internal or external service provider, linking individuals to appropriate community resources or directly providing the resources and information to the individual to address the need.

Linkage Closed. A linkage for a specific need is considered closed with a date entered to indicate the cessation of any linkage activity to address the need. A linkage can be closed for various reasons as indicated in the linkage status for the need: (a) need met, (b) need handled internally, (c) unable to contact, (d) lack of individual follow up, (e) individual declined services, (f) no resource available, or (g) for any other reason.

Linkage Closed – Need Met. The service provider receives communication or verification that the individual's need has been addressed.

Coexistence of Needs. Individuals have two or more identified social needs within the same timeframe.

First CCL Date. First CCL date is defined as the first screening date within the report timeframe.

Pediatric/Adult. Pediatric: 0 through 18 years by 6/30/2019. **Adult:** 19 years or older by 6/30/2019.

Chronic Condition. A chronic condition is a human health condition or disease that is persistent or otherwise long-lasting in its effects. The term chronic is usually applied when the course of the condition or disease lasts for more than three months. For this report, the Centers for Medicare & Medicaid Services (CMS) Chronic Conditions Data Warehouse (CCW) classification categories and algorithms were adapted to identify the chronic conditions of the CCL Medicaid individuals from their Medicaid claims data. The CMS-CCW defines two sets of conditions: (1) a set of 27 common chronic conditions, and (2) a second set of over 40 (to date) other chronic or potentially disabling conditions which includes additional chronic health, mental health, disability-related and substance abuse conditions. Appendix A contains more detailed description of the methodology for identifying chronic conditions for this report.

Behavioral Health Diagnosis. Three broad categories are included for reporting on the health conditions on CCL Medicaid individuals with behavioral health diagnosis: (1) mental disorders, (2) alcohol and drug use disorders, and (3) neurodevelopmental disorders. Mental disorders include the following CCW chronic conditions: depression and depressive disorders, bipolar disorder, schizophrenia and other psychotic disorders, Alzheimer's disease and related disorders/senile dementia, anxiety disorders and personality disorders. Neurodevelopmental disorders include the following CCW chronic conditions: ADHD, autism spectrum disorders, learning disabilities, intellectual disabilities and related conditions, and other developmental delays.

Co-occurring Behavioral and Physical Health Conditions. Individuals have at least one of the CCW behavioral health conditions and at least one of the other non-behavioral health CCW chronic conditions occurring simultaneously or sequentially within the reporting timeframe.

Area Deprivation Index. The Area Deprivation Index (ADI) represents a geographic area-based measure of the socioeconomic deprivation experienced by a neighborhood. ADI is used as a proxy measure for socioeconomic status to capture individual-level social risk factors. It includes factors for the theoretical domains of income, education, employment, and housing quality. The ADI state ranking ranked Michigan's block groups into 10 levels, with 10 being the most deprived area and 1 being the least deprived. The ADI national ranking ranked the US block groups into 100 levels, with 100 being the most deprived area and 1 being the least deprived.

Urbanicity. The urban/rural classification is based on the rural-urban commuting area (RUCA) codes. RUCA codes are a Census tract-based classification scheme that utilizes the standard Bureau of Census Urbanized Area and Urban Cluster definitions in combination with work commuting information to characterize all the nation's Census tracts regarding their rural and urban status and relationships.

Normalized Quarters. Normalized quarters are individualized base on client's first CCL date (first screening date). Normalized quarter 1 is the first post-CCL quarter, defined as the 90-day period after the first CCL date. Normalized quarter 1 is the first pre-CCL quarter, defined as the 90-day period before the first CCL date, inclusive of the first CCL date. The cost and utilization data tracked four pre-CCL quarters and two post CCL quarters.

Baseline Year. Baseline year is defined as the four quarters (each a 90-day period) prior to the first CCL date, inclusive of the first CCL date.

Utilization Outcomes. The emergency department (ED) visit and acute hospitalization outcomes are both based on HEDIS 2018 specifications. ED visits do not include visits that led to hospitalizations. Both these utilization outcomes are measured by quarterly (normalized quarter) events per 1000 individuals.

Cost Outcomes. Cost are based on paid amounts from both fee for service (FFS) claims and encounters in the Medicaid Data Warehouse. Costs related to pharmacy, substance abuse, non-emergency transportation, chiropractic, dental and vision are excluded from medical cost. Cost is measured by quarterly (normalized quarter) Per Member Per Month (PMPM); i.e., total cost in the quarter divided by the number of Medicaid eligible months in the quarter.

Data Suppression. Data suppression refers to the methods or restrictions applied to presented data (such as counts, percentages, and means) to limit the disclosure of information about individuals or reduce the number of estimates with unacceptable levels of statistical reliability. For this report, values are suppressed (not shown in tables/charts) for all non-zero counts in the numerator which are less than 10, or when the denominator is less than 20.

Section 1: CCL Process Metrics

The CCL process metrics are meant to describe the scale and scope of the PCMH CCL activities aggregated at the PO level: How many people are being screened? What are their social needs? Which needs is the PCMH able to address and document through linkages?

Section 1 tables include all unique individuals in the data submission whose screening dates fell within the requested timeframe of 3/1/17 to 9/30/19.

1.1 File Summary Information

Tables 1a and 1b provide basic file information across all screenings conducted from March 2017 to September 2019. The submitted data files contain a total of 64,268 individuals. Both tables also presented information on screenings conduced in two separate timeframes: (1) 2017 to 2018, and (2) January to September 2019.

Table 1a. File Summary Information, N=64,268

Individuals with the Following Data Elements	Screening Date: 3/1/17 – 12/31/18 N =39,809		Screening Date: 1/1/19 – 9/30/19 N =34,155		Screening Date: 3/1/17 – 9/30/19 Total N =64,268	
	N of individuals in both time frames=9,696					
	N	%	N	%	N	%
Individuals with only one screening date	38,068	95.6%	22,116	64.8%	50,925	79.2%
Individual with multiple screening dates	1,741	4.4%	12,039	35.2%	13,343	20.8%
Individuals with open linkages	1,109	2.8%	813	2.4%	1,837	2.9%
Individuals with closed linkages	661	1.7%	473	1.4%	1,083	1.7%
Individuals with linkage status data	948	2.4%	655	1.9%	1,514	2.4%
Individuals assisted with MI Bridges	0	0.0%	0	0.0%	0	0.0%
Individuals with a referral date	11,116	27.9%	8,535	25.0%	17,218	26.8%

Appendix A lists the 11 PCMH/POs participating in the PCMH CCL Data Partnership.

Table 1b provides the number of individuals by the number of needs identified. Less than half of the individuals (48%) had at least one need.

Table 1b. Number of Needs Identified Per Individual, N=64,268						
Individuals with Needs Identified	**Screening Date: 3/1/17 – 12/31/18 N =39,809**		**Screening Date: 1/1/19 – 9/30/19 N =34,155**		**Screening Date: 3/1/17 – 9/30/19 Total N =64,268**	
	N of individuals in both time frames =9,696					
	N	%	N	%	N	%
0 Needs	21,008	52.8%	18,395	53.9%	33,193	51.6%
Any Needs	18,801	47.2%	15,760	46.1%	31,075	48.4%
1 Need Only	7,911	19.9%	6,288	18.4%	11,934	18.6%
2-3 Needs	7,831	19.7%	6,855	20.1%	13,289	20.7%
4-5 Needs	2,437	6.1%	2,086	6.1%	4,525	7.0%
6+ Needs	622	1.6%	531	1.6%	1,327	2.1%

1.2 Needs Identified

Table 2a presents the number of individuals with positive screen by each need domain.

Table 2a. Number of Individuals Per Need Domain, N=31,075 with Needs out of 64,268 Screened			
Domain	**Total N of Individuals with Need**	**% of All Individuals Screened (N=64,268)**	**% of Individuals with at Least 1 Need (N=31,075)**
Physical and Mental Health	11,496	17.9%	37.0%
Healthcare Affordability	4,200	6.5%	13.5%
Food	7,878	12.3%	25.4%
Employment	10,910	17.0%	35.1%
Housing/Shelter	5,106	7.9%	16.4%
Utilities	6,696	10.4%	21.5%
Family Care	3,396	5.3%	10.9%
Education	12,456	19.4%	40.1%
Transportation	6,585	10.2%	21.2%
Safety	3,324	5.2%	10.7%

Table 2b presents the degree of coexistence of needs among individuals with two or more identified needs. Percentages in each cell reflect the portion of individuals with a need presented in the far-right column who also had a need indicated by a numbered column. For example, the 1,877 individuals in the top populated cell

under the Physical and Mental Health column represent the 45% of the 4,200 individuals with a Healthcare Affordability need who also had a Physical and Mental Health need. Conversely, the same 1,877 individuals in the top cell under the Healthcare Affordability column represent the 16% of the 11,496 individuals with a Physical and Mental Health need who also had a Healthcare Affordability need. The coexistence of at least 50% of a need domain (row) with another specific need is highlighted.

Table 2b. Coexistence of Needs Among Individuals, N=31,075 with Needs

Domain	1. Phys., Ment. Health	2. Healthc. Afford-ability	3. Food	4. Employ-ment	5. Hous-ing	6. Uti-lities	7. Family Care	8. Edu-cation	9. Trans-port-ation	10. Safety	Total Individuals with Need
1. Physical and Mental Health		1877 (16%)	3062 (27%)	3693 (32%)	2272 (20%)	3075 (27%)	1346 (12%)	3864 (34%)	2666 (23%)	1081 (9%)	*11,496*
2. Healthcare Affordability	1877 (45%)		1649 (39%)	1440 (34%)	1056 (25%)	1353 (32%)	537 (13%)	1379 (33%)	1230 (29%)	449 (11%)	*4,200*
3. Food	3062 (39%)	1649 (21%)		2028 (26%)	2234 (28%)	2275 (29%)	1113 (14%)	1986 (25%)	2467 (31%)	792 (10%)	*7,878*
4. Employment	3693 (34%)	1440 (13%)	2028 (19%)		1977 (18%)	2560 (23%)	848 (8%)	4629 (42%)	2929 (27%)	1721 (16%)	*10,910*
5. Housing/Shelter	2272 (44%)	1056 (21%)	2234 (44%)	1977 (39%)		1795 (35%)	721 (14%)	1869 (37%)	1768 (35%)	840 (16%)	*5,106*
6. Utilities	3075 (46%)	1353 (20%)	2275 (34%)	2560 (38%)	1795 (27%)		1015 (15%)	2831 (42%)	1947 (29%)	1054 (16%)	*6,696*
7. Family Care	1346 (40%)	537 (16%)	1113 (33%)	848 (25%)	721 (21%)	1015 (30%)		1634 (48%)	823 (24%)	506 (15%)	*3,396*
8. Education	3864 (31%)	1379 (11%)	1986 (16%)	4629 (37%)	1869 (15%)	2831 (23%)	1634 (13%)		2340 (19%)	1822 (15%)	*12,456*
9. Transportation	2666 (40%)	1230 (19%)	2467 (37%)	2929 (44%)	1768 (27%)	1947 (30%)	823 (12%)	2340 (36%)		1296 (20%)	*6,585*
10. Safety	1081 (33%)	449 (14%)	792 (24%)	1721 (52%)	840 (25%)	1054 (32%)	506 (15%)	1822 (55%)	1296 (39%)		*3,324*

While the SIM PCMH Initiative mandated the administration of a screening tool to assess social determinants of health needs that match the above 10 domains approved by the MDHHS SIM Leadership, participating POs and PCMHs in SIM were not required to use the SDOH screening tool template developed by MDHHS SIM team. Thus there were some variations in the questions used across the POs/PCMHs and an apparent lack of standardization in the determination of whether a true need exists or not for some domains. For example, a need is identified for Education if a positive response exists to the more ambiguous indirect questions on whether the individual being screened thinks completing more education or training, or an assistance program to further education or job skills would be helpful to him/her, in contrast to the more direct questions on whether the individual needs help with school or job training, or finding a local career center. Similarly, a negative response to the question on whether an individual has a job or other steady source of income is considered an indicator of Employment need which may or may not be true; a positive response to a slightly different question for the same domain – i.e. on whether an individual needs a job is a clearer unambiguous indicator of the present of Employment need. Appendix B presents a crosswalk of the screening questions for the ten domains across the 11 PO/PCMHs vis-à-vis the state recommended SIM PCMH brief screening questions.

1.3 Linkage Information

Table 3 provides summary information for all individuals who had a positive social need, the percent of these individuals that led to an open linkage, the percent of individuals with a need that led to a closed linkage, and average days from linkage opened to linkage closed for needs that have been met or handled internally.

Table 3. Distribution of Social Needs and Linkages, N=31,075 with Needs

Domain	Total Individuals with Need	Linkage Open[1]		Linkage Closed[1]		N of Linkages With Dates, and Status of Need Met or Handled Internally[2]	Days Open to Close with Needs Met/ Handled Internally (average)
		Number (% of Those with Need)					
Physical and Mental Health	11,496	607	5.3%	376	3.3%	65	25
Healthcare Affordability	4,200	325	7.7%	244	5.8%	39	10
Food	7,878	998	12.7%	462	5.9%	26	22
Employment	10,910	115	1.1%	18	0.2%	2	-
Housing/Shelter	5,106	540	10.6%	286	5.6%	19	-
Utilities	6,696	292	4.4%	161	2.4%	48	27
Family Care	3,396	311	9.2%	172	5.1%	4	-
Education	12,456	103	0.8%	48	0.4%	2	-
Transportation	6,585	450	6.8%	193	2.9%	17	-
Safety	3,324	17	0.5%	10	0.3%	3	-

[1]Based only on the number of cases from Answer Health, Huron Family Practice Center, IHA Health Services Corporation, Metro Health Integrated Network, and Michigan Medicine with linkage information (N=1,837).

[2]Average number of days between linkages opened to closed with needs met or handled internally not reported when denominators <20.

Table 4 presents data on linkage status for individuals who had an open linkage. Percent values represent the proportion of individuals with linkage status information relative to the total number of individuals with an open linkage date in each domain.

Table 4. Linkage Status for Individuals with an Open Linkage, N=1,837

Domain	Total Individuals w/ Linkage Open	Total Individuals w/ Linkage Still Open	Need Met	Handled Internally	Unable to Contact	No Individual Follow-up	Individual Declined	No Resource	Other	No Info
		Number (% of those with Linkage Open)								
Physical and Mental Health	607	4 (1%)	46 (8%)	27 (4%)	24 (4%)	8 (1%)	55 (9%)	0 (0%)	219 (36%)	224 (37%)
Healthcare Affordability	325	74 (23%)	45 (14%)	1 (0%)	2 (1%)	1 (0%)	13 (4%)	0 (0%)	91 (28%)	98 (30%)
Food	998	225 (23%)	27 (3%)	0 (0%)	5 (1%)	1 (0%)	8 (1%)	1 (0%)	411 (41%)	320 (32%)
Employment	115	4 (3%)	3 (3%)	0 (0%)	2 (2%)	1 (1%)	11 (10%)	0 (0%)	0 (0%)	94 (82%)
Housing/Shelter	540	126 (23%)	21 (4%)	0 (0%)	7 (1%)	2 (0%)	7 (1%)	1 (0%)	244 (45%)	132 (24%)
Utilities	292	54 (18%)	52 (18%)	0 (0%)	11 (4%)	7 (2%)	25 (9%)	0 (0%)	64 (22%)	79 (27%)
Family Care	311	101 (32%)	5 (2%)	0 (0%)	5 (2%)	1 (0%)	3 (1%)	1 (0%)	159 (51%)	36 (12%)
Education	103	1 (1%)	2 (2%)	0 (0%)	5 (5%)	7 (7%)	32 (31%)	0 (0%)	1 (1%)	55 (53%)
Transportation	450	82 (18%)	24 (5%)	0 (0%)	3 (1%)	3 (1%)	9 (2%)	0 (0%)	154 (34%)	175 (39%)
Safety	17	1 (6%)	3 (18%)	0 (0%)	2 (12%)	0 (0%)	2 (12%)	0 (0%)	0 (0%)	9 (53%)

[1]Based only on the number of cases from Answer Health, Huron Family Practice Center, IHA Health Services Corporation, Metro Health Integrated Network, and Michigan Medicine with linkage information (N=1,837).

Section 2: Multi-sector CCL Individual Descriptive Metrics

The Medicaid IDs provided in the data submissions are used to match CCL data with Medicaid eligibility and claims data from the Michigan Medicaid Data Warehouse. When Medicaid IDs are not provided, other identifiers (names, date of birth, addresses, and social security number) are used to attempt to find Medicaid IDs. In the latter case, the accuracy of matching and the numbers of individuals matched with Medicaid IDs depend on the data quality of the other identifiers. For this report, 97% of individuals in the PO's data submission files were successfully matched with Medicaid IDs.

Section 2 tables include as many individuals as possible with a PO-provided Medicaid ID. The total number of individuals in each table can vary depending on completeness of data related to the table. Individuals 65 years or older are excluded from all the section 2 tables.

Medicaid eligibility and claims data are used to calculate the following:

- Descriptive information on individuals: age, gender, race/ethnicity, Medicaid eligibility categories, and chronic disease; and
- The geographic distribution of individuals, such as urban/rural and area socioeconomic deprivation.

2.1 Demographic Characteristics of PCMH Individuals Screened for Social Needs

Table 5 presents demographic and Medicaid program enrollment by the number of needs identified. The last column presents data on the population with needs who had at least one linkage opened to meet a social need.

Table 5: Individual Demographic Characteristics and Medicaid Program Enrollment by Number of Needs Identified, N[1]=61,165

Individual Characteristics	Social Needs				Social Needs and Any Linkage Opened
	0	1	2-3	4+	
	Number (%)				
Number of Unique Individuals (n)	30,962	11,515	12,918	5,770	1,738
Age					
0 to 18	18,149 (58.6%)	5,546 (48.2%)	5,051 (39.1%)	1,213 (21.0%)	574 (33.0%)
19 to 24	2,051 (6.6%)	944 (8.2%)	1,100 (8.5%)	415 (7.2%)	158 (9.1%)
25 to 34	3,864 (12.5%)	1,614 (14.0%)	2,057 (15.9%)	1,052 (18.2%)	353 (20.3%)
35 to 44	2,583 (8.3%)	1,234 (10.7%)	1,606 (12.4%)	1,066 (18.5%)	218 (12.5%)
45 to 54	1,911 (6.2%)	996 (8.6%)	1,469 (11.4%)	1,093 (18.9%)	200 (11.5%)
55 to 64	2,404 (7.8%)	1,181 (10.3%)	1,635 (12.7%)	931 (16.1%)	235 (13.5%)
Sex					
Female	17,830 (57.6%)	6,890 (59.8%)	7,729 (59.8%)	3,447 (59.7%)	1,104 (63.5%)
Male	13,132 (42.4%)	4,625 (40.2%)	5,189 (40.2%)	2,323 (40.3%)	634 (36.5%)

Table 5: Individual Demographic Characteristics and Medicaid Program Enrollment by Number of Needs Identified, N[1]=61,165

Individual Characteristics	Social Needs				Social Needs and Any Linkage Opened
	0	1	2-3	4+	
	Number (%)				
Race/Ethnicity					
White	18,880 (61.0%)	6,810 (59.1%)	7,375 (57.1%)	3,129 (54.2%)	963 (55.4%)
Black	5,485 (17.7%)	2,619 (22.7%)	3,434 (26.6%)	1,811 (31.4%)	562 (32.3%)
Hispanic	2,617 (8.5%)	1,056 (9.2%)	1,067 (8.3%)	353 (6.1%)	56 (3.2%)
Program Group					
ABAD	2,276 (7.4%)	1,294 (11.2%)	1,901 (14.7%)	1,036 (18.0%)	238 (13.7%)
HMP	6,620 (21.4%)	2,976 (25.8%)	3,859 (29.9%)	2,278 (39.5%)	557 (32.0%)
TANF	19,848 (64.1%)	6,736 (58.5%)	6,682 (51.7%)	2,250 (39.0%)	832 (47.9%)
Individuals received CM/CC Service	2,973 (9.6%)	1,614 (14.0%)	2,528 (19.6%)	1,763 (30.6%)	404 (23.2%)

[1] Individuals who were matched to Medicaid ID in the Medicaid Data Warehouse.

2.2 Health Conditions

Table 6a and Table 6b present, separately for pediatric and adult, the health conditions of individuals who have Medicaid IDs and chronic condition information in the Medicaid Data Warehouse. Please refer to Appendix A for information on how the chronic conditions were determined.

Table 6a: Pediatric Health Conditions by Number of Needs Identified, N[1]=29,063					
Health Conditions	**Social Needs**				**Social Needs and Any Linkage Opened**
	0	**1**	**2-3**	**4+**	
	Number (%)				
Number of Unique Individuals (n)	17,471	5,446	4,963	1,183	543
Number of Individuals with Chronic Conditions					
No chronic conditions	11,701 (67.0%)	3,315 (60.9%)	2,797 (56.4%)	656 (55.5%)	350 (64.5%)
1 chronic condition	3,515 (20.1%)	1,221 (22.4%)	1,200 (24.2%)	289 (24.4%)	102 (18.8%)
2 to 3 chronic conditions	1,837 (10.5%)	694 (12.7%)	757 (15.3%)	180 (15.2%)	71 (13.1%)
4 or more chronic conditions	418 (2.4%)	216 (4.0%)	209 (4.2%)	58 (4.9%)	20 (3.7%)
Number of Individuals with Behavioral Health Diagnosis	4,021 (23.0%)	1,612 (29.6%)	1,655 (33.3%)	414 (35.0%)	140 (25.8%)
Mental Disorders[2]	1,729 (9.9%)	744 (13.7%)	761 (15.3%)	198 (16.7%)	55 (10.1%)
Alcohol and Drug Use Disorders	657 (3.8%)	344 (6.3%)	370 (7.5%)	84 (7.1%)	16 (2.9%)
Neurodevelopmental Disorders[3]	2,630 (15.1%)	1,033 (19.0%)	1,036 (20.9%)	258 (21.8%)	104 (19.2%)
Top 10 Chronic Conditions					
ADHD	1,687 (9.7%)	764 (14.0%)	774 (15.6%)	196 (16.6%)	65 (12.0%)
Depression	1,050 (6.0%)	479 (8.8%)	516 (10.4%)	141 (11.9%)	41 (7.6%)
Asthma	1,302 (7.5%)	476 (8.7%)	470 (9.5%)	126 (10.7%)	59 (10.9%)
Anxiety Disorders	965 (5.5%)	391 (7.2%)	402 (8.1%)	97 (8.2%)	23 (4.2%)
Drug and Alcohol Use Disorders	657 (3.8%)	344 (6.3%)	370 (7.5%)	84 (7.1%)	16 (2.9%)
Learning, Intellectual, & other Developmental Disabilities	977 (5.6%)	296 (5.4%)	253 (5.1%)	56 (4.7%)	44 (8.1%)
Obesity	515 (2.9%)	209 (3.8%)	212 (4.3%)	54 (4.6%)	16 (2.9%)
Autism Spectrum Disorders	429 (2.5%)	158 (2.9%)	141 (2.8%)	48 (4.1%)	17 (3.1%)
Bipolar Disorder	283 (1.6%)	139 (2.6%)	147 (3.0%)	38 (3.2%)	19 (3.5%)
Migraine and Chronic Headache	250 (1.4%)	91 (1.7%)	92 (1.9%)	25 (2.1%)	10 (1.8%)
Number of Individuals with Only Behavioral Health Condition(s)	2,901 (16.6%)	1,150 (21.1%)	1,156 (23.3%)	278 (23.5%)	87 (16.0%)
Number of Individuals with Only Physical Health Condition(s)	1,749 (10.0%)	519 (9.5%)	511 (10.3%)	113 (9.6%)	53 (9.8%)
Number of Individuals with Co-occurring Behavioral and Physical Health Conditions	1,120 (6.4%)	462 (8.5%)	499 (10.1%)	136 (11.5%)	53 (9.8%)

[1] Pediatric individuals without chronic condition information in the Data Warehouse were excluded.

[2] Mental disorders include these conditions: depression and depressive disorders, bipolar disorder, schizophrenia and other psychotic disorders, Alzheimer's disease and related disorders/senile dementia, anxiety disorders and personality disorders.

[3] Neurodevelopmental disorders include these conditions: ADHD, autism spectrum disorders, learning disabilities, intellectual disabilities and related conditions, and other developmental delays.

*Suppressed if a non-zero numerator <10 or a denominator <20.

Top 5 chronic conditions for each column are highlighted.

Table 6b: Adult Health Conditions by Number of Needs Identified, N[1]=28,967					
Health Conditions	**Social Needs**				**Social Needs & Any Linkage Opened**
	0	**1**	**2-3**	**4+**	
	Number (%)				
Number of Unique Individuals (n)	11,807	5,583	7,315	4,262	1,017
Number of Individuals with Chronic Conditions					
No chronic conditions	3,312 (28.1%)	1,022 (18.3%)	926 (12.7%)	324 (7.6%)	168 (16.5%)
1 chronic condition	1,974 (16.7%)	802 (14.4%)	847 (11.6%)	353 (8.3%)	130 (12.8%)
2 to 3 chronic conditions	3,034 (25.7%)	1,424 (25.5%)	1,783 (24.4%)	915 (21.5%)	258 (25.4%)
4 or more chronic conditions	3,487 (29.5%)	2,335 (41.8%)	3,759 (51.4%)	2,670 (62.6%)	461 (45.3%)
Number of Individuals with Behavioral Health Diagnosis	5,550 (47.0%)	3,377 (60.5%)	5,114 (69.9%)	3,367 (79.0%)	646 (63.5%)
Mental Disorders[2]	4,554 (38.6%)	2,849 (51.0%)	4,343 (59.4%)	2,968 (69.6%)	595 (58.5%)
Alcohol and Drug Use Disorders	1,904 (16.1%)	1,341 (24.0%)	2,475 (33.8%)	1,885 (44.2%)	241 (23.7%)
Neurodevelopmental Disorders[3]	894 (7.6%)	445 (8.0%)	602 (8.2%)	370 (8.7%)	92 (9.0%)
Top 10 Chronic Conditions					
Depression	3,355 (28.4%)	2,217 (39.7%)	3,577 (48.9%)	2,577 (60.5%)	494 (48.6%)
Obesity	3,126 (26.5%)	1,757 (31.5%)	2,635 (36.0%)	1,594 (37.4%)	333 (32.7%)
Anxiety Disorders	2,847 (24.1%)	1,786 (32.0%)	2,679 (36.6%)	1,864 (43.7%)	395 (38.8%)
Tobacco Use	1,884 (16.0%)	1,484 (26.6%)	2,446 (33.4%)	1,869 (43.9%)	324 (31.9%)
Hypertension	2,236 (18.9%)	1,343 (24.1%)	2,219 (30.3%)	1,510 (35.4%)	262 (25.8%)
Drug and Alcohol Use Disorders	1,904 (16.1%)	1,341 (24.0%)	2,475 (33.8%)	1,885 (44.2%)	241 (23.7%)
Fibromyalgia, Chronic Pain and Fatigue	2,005 (17.0%)	1,264 (22.6%)	2,096 (28.7%)	1,548 (36.3%)	243 (23.9%)
Rheumatoid Arthritis/ Osteoarthritis	1,085 (9.2%)	774 (13.9%)	1,258 (17.2%)	894 (21.0%)	137 (13.5%)
Hyperlipidemia	1,200 (10.2%)	708 (12.7%)	1,089 (14.9%)	627 (14.7%)	106 (10.4%)
Diabetes	1,118 (9.5%)	627 (11.2%)	986 (13.5%)	663 (15.6%)	109 (10.7%)
Number of Individuals with Only Behavioral Health Condition(s)	1,314 (11.1%)	639 (11.4%)	748 (10.2%)	379 (8.9%)	110 (10.8%)
Number of Individuals with Only Physical Health Condition(s)	2,945 (24.9%)	1,184 (21.2%)	1,275 (17.4%)	571 (13.4%)	203 (20.0%)
Number of Individuals with Co-occurring Behavioral and Physical Health Conditions	4,236 (35.9%)	2,738 (49.0%)	4,366 (59.7%)	2,988 (70.1%)	536 (52.7%)

[1] Individuals without chronic condition information in the Data Warehouse were excluded.

[2] Mental disorders include these conditions: depression and depressive disorders, bipolar disorder, schizophrenia and other psychotic disorders, Alzheimer's disease and related disorders/senile dementia, anxiety disorders and personality disorders.

[3] Neurodevelopmental disorders include these conditions: ADHD, autism spectrum disorders, learning disabilities, intellectual disabilities and related conditions, and other developmental delays.

Top 5 chronic conditions for each column are highlighted.

2.3 Residential Geographic Characteristics

Table 7 provides the residential characteristics of individuals who have Medicaid IDs and Geo Code in the Medicaid Data Warehouse.

The urban/rural classification is based on the rural-urban commuting area (RUCA) codes. The Area Deprivation Index (ADI) represents a geographic area-based measure of the socioeconomic deprivation experienced by a neighborhood. The ADI state ranking ranked Michigan's block groups into 10 levels, with 10 being the most deprived area and 1 being the least deprived.

Table 7: Residential Characteristics, N[1]=57,029

Residential Characteristics	Social Needs				Social Needs and Any Linkage Opened
	0	1	2-3	4+	
	Number (%)				
Number of Unique Individuals (n)	28,630	10,871	12,170	5,358	1,563
Urbanicity					
Isolated	112 (.4%)	129 (1.2%)	136 (1.1%)	53 (1.0%)	*
Small Rural	155 (.5%)	158 (1.5%)	197 (1.6%)	66 (1.2%)	*
Large Rural	256 (.9%)	137 (1.3%)	133 (1.1%)	58 (1.1%)	*
Urban	28,107 (98.2%)	10,447 (96.1%)	11,704 (96.2%)	5,181 (96.7%)	1,543 (98.7%)
Area Deprivation Index					
Top 10% most Deprived areas	2,269 (7.9%)	1,416 (13.0%)	1,944 (16.0%)	1,062 (19.8%)	222 (14.2%)
Lowest 90%	26,361 (92.1%)	9,455 (87.0%)	10,226 (84.0%)	4,296 (80.2%)	1,341 (85.8%)

[1]Medicaid Data Warehouse's Geo Code table was used to determine an individual's Census Block Group Code, and individuals without Geo Code information were excluded.
*Suppressed if non-zero numerator<10 or denominator<20.

Section 3: Analysis of Cost and Utilization Patterns Before and After Start of CCL Screening

The purpose of this section is to show the relationship between social needs and healthcare utilization, prior to and following the first CCL date. First CCL date is defined as the first screening date.

- Baseline year is defined as the four quarters (each a 90-day period) prior to first CCL date, inclusive of the first CCL date. Post quarters are defined as 90-day periods after the first CCL date.
- Data covers four baseline quarters and two post quarters.

Table 8 presents baseline year utilization and cost information, and was limited to those who had a full year of Medicaid eligibility for the baseline year. Table 9 presents quarterly utilization and cost information, and was limited to those who had full baseline year and full post two quarters of Medicaid eligibility.

Table 8: Baseline Utilization and Cost of Individuals in the Baseline Year, by Number of Social Needs and Whether Linkage was Opened, Pediatric N[1]=23,053, Adult N[1]= 22,948

Utilization and Cost Measures	Social Needs				Social Needs and Any Linkage Opened
	0	1	2-3	4+	
# of Pediatric Individuals (n[1])	13,645	4,436	4,036	936	375
Percent of pediatric individuals during the baseline year experiencing:					
0 ED visits	10,679 (78.3%)	3,122 (70.4%)	2,699 (66.9%)	602 (64.3%)	279 (74.4%)
1-2 ED visits	2,543 (18.6%)	1,063 (24.0%)	1,038 (25.7%)	264 (28.2%)	80 (21.3%)
3-4 ED visits	331 (2.4%)	194 (4.4%)	199 (4.9%)	53 (5.7%)	11 (2.9%)
5+ ED visits	92 (.7%)	57 (1.3%)	100 (2.5%)	17 (1.8%)	*
Percent of pediatric individuals during the baseline year experiencing:					
0 acute hospitalizations	13,494 (98.9%)	4,370 (98.5%)	3,972 (98.4%)	917 (98.0%)	370 (98.7%)
1 acute hospitalization	130 (1.0%)	58 (1.3%)	54 (1.3%)	17 (1.8%)	*
>1 acute hospitalization	21 (.2%)	*	10 (.2%)	*	*
Baseline Pediatric Expenditure	$48	$53	$67	$58	$54
# of Adult Individuals (n[1])	9,112	4,523	5,975	3,338	741
Percent of adult individuals during the baseline year experiencing:					
0 ED visits	6,226 (68.3%)	2,655 (58.7%)	3,171 (53.1%)	1,485 (44.5%)	395 (53.3%)
1-2 ED visits	2,129 (23.4%)	1,265 (28.0%)	1,800 (30.1%)	1,110 (33.3%)	223 (30.1%)
3-4 ED visits	459 (5.0%)	335 (7.4%)	546 (9.1%)	371 (11.1%)	58 (7.8%)
5+ ED visits	298 (3.3%)	268 (5.9%)	458 (7.7%)	372 (11.1%)	65 (8.8%)
Percent of adult individuals during the baseline year experiencing:					
0 acute hospitalizations	8,689 (95.4%)	4,242 (93.8%)	5,531 (92.6%)	2,982 (89.3%)	659 (88.9%)
1 acute hospitalization	330 (3.6%)	195 (4.3%)	328 (5.5%)	266 (8.0%)	56 (7.6%)
>1 acute hospitalization	93 (1.0%)	86 (1.9%)	116 (1.9%)	90 (2.7%)	26 (3.5%)
Baseline Adult Expenditure	$185	$229	$249	$299	$295

[1]Include only individuals with full four quarters of Medicaid eligibility prior to the first CCL date.
*Suppressed if non-zero numerator<10 or denominator<20.

Table 9: Baseline and Follow-up Cost and Utilization of Individuals with Social Needs Who Received an Open Linkage, Compared to Those Who Did Not Receive any Open Linkages

Healthcare Utilization and Cost Measures		Individuals with Social Needs and 1+ Open Linkage		Individuals with Social Needs No Open Linkage	
		N[1]	Metric	N[1]	Metric
Pediatric	Quarterly emergency department visit rate/1000 individuals				
	Q-4	291	96	6,843	166
	Q-3	291	113	6,843	150
	Q-2	291	93	6,843	149
	Q-1	291	82	6,843	152
	Q1	291	137	6,843	149
	Q2	291	113	6,843	127
	Quarterly acute hospital admission rate/1000 individuals				
	Q-4	291	10	6,843	5
	Q-3	291	3	6,843	5
	Q-2	291	0	6,843	4
	Q-1	291	3	6,843	5
	Q1	291	3	6,843	5
	Q2	291	7	6,843	4
	Average quarterly PMPM expenditures, Pediatric				
	Q-4	291	$72	6,843	$74
	Q-3	291	$40	6,843	$55
	Q-2	291	$32	6,843	$55
	Q-1	291	$42	6,843	$59
	Q1	291	$35	6,843	$58
	Q2	291	$37	6,843	$48
Adult	Quarterly emergency department visit rate/1000 individuals				
	Q-4	504	347	9,698	347
	Q-3	504	321	9,698	345
	Q-2	504	385	9,698	338
	Q-1	504	357	9,698	401
	Q1	504	480	9,698	376
	Q2	504	321	9,698	320

Healthcare Utilization and Cost Measures		Individuals with Social Needs and 1+ Open Linkage		Individuals with Social Needs No Open Linkage	
		N[1]	Metric	N[1]	Metric
Adult	Quarterly acute hospital admission rate/1000 individuals				
	Q-4	504	32	9,698	24
	Q-3	504	46	9,698	23
	Q-2	504	46	9,698	31
	Q-1	504	58	9,698	34
	Q1	504	40	9,698	34
	Q2	504	32	9,698	27
	Average quarterly PMPM expenditures, Adult				
	Q-4	504	$284	9,698	$255
	Q-3	504	$278	9,698	$257
	Q-2	504	$330	9,698	$274
	Q-1	504	$291	9,698	$290
	Q1	504	$395	9,698	$309
	Q2	504	$367	9,698	$261

[1]Include only individuals with full four quarters of Medicaid eligibility prior and two full quarters of Medicaid eligibility post the first CCL date.

Table 10: Baseline and Follow-up Cost and Utilization of Individuals with Social Needs, Compared to Those with no Social Needs					
Healthcare Utilization and Cost Measures		**Individuals with No Social Needs**		**Individuals with Social Needs**	
		N[1]	**Metric**	**N[1]**	**Metric**
Pediatric	Quarterly emergency department visit rate/1000 individuals				
	Q-4	9,734	97	7,134	163
	Q-3	9,734	97	7,134	149
	Q-2	9,734	92	7,134	146
	Q-1	9,734	89	7,134	149
	Q1	9,734	88	7,134	149
	Q2	9,734	81	7,134	127
	Quarterly acute hospital admission rate/1000 individuals				
	Q-4	9,734	3	7,134	5
	Q-3	9,734	4	7,134	5
	Q-2	9,734	3	7,134	4
	Q-1	9,734	3	7,134	5
	Q1	9,734	4	7,134	5
	Q2	9,734	3	7,134	4
	Average quarterly PMPM expenditures, Pediatric				
	Q-4	9,734	$54	7,134	$74
	Q-3	9,734	$47	7,134	$54
	Q-2	9,734	$49	7,134	$54
	Q-1	9,734	$50	7,134	$58
	Q1	9,734	$47	7,134	$57
	Q2	9,734	$46	7,134	$48
Adult	Quarterly emergency department visit rate/1000 individuals				
	Q-4	6,203	176	10,202	347
	Q-3	6,203	177	10,202	344
	Q-2	6,203	177	10,202	341
	Q-1	6,203	198	10,202	398
	Q1	6,203	226	10,202	381
	Q2	6,203	187	10,202	320

Adult	Quarterly acute hospital admission rate/1000 individuals				
	Q-4	6,203	16	10,202	24
	Q-3	6,203	15	10,202	25
	Q-2	6,203	16	10,202	31
	Q-1	6,203	15	10,202	35
	Q1	6,203	15	10,202	35
	Q2	6,203	16	10,202	27
	Average quarterly PMPM expenditures, Adult				
	Q-4	6,203	$190	10,202	$257
	Q-3	6,203	$186	10,202	$258
	Q-2	6,203	$194	10,202	$277
	Q-1	6,203	$208	10,202	$290
	Q1	6,203	$241	10,202	$314
	Q2	6,203	$226	10,202	$266

[1]Include only individuals with full four quarters of Medicaid eligibility prior and two full quarters of Medicaid eligibility post the first CCL date.

Appendix A. Provider Organizations/PCMHs Participating in the PCMH CCL Data Partnership Study

Organization Name	Individuals Screened	Individuals with Needs		Individuals with Linkages	
	N	N	%	N	%
Affinia Health Network Lakeshore	10,147	8,320	82.0%	0	0%
Answer Health	154	48	31.2%	32	20.8%
Ascension Medical Group ProMed	742	87	11.7%	0	0%
Cherry Health	6,412	3,425	53.4%	0	0%
Hackley Community Care Center	6,104	5,049	82.7%	0	0%
Henry Ford Allegiance (Jackson Health Network)	3,518	1,641	46.6%	0	0%
Huron Family Practice Center	771	597	77.4%	276	35.8%
IHA Health Services Corporation	16,873	4,095	24.3%	1,069	6.3%
Metro Health Integrated Network	6,352	2,610	41.1%	25	0.4%
Muskegon Family Care - Getty Street Clinic	3,971	3,093	77.9%	0	0%
Regents of the University of Michigan	9,806	2,491	25.4%	435	4.4%
All 11 POs/PCMHs[1]	**64,268**	**31,075**	**48.4%**	**1,837**	**2.9%**

[1] There were a total of 64,850 individuals with CCL data received from the 11 POs/PCMHs; however, 582 of these individuals were from Muskegon Family Care who had their initial screening date in October 2019. These individuals were removed from the analysis of the aggregate PO data to report only on cases screened from March 2017 to September 2019 (N=64,268). These 582 individuals were included in the report for Muskegon Family Care as this PO did not have July 2019 data but instead included October 2019 data for their third quarter data submission.

Appendix B. Crosswalk of the Screening Questions for the Ten Domains Across the Provider Organizations/PCMHs Participating in the PCMH CCL Data Partnership Study

Domain	SIM PCMH Brief Screening Questions		Affinia Health Network		Answer Health	
	Question	Response Options	Question	Response Options	Question	Response Options
Physical and Mental Health	In the past month, did poor health keep you from doing your usual activities, like work, school or a hobby?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	In the past month, did poor physical or mental health keep you from doing your usual activities, like work, school or a hobby?	Yes No NA	In the past month, did poor health keep you from doing your usual activities?	Yes No N/A
Healthcare Affordability	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	Yes No NA	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	Yes No N/A
Food	In the past year, did you ever eat less than you needed to because there was not enough food?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	Do you ever eat less than you feel you should because there is not enough food?	Yes No NA	Do you ever eat less than you feel you should because there is not enough food?	Yes No N/A
Employment	Is it hard to find work or another source of income to meet your basic needs?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	Do you have a job or other steady source of income?	Yes No NA	Do you need a job or other steady source of income?	Yes No N/A
Housing/Shelter	Are you worried that in the next few months, you may not have housing?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	Are you worried that in the next few months, you may not have safe housing that you own, rent, or share?	Yes No NA	Are you worried that in the next few months, you may not have housing?	Yes No N/A
Utilities	In the past year, have you had a hard time paying your utility company bills?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	In the past year, have you had a hard time paying your utility company bills?	Yes No NA	In the past year, have you had a hard time paying your utility company bills?	Yes No N/A
Family Care	Do you need help finding or paying for care for loved ones? For example, child care or day care for an older adult.	"Y" = Yes "N" = No "D" = Declined "S" = System missing	Does getting childcare make it hard for you to work, go to school or study? Does getting eldercare make it hard for you to work, go to school or study?	Yes No NA	Do you need help finding or paying for care for your family members?	Yes No N/A
Education	Do you want help with school or job training, like finishing a GED,	"Y" = Yes "N" = No "D" = Declined	Do you think completing more education or training,	Yes No NA	Would an assistance program to further	Yes No N/A

Domain	SIM PCMH Brief Screening Questions		Affinia Health Network		Answer Health	
	Question	Response Options	Question	Response Options	Question	Response Options
	going to college, or learning a trade?	"S" = System missing	like finishing a GED, going to college, or learning a trade, would be helpful for you?		your education, or job skills be helpful to you?	
Transportation	Do you ever have trouble getting to school, work, or the store because you don't have a way to get there?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	Do you have a dependable way to get to work or school and your appointments?	Yes No NA	In the last 12 months, have you had to miss work or appointments, because you didn't have a way to get there?	Yes No N/A
Safety	Do you ever feel unsafe in your home or neighborhood?	"Y" = Yes "N" = No "D" = Declined "S" = System missing	Do you feel safe in your current home environment or surroundings?	Yes No NA	Do you ever feel that you are not safe in your own home or neighborhood?	Yes No N/A

Domain	Ascension Medical Group		Cherry Health		Hackley Community Care	
	Question	Response Options	Question	Response Options	Question	Response Options
Physical and Mental Health	In the past month, did poor physical or mental health keep you from doing your usual activities, like work, school or a hobby?	Yes No	In the past month, did poor physical or mental health keep you from doing your usual activities, like work, school or a hobby?	Yes No	In the past month, did poor physical health keep you from doing your usual activities, like work, school or a hobby? In the past month did poor mental health keep you from doing your usual activities, like work, school or a hobby ?	Yes No N/A
Healthcare Affordability	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	Yes No			In the past year, was there a time you needed to see a doctor, but could not because it cost too much?	Yes No N/A
Food	In the past year, did you ever eat less than you needed to because there was not enough food?	Yes No	Within the past 12 months, you worried that your food would run out before you got money to buy more.	Often True Sometimes True Never True Refused or N/A	Do you ever eat less than you feel you should because there is not enough food?	Yes No N/A

Domain	Ascension Medical Group		Cherry Health		Hackley Community Care	
	Question	Response Options	Question	Response Options	Question	Response Options
			Within the past 12 months, the food you bought didn't last and you didn't have money to get more.			
Employment	Is it hard to find work or another source of income to meet your basic needs?	Yes No	Do you have a job or other steady source of income?	Yes No Refused or N/A	Do you have a job or other steady source of income?	Yes No N/A
Housing/Shelter	Are you worried that in the next few months, you may not have housing?	Yes No	What is your housing situation today?	I do not have housing (I am staying with others, in a hotel, in a shelter, etc.) I have housing today, but I am worried about losing housing in the future I have housing Refused or N/A	Are you worried that in the next few months, you may not have safe housing that you own, rent, or share?	Yes No N/A
Utilities	In the past year, have you had a hard time paying your utility company bills?	Yes No	In the past 12 months has the electric, gas, oil, or water company threatened to shut off services in your home?	Yes No Already shut off Refused or N/A	In the past year, have you had a hard time paying your utility company bills?	Yes No N/A
Family Care	Do you need help finding or paying for care for loved ones? For example, child care or day care for an older adult.	Yes No	Does caring for family or friends make it hard for you to take care of your own needs?	Yes No Refused or N/A	Does getting childcare make it hard for you to work, go to school or study? Does getting eldercare make it hard for you to work, go to school or study? Does caring for family or friends make it hard for you to take care of yourself or do things you enjoy?	Yes No N/A
Education	Do you want help with school or job training, like finishing a GED,	Yes No	Do you think completing more education or training, or getting	Yes No Refused or N/A	Do you think completing more education or training, like finishing GED,	Yes No N/A

Domain	Ascension Medical Group		Cherry Health		Hackley Community Care	
	Question	Response Options	Question	Response Options	Question	Response Options
	going to college, or learning a trade?		childcare would be helpful for you?		going to college, or learning a trade, would be helpful to you?	
Transportation	Do you ever have trouble getting to school, work, or the store because you don't have a way to get there?	Yes No	In the past 12 months, has lack of transportation kept you from medical appointments, meetings, work or from getting things needed for daily living? (Check all that apply)	Yes, it has kept me from medical appointments or getting medications Yes, it has kept me from non-medical meetings, appointments, work or getting things that I need No Refused or N/A	Do you have a dependable way to get to work or school and your appointments?	Yes No N/A
Safety	Do you ever feel unsafe in your home or neighborhood?	Yes No	How often does anyone, including family, physically hurt you? How often does anyone, including family, threaten you with harm? How often does anyone, including family, scream or curse at you?	Never Rarely Sometimes Fairly often Often Refused or N/A	Do you feel safe in your current home environment/ surroundings?	Yes No N/A

Domain	Huron Family Practice		IHA		Jackson Health Network	
	Question	Response Options	Question	Response Options	Question	Response Options
Physical and Mental Health	In the past month, did poor physical or mental health keep you from doing your usual activities, like work, school or a hobby?	Yes No			Does your physical or mental health keep you from doing things you need or want to do? (work, school, take care of yourself)	Yes No

Domain	Huron Family Practice		IHA		Jackson Health Network	
	Question	Response Options	Question	Response Options	Question	Response Options
Healthcare Affordability	In the past year, was there a time when you needed to see a doctor but could not because it cost too much? In the past year, did you skip medications to save money?	Yes No	In the last 12 months, did you skip medications to save money?	Yes No	Have you needed to see a provider but could not because of cost?	Yes No
Food	Do you ever eat less than you feel you should because there is not enough food?	Yes No	Within the past 12 months we worried whether our food would run out before we got money to buy more.	Never True Sometimes True Often True	Do you struggle to get the food you need?	Yes No
Employment	Do you have a job or other steady source of income?	Yes No			Do you need help finding a job, better job or steady source of income?	Yes No
Housing/Shelter	Are you worried that in the next few months, you may not have safe housing that you own, rent, or share?	Yes No	Are you worried or concerned that in the next 2 months you may not have stable housing that you own, rent, or stay in as part of a household?	Yes No	Do you need help with housing?	Yes No
Utilities	In the past year, have you had a hard time paying your utility company bills?	Yes No	In the past year, has the utility company shut off your service for not paying your bills?	Yes No	Do you have a hard time paying your utility bills?	Yes No
Family Care	Does getting child care/older adult care make it hard for you to work, go to school or study? Do you need help paying for or finding this care?	Yes No	Do you need help finding or paying for care for your loved ones. For example, child care or elderly care for an older adult?	Yes No	Do you need help finding or paying for care for loved ones? For example, child care or daycare for an older adult.	Yes No
Education	Do you want help with school or training, like finishing a GED, going to college, or learning a trade?	Yes No	Do you need help finding a local career center or job training?	Yes No	Do you think more education could be helpful for you?	Yes No
Transportation	Do you need help getting to work or school and your appointments?	Yes No	Do you ever have trouble getting to school, work, doctor visits or the store because you don't have a way to get there?	Yes No	Do you have trouble with transportation?	Yes No

Domain	Huron Family Practice		IHA		Jackson Health Network	
	Question	Response Options	Question	Response Options	Question	Response Options
Safety	Do you ever feel unsafe in your home or neighborhood?	Yes No			Are you afraid you might be hurt in your living environment?	Yes No

Domain	Metro Health		Michigan Medicine		Muskegon Family Care	
	Question	Response Options	Question	Response Options	Question	Response Options
Physical and Mental Health	Have ongoing physical or mental health problems kept you from doing your usual activities like work, school, or a hobby during the past few months? (*from 2018 CCL tool – not in 2019 CCL tool)*	Yes No		Yes No	In the past month, did poor physical or mental health keep you from doing your usual activities, like work, school or a hobby?	Yes No
Healthcare Affordability	During the past few months, was there a time when you needed to see a doctor, but did not because of cost?	Yes No	In the last 12 months, did you not see a doctor when you needed to or skip medications to save money?	Yes No	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	Yes No
Food	Within the past 12 months, you worried that your food would run out before you got money to buy more. Within the past 12 months, the food you bought didn't last and you didn't have money to get more.	Often True Sometimes True Never True	Within the past 12 months, you worried that your food would run out before you got money to buy more. Within the past 12 months, the food you bought didn't last and you didn't have money to get more.	Often True Sometimes True Never True	Do you ever eat less than you feel you should because there is not enough food?	Yes No
Employment	Do you need a job or other steady source of income?	Yes No	In the last 4 weeks, have you been looking for work? *(from 2017 CCL tool; no question in 2018 or 2019 CCL tools)*	Yes No	Do you have a job or other steady source of Income?	Yes No
Housing/Shelter	Are you worried that you may not have safe housing that you own, rent or share in the next few months?	Yes No	In the next 2 months, are you worried that you may not have stable housing?	Yes No	Are you worried that in the next few months, you may not have safe housing that you own, rent, or share?	Yes No

Domain	Metro Health		Michigan Medicine		Muskegon Family Care	
	Question	Response Options	Question	Response Options	Question	Response Options
Utilities	During the past few months, have you not been able to pay your utility bills?	Yes No	In the last 12 months, has the utility company shut off your service for not paying your bills?	Yes No	In the past year, have you had a hard time paying your utility company bills?	Yes No
Family Care	Does getting child care or elder care make it hard for you to work, go to school, or study?	Yes No	In the last 4 weeks, did getting elder care or child care make it difficult to work or study?	Yes No	Does getting child care make it hard for you to work, go to school or study?	Yes No
Education	Does your current level of education keep you from supporting yourself or your family?	Yes No	Do you need help finding a local career center and/or job training?	Yes No	Do you think completing more education or training, like finishing a GED, going to college, or learning a trade, would be helpful for you?	Yes No
Transportation	In the past 12 months, has lack of transportation kept you from medical appointments or from getting medications? In the past 12 months, has lack of transportation kept you from meetings, work, or getting things needed for daily living?	Yes No	In the past 12 months, has lack of transportation kept you from medical appointments or from getting medications? In the past 12 months, has lack of transportation kept you from meetings, work, or getting things needed for daily living?	Yes No	Do you have a dependable way to get to work or school and your appointments?	Yes No
Safety	Are you feeling threatened by a partner or ex-partner, or currently experiencing verbal, emotional, physical or sexual abuse?	Yes No				

Appendix C. Methodology for Identifying Chronic Conditions

The Centers for Medicare & Medicaid Services (CMS) Chronic Conditions Data Warehouse (CCW) classification categories and algorithms were adapted to identify the chronic conditions of the individuals. The CCW condition indicators have been developed to facilitate researchers in identifying Medicaid and/or Medicare individuals with specific conditions.

The CMS-CCW defines two sets of conditions from claims data: (1) a set of 27 common chronic conditions, and (2) a second set of over 40 (to date) other chronic or potentially disabling conditions which includes additional chronic health, mental health, disability-related and substance abuse conditions. The condition indicators are developed from algorithms that search administrative claims data for specific diagnosis codes, MS-DRG codes, or procedure codes. ICD-9 code-based algorithms are used for services that occurred prior to October 1, 2015. Starting in 2016, chronic conditions are identified based on ICD-10 codes. More information on the identification of the conditions including the detailed algorithms for each condition can be downloaded from the Chronic Condition Data Warehouse website (www.ccwdata.org).

The table below lists each of the CCW conditions in the first column. While there are almost 70 conditions (to date) listed in CCW, several of these conditions, however, are not mutually exclusive and have been designed to enhance research of specific Medicare and Medicaid populations. Some conditions are considered specific subsets of another larger conditions. To create mutually exclusive categories, several of these conditions have either been combined together to form a broader category along the line of other similar studies, or the specific subset of a condition subsumed into the broader condition. The second column lists the final set of 48 mutually exclusive conditions used in the analysis which were identified using the CCW algorithms.

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Acquired Hypothyroidism	1. Acquired Hypothyroidism
Acute Myocardial Infarction	2. Ischemic Heart Disease (Acute MI subsumed under larger category of Ischemic Heart Disease)
Ischemic Heart Disease	
Alzheimer's Disease	3. Alzheimer's disease and related disorders or senile dementia (Alzheimer's disease subsumed under larger category of Alzheimer's Disease & related disorders or senile dementia)
Alzheimer's Disease and Related Disorders or Senile Dementia	
Anemia	4. Anemia
Asthma	5. Asthma
Atrial Fibrillation	6. Atrial Fibrillation
Benign Prostatic Hyperplasia	7. Benign Prostatic Hyperplasia

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Cancer, Breast	8. Cancer
Cancer, Colorectal	
Cancer, Endometrial	
Cancer, Lung	
Cancer, Prostate	
Leukemias and Lymphomas	
Cataract	9. Eye Disease-Cataract and Glaucoma
Glaucoma	
Chronic Kidney Disease	10. Chronic Kidney Disease
Chronic Obstructive Pulmonary Disease and Bronchiectasis	11. Chronic Obstructive Pulmonary Disease and Bronchiectasis
Diabetes	12. Diabetes
Heart Failure	13. Heart Failure
Hip/Pelvic Fracture	14. Hip/Pelvic Fracture
Hyperlipidemia	15. Hyperlipidemia
Hypertension	16. Hypertension
Osteoporosis	17. Osteoporosis
Rheumatoid Arthritis / Osteoarthritis	18. Rheumatoid Arthritis/ Osteoarthritis
Stroke / Transient Ischemic Attack	19. Stroke / Transient Ischemic Attack
ADHD, Conduct Disorders, and Hyperkinetic Syndrome	20. ADHD, Conduct Disorders, and Hyperkinetic Syndrome
Alcohol Use Disorders	21. Substance Use Disorders
Drug Use Disorders	
Opioid Use Disorder	
Anxiety Disorders	22. Anxiety Disorders (PTSD subsumed under larger category of anxiety disorders)
Post-Traumatic Stress Disorders (PTSD)	
Autism Spectrum Disorders	23. Autism Spectrum Disorders
Bipolar Disorder	24. Bipolar Disorder
Cerebral Palsy	25. Cerebral Palsy
Cystic Fibrosis and Other Metabolic Developmental Disorders	26. Cystic Fibrosis and Other Metabolic Developmental Disorders
Depression	27. Depression (Depressive disorders subsumed under larger category of depression)
Depressive Disorders	
Epilepsy	28. Epilepsy
Fibromyalgia, Chronic Pain and Fatigue	29. Fibromyalgia, Chronic Pain and Fatigue

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Human Immunodeficiency Virus and/or Acquired Immunodeficiency Syndrome (HIV/AIDS)	30. Human Immunodeficiency Virus and/or Acquired Immunodeficiency Syndrome (HIV/AIDS)
Intellectual Disabilities and Related Conditions	31. Intellectual, Learning and other Developmental Disabilities
Learning Disabilities	
Other Developmental Delays	
Liver Disease, Cirrhosis and Other Liver Conditions (excluding Hepatitis)	32. Liver Disease, Cirrhosis and Other Liver Conditions (excluding Hepatitis)
Migraine and Chronic Headache	33. Migraine and Chronic Headache
Mobility Impairments	34. Mobility Impairments
Multiple Sclerosis and Transvers Myelitis	35. Multiple Sclerosis and Transvers Myelitis
Muscular Dystrophy	36. Muscular Dystrophy
Obesity	37. Obesity
Peripheral Vascular Disease (PVD)	38. Peripheral Vascular Disease (PVD)
Personality Disorders	39. Personality Disorders
Pressure and Chronic Ulcers	40. Pressure and Chronic Ulcers
Schizophrenia	41. Schizophrenia and Other Psychotic Disorders (Schizophrenia subsumed under larger category of schizophrenia & other psychotic disorders)
Schizophrenia and Other Psychotic Disorders	
Sensory – Blindness and Visual Impairment	42. Sensory – Blindness and Visual Impairment
Sensory – Deafness and Hearing Impairment	43. Sensory – Deafness and Hearing Impairment
Spina Bifida and Other Congenital Anomalies of the Nervous System	44. Spina Bifida and Other Congenital Anomalies of the Nervous System
Spinal Cord Injury	45. Spinal Cord Injury
Tobacco Use	46. Tobacco Use
Traumatic Brain Injury and Nonpsychotic Mental Disorders Due to Brain Damage	47. Traumatic Brain Injury and Nonpsychotic Mental Disorders Due to Brain Damage
Viral Hepatitis (broken into Hepatitis A, B, C, D and E)	48. Viral Hepatitis (general – covers all types of Hepatitis from A to E)

Acronym List

ABAD – Aged Blind and Disabled

ADHD - Attention-deficit/hyperactivity disorder

ADI – Area Deprivation Index

CCL - Clinical-Community Linkages

CCW - Chronic Conditions Data Warehouse

CM/CC – Care Management and Care Coordination

ED – Emergency Department

FFS - Fee for service claims

HMP – Healthy Michigan Plan

ICD-10-CM – International Classification of Disease, Tenth revision, Clinical Modification

PCMH – Patient Centered Medical Homes

PMPM - Per Member Per Month

PO – Physician Organization

RUCA – Rural-Urban Commuting Area

SIM – State Innovation Model

TANF – Temporary Assistance for Needy Families

SIM Patient Experience Surveys
Summary of Findings from SDOH-Focused Surveys and Interviews

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January 3, 2020

Background

A major emphasis of Michigan's SIM involves screening for social determinants of health (SDOH) in the primary care setting, with follow-up to assist patients in addressing identified needs. Both statewide and CHIR-specific SIM activities focused on supporting primary care practices in developing a process for SDOH screening and options for follow-up.

SIM evaluation plans included surveys of PCMH staff and community agencies to document the successes and challenges of SDOH screening implementation. SIM leadership also sought to understand the patient perspective, particularly in light of anecdotal reports suggesting that patients did not want to address SDOH needs in the primary care setting. Thus, key questions for the patient experience survey related to whether patients feel that SDOH screening in the primary care setting is acceptable, whether patients identified through screening receive assistance with those needs, and if patients have suggestions for how to improve primary care SDOH screening. SIM leadership asked the UM CHEAR Center to conduct the patient experience surveys.

Planning the Patient Experience Surveys

To plan and implement the survey, CHEAR participated in a series of meetings with PCMH leadership, MDHHS SIM staff, PCMH practice representatives, and other SIM contractors (MSU, MPHI) to place the patient experience survey in the context of other SIM evaluation efforts. CHEAR explored whether there was a mechanism to identify which PCMH patients had received (or were likely to have received) SDOH screening in the practice; it became apparent that such a mechanism did not exist, due to the variation across practice sites in screening protocols and lack of tracking for SDOH screening. Therefore, the patient experience surveys would need to target a broad swath of patients with PCMH visits at which they may have experienced screening.

Planning discussions also included the approach to patient contact, the "branding" of the survey (e.g., would the survey come from MDHHS, UM CHEAR, or the PCMH sites); the key questions to be included and whether they could be adequately addressed through a written survey. Other discussions focused on the expected response burden, and whether survey participants would receive an incentive.

In consultation with SIM leadership, a two-part data collection method was developed:

1. Brief mailed survey of patients who recently received care at SIM PCMH practices
2. Follow-up phone interviews among a subset of mailed survey respondents who indicated that they had an SDOH need identified through primary care screening, expressed disagreement with SDOH screening in the primary care setting, or had a suggestion of an SDOH need that was not picked up by screening.

The two-part method allowed for key evaluation questions to be targeted to the most appropriate method (e.g., in-depth questions about interactions with practice personnel would be reserved for the phone interviews). In addition, since the proportion of individuals who endorsed an SDOH need was expected to be relatively low, the mailed survey would serve as mechanism to gauge high-level experiences with SDOH screening among a broad population of PCMH patients, reserving the more time-intensive phone interviews for the subset of patients who were likely to have had interactions with practice personnel around SDOH needs.

Part 1: Brief Mailed Survey

Survey Planning

CHEAR drafted, revised, and pilot tested the brief survey instrument. The final survey included 12 fixed-choice items and one open-ended item. Survey instruments for parents had wording specific to *your child*. The survey allowed respondents to indicate whether they would be willing to participate in a follow-up interview with CHEAR; if yes, respondents were directed to provide their phone number or email and the best time to call.

CHEAR developed a survey sampling protocol which was based on CHEAR's established PCMH data extraction and processing. It was determined by PCMH leadership that the survey effort would include patients at PCMH sites within and outside of CHIRs, and would include both adult patients and parents of pediatric patients. CHEAR obtained a Data Use Agreement with MDHHS to use individual Medicaid beneficiary information from the state data warehouse to identify the target survey sample and to obtain contact information (e.g., mailing address) for selected patients.

The sampling protocol had 4 steps:

1. Identify PCMH patients using attribution list from MIHN
    a. Ensure that none have CSHCS
    b. Exclude patients selected for the survey sample in prior months
2. Identify PCMH visits in the prior *4 weeks* from extraction date
    a. Billing NPI = PCMH practice site
    b. Rendering NPI = PCMH provider
    c. CPT = office visit for existing patient (E/M codes 99212-99215 or 99381-99397)
3. Exclude visits not likely to include screening
    a. Low-intensity brief encounters (CPT 99211)
    b. New patient visits (CPT 99201-99205)
    c. Dental visits (CPT Dxxxx)
    d. Behavioral health visits
4. Survey sampling frame = attributed PCMH patients with at least one qualifying PCMH visit in the prior 4 weeks
    a. Separate sampling frame for pediatric (<18 yrs) vs adult patients

CHEAR tested the sampling protocol to ensure it would yield eligible patients across PCMH sites.

Fielding the Mailed Survey

Sampling for the brief mailed survey was conducted monthly from October to December 2018. From the total number of eligible patients identified through the sampling protocol, CHEAR selected patients in a quasi-proportional manner; the goal was to have every practice represented in the survey population, while allowing large practices to have greater representation.

For each sampled patient/parent, CHEAR prepared a survey recruitment packet that included a copy of the survey, with questions on one side and business-reply return information on the other, along with an individualized cover letter. The cover letter explained the purpose of the survey, and explained that patients could respond by mail or by online form (the letter provided a short URL).

Survey recruitment packets were mailed the month following sampling. The initial month included only adult patients, to allow CHEAR to test its fielding protocols; the remaining 2 months included both adult and pediatric PCMH patients. The total number of PCMH patients sampled was 12,094:

Sampled	Mailed	# Adults	# Pediatric
October 2018	November 2018	3,346	
November 2018	December 2018	2,004	1,788
December 2018	January 2019	1,765	3,191
	TOTAL	7,115	4,979

The sample of 7,115 adults represented 36 practice organizations and 251 practice sites, while the sample of 4,979 pediatric patients represented 35 practice organizations and 256 practice sites.

Response Rate for the Brief Mailed Survey. Response to the brief mailed survey was 16.5% overall, and higher for adult patients compared to parents of pediatric patients (18.7% vs 13.3%).

		MAILING RESPONSE CATEGORY				
	# Sampled	**# Undeliverable**	**# Mail Response**	**# Online Response**	**Total # Respondents**	**Response Rate**
Adult	7115	407	1163	91	1,254	18.7%
Pediatric	4979	249	548	81	629	13.3%
Total	12,094	656	1711	172	1,883	**16.5%**

These figures represent responses before 6/30/19.

The overall response rate for patients of PCMH sites in a CHIR was 16.2% (18.6% adults, 12.9% parents), similar to the 16.7% for patients of PCMH sites outside a CHIR (18.8% adults, 13.6% parents). Response rates across the CHIRs ranged from 12.3% (Jackson) to 19.3% (Genesee).

Mailed Survey Results

Characteristics of the mailed survey respondents, drawn from the state data warehouse, are shown below. Nearly half had received care at a PCMH located within one of the five SIM CHIRs. Three quarters were white. The household income level of adult patients was lower than that for pediatric patients; this is consistent with Medicaid enrollment patterns.

	Adult Patients N=1,254	**Pediatric Patients N=629**
PCMH in CHIR	43.7%	44.4%
Race		
Black	13.6%	12.1%
White	76.6%	73.6%
Hispanic	1.9%	5.1%
Other/Unknown	7.9%	9.2%
Income level (FPL)		
0%	60.0%	37.3%
1-99%	25.6%	27.7%
100% or higher	14.5%	34.9%

Interactions with PCMH providers and staff. The survey asked patients to report on interactions that might influence their engagement in and satisfaction with SDOH screening in the primary care setting, such as whether their PCMH provider listens and encourages questions, and whether PCMH staff treat people with respect and keep personal information confidential.

Overall, 76% of adult patients and 86% of parents of pediatric patients reported their PCMH provider *always* listens carefully to them. Adult patients who received care at PCMH sites outside of a CHIR reported higher ratings of provider listening compared to adult patients at PCMH sites in one of the CHIRs. Among parents, there were similar views of provider listening for those who children receive care at a PCMH in vs outside a CHIR.

Less than 1% of adult patients and parents said their provider *never* listens carefully to them.

Think about your visits and phone calls to [PCMH site name] in the past year: How often did the provider listen carefully to you (you and your child)?				
	Always	***Usually***	***Sometimes***	***Never***
Adults	**75.7%**	**17.3%**	**6.3%**	**0.7%**
Adults, Not CHIR	77.4%	15.0%	6.9%	0.7%
Adults, CHIR	73.6%	20.2%	5.5%	0.7%
Parents	**86.2%**	**11.8%**	**1.9%**	**0.1%**
Parents, Not CHIR	85.7%	11.7%	2.3%	0.3%
Parents, CHIR	86.7%	11.9%	1.4%	0.0%

In contrast to ratings of provider listening, lower proportions of both adults and parents said their provider encourages them to ask questions and raise concerns. Overall, 63% of adult patients reported their PCMH provider *always* encourages questions, while 5% said their provider *never* encourages questions; there was no difference between adult patients in vs outside of a CHIR.

For parents, 78% reported their PCMH provider *always* encourages questions, with higher ratings of provider encouragement reported by parents whose children receive primary care within a CHIR compared to those outside of a CHIR. Only 1% of parents said their provider *never* encourages them to ask questions or raise concerns.

Think about your visits and phone calls to [PCMH site name] in the past year: How often did the provider encourage you to ask questions or raise concerns?				
	Always	***Usually***	***Sometimes***	***Never***
Adults	**63.2%**	**20.6%**	**11.5%**	**4.7%**
Adults, Not CHIR	63.4%	20.6%	11.1%	4.9%
Adults, CHIR	63.0%	20.6%	12.0%	4.4%
Parents	**77.6%**	**16.3%**	**4.8%**	**1.3%**
Parents, Not CHIR	75.7%	17.2%	5.7%	1.4%
Parents, CHIR	80.1%	15.2%	3.6%	1.1%

With regard to PCMH staff, 85% of adult patients and 90% of parents of pediatric patients reported that staff *always* treat them with respect. Adult patients who received care at PCMH sites outside of a CHIR reported slightly higher ratings of staff respectful treatment compared to adult patients at PCMH sites in one of the CHIRs. For parents, there was little difference in staff ratings for respondents whose children receive care at a PCMH within vs outside a CHIR. An extremely low proportion of adult patients and parents said staff *never* treat them with respect.

Think about your visits and phone calls to [PCMH site name] in the past year: How often did the staff treat you (you and your child) with respect?				
	Always	***Usually***	***Sometimes***	***Never***
Adults	**84.5%**	**12.5%**	**2.9%**	**0.1%**
Adults, Not CHIR	85.5%	11.5%	2.9%	0.1%
Adults, CHIR	83.2%	13.7%	3.1%	0.0%
Parents	**89.7%**	**9.2%**	**0.8%**	**0.3%**
Parents, Not CHIR	90.0%	8.9%	0.9%	0.2%
Parents, CHIR	89.2%	9.7%	0.7%	0.4%

The vast majority (94%) of both adult patients and parents of pediatric patients reported that staff *always* keep their personal information confidential. An extremely low proportion of adult patients and parents said staff *never* keep their information confidential.

Think about your visits and phone calls to [PCMH site name] in the past year: How often did the staff keep your (your child's) personal information confidential?				
	Always	***Usually***	***Sometimes***	***Never***
Adults	**93.8%**	**5.3%**	**0.7%**	**0.2%**
Adults, Not CHIR	94.0%	5.0%	0.6%	0.4%
Adults, CHIR	93.5%	5.6%	0.9%	0.0%
Parents	**94.0%**	**5.2%**	**0.6%**	**0.2%**
Parents, Not CHIR	94.5%	4.1%	1.1%	0.3%
Parents, CHIR	93.5%	6.5%	0.0%	0.0%

Overall, findings from the brief mailed survey indicate that most adult patients and parents of pediatric patients have interactions with PCMH providers and staff that would contribute to a positive and welcoming environment for disclosure of SDOH needs. In particular, patients gave high ratings to provider willingness to listen carefully to them, and staff interactions that were respectful and confidential.

The one area that was rated somewhat lower was provider encouragement for patients to ask questions and raise concern. It is possible that for some patients, this perception may inhibit their disclosure of SDOH needs.

Recollection of SDOH screening. Overall, 40.1% of adult patients and 41.8% of parents recalled answering questions about SDOH needs at a PCMH visit in the past year. For adult patients, roughly equal numbers recalled paper or computer report of SDOH needs and having someone at the practice ask them. In contrast, parents were more likely to recall that they answered SDOH questions via a paper or computer form. However, parents of children receiving care at a PCMH practice within a CHIR were more likely than their counterparts receiving care outside of a CHIR to recall someone asking them about SDOH needs.

Approximately 15% adult patients and parents did not remember if they answered questions about SDOH needs. Although it may be difficult for patients to remember their interactions over the course of a year, it should be noted that all survey participants had a PCMH visit in the month prior to sampling.

At any visits to [PCMH site] in the past year, did you answer questions about food, housing, bills, or other life challenges that people sometimes have?					
	Yes				
	Paper/ computer	***Someone asked***	***Both methods***	***No***	***Don't remember***
Adults	**18.5%**	**19.4%**	**2.2%**	**44.8%**	**15.1%**
Adults, Not CHIR	18.9%	18.8%	2.2%	44.4%	15.7%
Adults, CHIR	17.9%	20.4%	2.2%	45.3%	14.2%
Parents	**26.0%**	**14.5%**	**1.3%**	**44.0%**	**14.2%**
Parents, Not CHIR	26.5%	12.1%	0.9%	46.1%	14.4%
Parents, CHIR	25.5%	17.4%	1.8%	41.5%	13.8%

Among adult patients who indicated that they had answered questions about SDOH needs at a PCMH visit in the previous year, 52% reported that they had reported an SDOH concern during the primary care screening; in contrast, among parents who indicated they had answered SDOH questions in the prior year, only 30% reported they had an SDOH concern. The higher level of SDOH needs among adults is consistent with the lower income level of the adult population.

For both adults and parents, the proportion reporting an SDOH need was higher among those receiving care from a PCMH within a CHIR compared to those receiving care outside of a CHIR.

Did you answer YES to having any concerns about food, housing, bills or other life challenges?			
	Yes	***No***	***Don't remember***
Adults	**52.2%**	**40.5%**	**7.3%**
Adults, Not CHIR	49.4%	45.7%	4.9%
Adults, CHIR	55.7%	33.9%	10.4%
Parents	**29.7%**	**66.4%**	**3.9%**
Parents, Not CHIR	26.3%	70.8%	2.9%
Parents, CHIR	33.6%	61.5%	4.9%

PCMH response to SDOH screening. Among both adult patients and parents who indicated they had reported an SDOH concern, about three quarters said someone from the PCMH talked with them about how to get help. A substantially higher proportion of adults and parents receiving care from a PCMH within a CHIR reported that the PCMH talked with them about how to get help, compared to those receiving care outside of a CHIR.

Has someone from [PCMH] talked with you about how to get help or information?			
	Yes	***No***	***Don't remember***
Adults	**72.9%**	**16.9%**	**10.2%**
Adults, Not CHIR	67.4%	20.7%	11.9%
Adults, CHIR	79.2%	12.5%	8.3%
Parents	**74.7%**	**21.5%**	**3.8%**
Parents, Not CHIR	63.2%	28.9%	7.9%
Parents, CHIR	85.4%	14.6%	0.0%

Among both adult patients and parents who indicated they had reported an SDOH concern, about three quarters said they wanted to get help with their concern. Among adult patients, there was no difference between those receiving care from a PCMH within vs outside a CHIR in the proportion who wanted help with their SDOH concern. In contrast, among parents of pediatric patients, those whose children receive care outside a CHIR were substantially more likely to want help with their SDOH concern, compared to those receiving care from a PCMH within a CHIR.

Did you <u>want</u> to get help or information about your concerns?			
	Yes	***No***	***Don't remember***
Adults	**74.4%**	**19.6%**	**6.0%**
Adults, Not CHIR	74.6%	18.7%	6.7%
Adults, CHIR	74.1%	20.7%	5.2%
Parents	**73.7%**	**25.0%**	**1.3%**
Parents, Not CHIR	81.1%	16.2%	2.7%
Parents, CHIR	66.7%	33.3%	0.0%

Among those who indicated they had reported an SDOH concern, 56% of adult patients and 63% of parents said their PCMH suggested they work with another agency to get help. For both adult patients and parents, the proportion who reported that the PCMH suggested another agency was substantially higher for PCMH site within vs outside a CHIR.

Did someone from [PCMH] suggest you work with another office/agency to get help?			
	Yes	***No***	***Don't remember***
Adults	**56.1%**	**31.4%**	**12.5%**
Adults, Not CHIR	47.8%	37.5%	14.7%
Adults, CHIR	65.5%	24.4%	10.1%
Parents	**63.3%**	**29.1%**	**7.6%**
Parents, Not CHIR	57.9%	36.8%	5.3%
Parents, CHIR	68.3%	21.9%	9.8%

Belief in primary care screening for SDOH concerns. Overall, 4 in 5 adult patients and parents indicated that their or their child's PCMH *definitely* or *probably* should ask patients about SDOH concerns. Among adult patients, there were little differences between those receiving care at a PCMH within vs outside a CHIR. Among parents, there was a stronger endorsement of PCMH screening for SDOH concerns among those whose children receive care at a PCMH within a CHIR.

Roughly 1 in 5 adult patients and parents indicated that their or their child's PCMH *definitely* or *probably* should NOT ask patients about SDOH concerns.

Overall, do you think [PCMH site] should ask patients (parents) if they have concerns about food, housing, bills or other life challenges?				
	Definitely Yes	***Probably Yes***	***Probably no***	***Definitely no***
Adults	**43.6%**	**37.2%**	**14.7%**	**4.5%**
Adults, Not CHIR	42.9%	37.8%	15.1%	4.2%
Adults, CHIR	44.4%	36.6%	14.0%	5.0%
Parents	**40.5%**	**41.7%**	**13.4%**	**4.4%**
Parents, Not CHIR	34.2%	45.4%	15.1%	5.3%
Parents, CHIR	48.3%	37.1%	11.3%	3.3%

About 85% of adult patients, and 78% of parents, felt that patients would answer honestly if their PCMH asked about SDOH concerns. Adult patients were twice as likely as parents to believe that patients would *definitely* answer honestly. However, within the group of parents, those whose children receive care at a PCMH site within a CHIR were twice as likely than their counterparts outside a CHIR to believe people would *definitely* answer honestly about their SDOH needs.

Do you think patients (parents) at [PCMH site] would answer honestly if they have concerns about food, housing, bills, or other life challenges?				
	Definitely Yes	***Probably Yes***	***Probably no***	***Definitely no***
Adults	**23.4%**	**61.5%**	**13.7%**	**1.4%**
Adults, Not CHIR	21.4%	63.1%	13.9%	1.6%
Adults, CHIR	25.9%	59.4%	13.6%	1.1%
Parents	**11.0%**	**67.0%**	**20.2%**	**1.8%**
Parents, Not CHIR	7.0%	66.6%	23.8%	2.6%
Parents, CHIR	15.8%	67.7%	15.8%	0.7%

Willingness to participate in SDOH-focused interview. Over 70% of adult patients and parents were willing to participate in a phone interview about their survey responses, with another 7-8% possibly willing. This level of interest far exceeded expectations.

Would you be willing to participate in a brief phone interview about your survey? The interview would last about 10-15 minutes; you would receive a $20 gift card to reimburse your time.			
	Yes – OK to contact me	***Maybe – OK to contact me***	***No – do not contact me***
Adults	**71.9%**	**7.4%**	**20.7%**
Parents	**71.4%**	**8.1%**	**20.5%**

Association between SDOH screening experiences and patient characteristics.
Utilizing demographic variables and administrative claims from the state data warehouse, CHEAR conducted a statistical analysis to explore associations between patients' experiences of SDOH screening and their demographic and clinical characteristics. The analysis consisted of a series of logistic regressions with models that included patient gender, age, income level (FPL), presence of a chronic condition, receipt of care management at the PCMH site, receipt of a preventive care visit in the prior year, receipt of mental health services in the prior year, and whether the PCMH was located within or outside a CHIR.

*Association with recall of PCMH screening**.*** Among the 1,254 adult patients who completed the mailed survey, the only characteristics significantly associated with reporting that their PCMH asked about SDOH concerns were female gender (OR 1.47, p≤.01) and receipt of care management at the PCMH site (OR 1.88, p≤.001). Among the 629 pediatric patients whose parent completed the mailed survey, the only characteristic significantly associated with reporting that their PCMH asked about SDOH concerns was receipt of care management at the PCMH site (OR 2.82, p≤.01).

Association with reporting an SDOH concern. Among the subset of adult patients who reported being asked about SDOH concerns, the characteristics significantly associated with reporting on the mailed survey that they said YES to one or more SDOH needs were age (OR 2.47 for 35-49 years, 2.84 for ≥50 years, compared to 19-34, p≤.001), and receipt of care management at the PCMH site (OR 2.54, p≤.001). For pediatric patients whose parent reported being asked about SDOH concerns, there were no significant associations between patient characteristics and having the parent indicated that they said YES to one or more SDOH needs.

Association with reluctance about SDOH screening in primary care. Among all adult patients who responded to the mailed survey, there were no characteristics associated with being more reluctant about SDOH screening in primary care. However, characteristics associated with having no reluctance about SDOH screening were female gender (OR 0.63, p≤.01), receipt of mental health care in the prior year (OR 0.55, p≤.05), and receipt of care management at the PCMH site (OR 0.55, p≤.01). For pediatric patients, there were no significant associations with either more reluctance or no reluctance to SDOH screening in the PCMH setting.

Part 2: Follow-Up Phone Interview

Phone Interview Planning

CHEAR drafted follow-up phone interviews. Eligibility for the phone interview would be based on survey responses, yielding to five groups:

A. Reported an SDOH need AND reported that the PCMH talked with / referred them
B. Reported an SDOH need AND reported that the PCMH did not talk with / refer them
C. Reported an SDOH need AND reported that they did not want help with that need
D. Reported reluctance with PCMH SDOH screening *(and not in group A-C)*
E. Not in group A-D, but survey responses suggested some sort of SDOH need

The phone interviews included a combination of questions to confirm (or clarify) survey responses, followed by open-ended questions to elicit details of patients' interactions with PCMH staff around SDOH screening, as well as their interactions with community agencies to address SDOH needs. Questions were targeted to each patient's eligibility group (A-E). Additional questions for all interview participants addressed care coordination and health equity.

The phone interview was programmed into a computer-assisted interviewing software system, so that the information about the patient's background (e.g., PCMH site, adult/parent status) and survey responses could direct the interview wording and question order. Four CHEAR staff were trained on conducting the follow-up phone interviews using a standardized CATI protocol. In addition, a bilingual interviewer translated the interview protocol into Spanish, and was available to conduct interviews in Spanish if requested.

Fielding the Phone Interviews

CHEAR staff reviewed mailed survey responses to identify patients eligible for the follow-up phone interviews. Survey responses for those patients were entered into CHEAR's computer-assisted telephone interviewing system to enable accurate programming of the interview questions.

Trained CHEAR interviewers placed calls to the phone numbers provided on the survey responses to invite participation in the follow-up interview. When emails were provided, interviewers also contacted patients by email to invite them to suggest a convenient time to conduct the interview.

Interviewers used a standard script to explain the purpose of the interview, and emphasized that participation was voluntary and confidential. At the outset of the interview, clients were asked for permission to record the interview, to facilitate accurate recording of responses; all but one client agreed. A CHEAR research assistant reviewed all call recordings to verify accuracy of the responses marked in the software system, and to transcribe client responses to open-ended questions.

Eligibility for Follow-up Phone Interviews. Of the 1,883 respondents to the brief mailed survey:

- 381 (20.2%) indicated on the mailed survey that they did not wish to participate in a follow-up phone interview,
- 572 (30.4%) agreed to participate in a follow-up phone interview AND had survey responses that made them eligible for a follow-up phone interview (Group A-E)
- 930 (49.4%) agreed to participate in a follow-up phone interview BUT did not have survey responses that made them eligible for a follow-up phone interview

Among the 572 patients who agreed to and were eligible for a follow-up phone interview,

- 177 were eligible for Group A (reported an SDOH need AND PCMH addressed it)
- 51 were eligible for Group B (reported an SDOH need AND PCMH did not address)
- 48 were eligible for Group C (reported an SDOH need but did not want help)
- 208 were eligible only for Group D (reported reluctance with SDOH screening in PCMH)
- 88 were eligible for Group E (response suggested some sort of SDOH need)

Response Rate for Follow-up Phone Interviews. Response rates for the follow-up phone interviews ranged from 75% to 86% across the five eligibility groups. This high response rate likely reflects the process by which individuals indicated on the brief mailed survey whether they were interested in participation.

	Group A	Group B	Group C	Group D	Group E
# identified via survey	177	51	48	208	88
# completed interview	149	44	36	166	69
Response rate	84%	86%	75%	80%	78%

The adult patients and parents of pediatric patients who participated in phone interviews represented a broad array of SIM practice organizations and PCMH sites. All five CHIRs were represented, as well as sites outside the CHIRs.

	Adults	Parents
# identified via survey	443	129
# completed interview	355	109
Practice Organizations	31	28
Practice Sites	165	82
Response rate	80%	84%

Phone Interview Results

Accuracy of mailed survey results about SDOH concerns. Among adults and parents whose mailed survey responses indicated that they have told their PCMH about one or more SDOH concerns, over 85% also described at least one SDOH concern in the phone interview.

Among patients whose mailed survey indicated they told PCMH about ≥1 SDOH concern:			
	Group A	**Group B**	**Group C**
# ADULT PATIENTS interviewed	116	39	30
reported ≥1 SDOH in interview	100 (86% match)	36 (92% match)	25 (83% match)
reported 0 SDOH in interview	16 (14% mismatch)	3 (8% mismatch)	5 (17% mismatch)
# PARENTS interviewed	33	5	6
reported ≥1 SDOH in interview	29 (88% match)	5 (100% match)	5 (83% match)
reported 0 SDOH in interview	4 (12% mismatch)	0 (0% mismatch)	1 (17% mismatch)

The "mismatch" patients – those who reported an SDOH concern on the mailed survey but not the phone interview -- typically explained during the interview that they had a prior concern that had been addressed in the interim.

Among adults and parents whose mailed survey responses indicated that did not tell their PCMH about one or more SDOH concerns – either because they were not screened, or they were screened but did not say yes to any SDOH concern – the concordance between survey and interview results differed by group. Group D included patients who were reluctant about SDOH screening in the primary care setting; over 90% of this group confirmed during the interviews that they had no SDOH concerns.

In contrast, Group E included patients who did not report an SDOH concern to their PCMH, but other survey responses suggested they had some sort of need. A substantial number of this group (72% of adults, 42% of parents) described SDOH concerns during the interview; these concerns had not been identified by the PCMH.

Among patients whose mailed survey indicated they did not tell PCMH about an SDOH concern:		
	Group D	**Group E**
# ADULT PATIENTS interviewed	113	57
reported ≥1 SDOH in interview	3 **(3% mismatch)**	41 **(72% mismatch)**
reported 0 SDOH in interview	100 (97% match)	16 (28% match)
# PARENTS interviewed	53	12
reported ≥1 SDOH in interview	3 **(6% mismatch)**	5 **(42% mismatch)**
reported 0 SDOH in interview	50 (94% match)	7 (58% match)

Overall, phone interviews confirmed the accuracy of SDOH screening in the primary care setting. Group E represents a population of patients with SDOH concerns that are being picked up by screening protocols.

Types of SDOH concerns – all interview groups. Patients who participated in the phone interviews reported a broad range of SDOH needs, often with exacerbating factors. SDOH concerns

Types of SDOH Needs (all Groups)	**Adults**	**Parents**
Trouble paying bills	37%	25%
Food insecurity (including lack of healthy food)	36%	34%
Transportation	15%	7%
Unstable/unsafe/inadequate housing	13%	8%
Access to health services/items	9%	10%
Disability/health status as barrier	8%	6%
Problems with health insurance	4%	5%
Mental health	3%	1%
Employment	2%	4%

For many patients, SDOH concerns stemmed from a lack of funds to cover bills and other necessities. Often, their financial situation was exacerbated by their own health conditions, or by the health-related problems of a family member.

> *I actually tore my ACL and my meniscus in my right knee and that left me where I'm not able to drive, I'm not able to work because I'm unable to stand without the aid of crutches. And not being able to work left me in a position where I had to exhaust all of the funds to maintain what I have, and now I don't have anything… I have a stable place to stay but during this whole process, my landlord is not patient anymore, so as of the 31st, I will have to relocate to somewhere else to live.*

> *I had a quadruple bypass done about 3 years ago. And before that, I was sick, I didn't have no income, and I'm still, like, homeless because I don't have anywhere to live. I receive my disability now but it ain't nothing but $500-something dollars a month because I wouldn't get the full benefits until I get somewhere to live. But it's kind of hard to find some place to move into when you get $500 a month. I've been living with other people. The people I'm living with are moving tomorrow so I'm gonna be in the streets.*

> *Three years ago, my mother broke her leg and … Medicare refused to pay for her services because they thought that at 88 years old, she should be able to get up and just walk... All of my income or savings that I had to go to pay those medical bills or she would have been out on the street. I'm trying to recover every day… And they're telling me I'm too rich to receive any assistance, yet I haven't made money in 3 years, and there's no savings left.*

> *First of all, I'm unemployed. I have diabetes which causes a lot of problems as far as being employed. I take 4 shots a day, and of course with the shots I have to eat, and that doesn't really qualify me for disability, and nobody wants to hire when they hear about all of my issues...and I have to tell them because I can't live if I don't do it. So that's the kind of financial issues for me right now.*

> *It's mostly in regard to a husband with a life-limiting illness. I can't work because I have to take care of him. We're living on his social security and that's difficult.*

> *My dad had an accident and now he's in a long term facility and I'm having to take over. Going from two incomes to one makes it rather hard... I'm behind on the mortgage payment, the garbage bill, the taxes, the insurance. And I can't get any assistance that way if something was to come up because it's all in his name.*

Patients described food-related challenges that stretched beyond the assistance they could get through food stamps or food banks. Again, health conditions often exacerbated food insecurity.

> *I have issues with keeping food in the house for the family, getting fresh food is the biggest challenge because we live not far from where I can get some commodities, but it's not like you ever can get, like, fresh fruit or vegetables. We do get canned stuff, which is good but, like, not as good as if we could go get apples or something…*

We don't always have enough money towards the end of the money for food. My husband and I are both diabetics. We're supposed to be eating two vegetables at each meal and that's almost always not possible. We have a friend that works at the food bank, and he's able to get us some food, but mostly they have, like, 5 pounds of salad and the expiration date is like two days from now. It's not something that two people will use up, so we get some things, like canned vegetables and some soup and sometimes some cereal. I make a lot of soup, pasta, which we're not supposed to eat… It's a problem.

My income -- ADC or FI or DHS or whatever you call it now -- pays most of my bills and I don't have any left to buy food. I get food stamps but I only get $100 a month, and with me being diabetic, I need vegetables and fruit and things like that, and I can't really afford that. I try the best I can, but if I buy that kind of stuff, I'm out of food within 2 weeks, and I don't get nothing until the next month. So that kind of worries me.

Well, the healthy food can be an issue for us. You know, fresh fruits and vegetables and stuff like that, it's expensive...We were on food assistance from the state and they cut us off because of our income, so now we have to buy our own food and that kind of stuff is pricey. We go to a lot of food giveaways to make it through the month, and the one we go to usually has a lot of vegetables but not much fruit. And, it only lasts for so long, too... My husband is diabetic and I'm overweight. I would love to be able to afford to buy more fresh food and better meat and stuff like that but I just can't.

Many patients described were aware of government programs, but faced administrative problems with enrollment or eligibility criteria.

I go through the Department of Human Services and get Medicaid and they're just having some issues with their system where my insurance got cut off, so I'm trying to figure out how to afford my medications at this point.

Just recently, for some reason or another, I didn't have health insurance, they cut it...the things that they give you when they say "oh, you no longer have health insurance," and then they give you a list of codes that we know nothing about...So because of that, I had to find and pay for my own transportation back and forth to my doctor's appointment. So prescriptions came up that I had to pay for. And this is money that I did not have.

[The caseworker] was gonna be willing to pay one of my electricity bills so I would not get my lights shut off, but the problem with that was that we had to only have $20 in our bank account for them to help with that… And it's like, well, yeah, we may have more than $20 in my bank account but that all is spoken for.

I just lost my SSI and so I have no income. And I was told that my Medicaid would cease. So, I had to go down to the Department of Health and Human Services and apply under a different program or ID number or some darn thing because it was provided under the SSI prior. So I just ran around in circles only to find out that I was being denied because my benefits were being provided under another program, another ID number. And, so, one social worker, finally, looking at the screen said this doesn't make sense and determined

that one was cancelling the other out in the system. But, I didn't fill my prescriptions because I couldn't pay for them for a month.

[The caseworker] had me fill out the paperwork, and before it even got filed, she did the math … and she said I'm not even going to file it, and I'm like why? And she told me and I go, oh okay. we don't qualify for it, and that's all there is to it. No sense in even filing the paperwork, so she gave it back to me to shred it up.

Lack of reliable transportation affects many aspects of patients' lives, including getting to health care appointments and being able to have reliable transportation to a job.

Right now, we're down to one car... Sometimes I have to cancel appointments because there's other stuff going on in the family. I live with my brother, his wife and 4 kids. They may have an appointment on the same day or same time I have to be someplace else.

My food stamps is going to get reduced because I can't make it downtown due to my epilepsy because I can't drive for 6 months and we do not live close to a bus line. My mom works during the day and my friends work during the day so I have no transportation to get anywhere right now. And they want me down there in the morning.

I need car repairs, my car won't start, that's a major reason why I have financial problems. And in this type of weather, it's insane, it's ice-cold weather, you can't expect someone to stand an hour out there for the bus, get dropped off, stand for a second bus a second hour in this kind of weather, I just can't do it, I have health problems.

I have had job offers at different companies but the bus doesn't go to those locations, the bus cuts off at certain area they're beyond where the bus goes, where a couple of the good jobs are... And the timing, if I work late and it's beyond the bus time on the schedule I can't come back on the bus, so I don't know how people expect me to just use a bus for some of the jobs I'm offered, I need my car fixed...

Experiences of Group A - PCMH efforts to address SDOH concerns. Patients in Group A reported on the mailed survey that someone at their PCMH discussed their SDOH concerns and/or referred them to an agency for help. During phone interviews, providers were mentioned often as person who engaged with them around SDOH concerns. Many adult patients also mentioned nurses, while parents of pediatric patients cited social workers as common sources of SDOH discussions.

PCMH Discussion/Response to SDOH Needs (Group A)	**Adults**	**Parents**
Provider (doctor, NP, PA)	49%	39%
Care manager/care coordinator	14%	11%
Nurse	26%	4%
Social Worker	16%	36%
Other	13%	7%
Don't remember	3%	0%
No discussion	10%	4%

Among Group A, 73% of adult patients and 86% of parents of pediatric patients were referred by their PCMH to another agency to address SDOH concerns. Most often, patients were referred to a general social service agency, such as the Salvation Army or United Way. Food pantries and DHHS offices were also common referrals. Nearly one third of adult patients were referred to a medical or behavioral health office to address health-related needs; this was far less common for pediatric patients.

Type of Referral Agency (Group A)	Adults	Parents
General social service	38%	58%
Food pantry	28%	29%
DHS/DHHS	17%	21%
Behavioral health	15%	4%
Medical specialist or office	17%	4%
Housing agency	6%	8%
Senior center/senior agency	4%	0%
Health plan	3%	4%
Other	24%	17%

Patients described how their PCMH assisted them.

> *I actually met with the health navigator and she actually has been working with me on and off actually and she's been very helpful as in, like, low-income housing which unfortunately ended up costing more than, you know, regular housing, or a regular apartment or whatever. As in fresh produce and stuff she had also introduced me to a lot of the different food drives and food benefits that go on in our area.*

> *Actually I had an advocate from [PCMH] who intervened with Medicaid on my behalf and they were very helpful. She solved all my problems really quick … she got my Medicaid turned back on to pay for all my hospital bills in 24hrs.*

> *I think when I filled out the thing they said that "Oh, you answered some questions that made us think about it," so, they probably turned me over to... a new support specialist they have there. And, she did me good as far as helping me out, cause my mother is in my home with me, and she will not get treated or tested to see if she's got Alzheimer's or dementia, and she also has M.S. and a lot of physical conditions...So I kinda told her about that and she took it upon herself to investigate any way of help form that she could get us, and what she did end up doing for us was getting my mother involved into [program name]. Which has taken a tremendous amount of stress off my back.*

> *My doctor...I go in to see him and tell him my health problems, I don't discuss other things. The one time he sent the nurse in to discuss stuff with me, she gave me a bunch of paperwork to follow up on and places to go.*

[PCMH] referred us to CHAP... they're like an outreach service, I suppose. They help connect you to a variety of different programs. So they referred us to Habitat for Humanity, for instance, for some programs they were offering there …

[PCMH] assisted me. I needed to get the Hepatitis C business, and my insurance wouldn't pay for the medication, so they had me fill out paperwork for a pharmaceutical company to pay for the one pill for the 6 months that I needed it. I just feel like they went the extra mile, because I wouldn't have known I could do that. They provided good resources that actually I was able to follow through with and feel like I was accomplishing something.

Some patients described PCMH efforts to address their SDOH needs, but the assistance offered was insufficient to allow them to overcome their challenges.

There's a program for the farmer's market where you go and sit and watch a class and then you get tokens for fresh vegetables and stuff, and they tried to help me with that with the food, but it was a matter of transportation and getting there on time to the classes. [PCMH] gave me a list of where and when the classes were and let me know what I would get, but they didn't really connect me with them, they just kinda gave me the information. I guess they call it a prescription, they said it's kind of like a prescription that you can use to get the healthy food. you had to go to a class and, like I said, and because there were children involved or with work or just different things, I think I got to go to 2 classes. So it helped a little bit.

They gave us some paperwork that was for the food banks, thinking that we had a car, but we don't. And to get to...grocery shopping and to get to doctor's appointments we use [public ride service], but it is $3 each way… And [the worker] says medical appointments take precedence over shopping for food, so a lot of times our rides are cancelled

[PCMH referred to] the food pantries over here...If I needed any meals, that's where I would go... And with the diabetes, my diet is so restrictive, I can't just pick up any old thing. It's there so I don't starve. But you end up eating stuff that you know is not that good for you, like potatoes would be a staple as far as being full, but it's actually something on my diet list that's absolutely a no-no.

A small number of patients recalled discussing their SDOH needs with someone at the PCMH, but said the PCMH was not helpful.

It kind of was like, "you're already on everything that you're eligible for, so it sucks to be you," it kind of felt like that. And I was kind of insinuating, like, is there a way that you could suggest where to get diapers and wipes or toiletries--I was suggesting maybe she could hand me some information about food pantries that might hand out things like that but she never gave me anything.

Impact of SDOH assistance from PCMH. Overall, patients in Group A (who reported SDOH concerns and discussed those concerns with someone from the PCMH) felt that their interactions with the PCMH would have a positive future impact. Over 80% agreed that they are confident they can figure out solutions when new problems arise, and over 80% are confident they will know who to ask for help in the future. The positive views were consistent for both adult patients and parents of pediatric patients.

	Strongly Agree	***Agree***	***Neutral***	***Disagree***
I am confident that I can figure out solutions when new situations or problems arise.				
Adults	27%	56%	10%	7%
Parents	31%	55%	7%	7%
I am confident that I will know who to ask for help if I need help with problems in the future.				
Adults	31%	52%	8%	8%
Parents	45%	48%	3%	3%

Group A patients were strongest in their agreement that in the future they would talk with PCMH doctors or staff when life issues affect their health.

	Strongly Agree	***Agree***	***Neutral***	***Disagree***
I will talk with doctors or staff at [PCMH site] when life issues are affecting my (my child's) health.				
Adults	59%	34%	1%	6%
Parents	69%	31%	0%	0%
I know how to get the help I need to take care of my own (my child's) health.				
Adults	30%	56%	9%	5%
Parents	52%	48%	0%	0%

Overall, the experiences of Group A were positive. Most patients received some assistance for their SDOH concerns, although not all needs were met. Patients also reported learning more about how to get help in the future, and expressed a willingness to talk with someone at their PCMH if additional needs arise.

Experiences of Group B - PCMH failure to address SDOH concerns. Patients in Group B responded on the mailed survey that they reported an SDOH concern to their PCMH, but that nobody at the PCMH discussed the concerns. During phone interviews, 40% of adult patients and 50% of parents in Group B explained that they had expected someone from the PCMH to ask them about their concerns.

Were you expecting someone from [PCMH] to ask you for more information related to your concerns?			
	Yes	***No***	**Unsure**
Adults	**40%**	**58%**	**2%**
Parents	**50%**	**17%**	**33%**

It would have been nice if they're even going to attempt to ask those questions and people respond to say "I need help," okay, well, what are they going to do? They ask the questions, and you can say "yes I need help," or you can tell them your situation and if they don't respond with any resources, what purpose does that serve? And that's basically how I felt. You have no resources for me so what...for me, it just put me in more of a depression. You're asking me my situation but you have nothing to offer me for help.

I was expecting them maybe to redirect us to someone we could talk to and we weren't 100% sure what would happen.

What I feel let-down with is, I was under the impression that my primary care physician at [PCMH] would work with [service agency]; somehow I thought they shared information about me, they were all working together on what is the best plan for me.

I think that, if it's your primary physician, they should look at the overall picture and not just your health, your physical health...[PCP] a great doctor. She's the best doctor I've ever seen, but yeah, I think that's something that should be addressed, but it has not been…

About half of adult patients and only one third of parents in Group B thought their or their child's PCMH provider was aware of their SDOH concerns.

Do you think your (your child's) provider knows about your concerns?			
	Yes	**No**	**Unsure**
Adults	**50%**	**38%**	**2%**
Parents	**33%**	**67%**	**0%**

I was having problems with anxiety at the time. So my provider asked me, what do you think is causing that? Well I have a house that's falling apart, no job, and prospects were kinda bleak at the time so, well then yeah, they just wanna prescribe you meds, try and resolve your situation, I was a little taken back by that.

I don't really see him as a social worker that can direct me to programs, but he does talk about what he does know about and he was looking it up on his iPhone, these different prescription programs for uninsured people and checking the prices of all my medication.

I was the one who brought it up, more because I think also it's very hard for other patients to actually like open up like that, to open up what their living situation is. Cause it's like trying to tell somebody your feelings -- it's not gonna be easy.

To tell you the truth, my doctor, to me...he feels that I don't need any help. He wrote down to the human services that I didn't need any help and I was falling and back and forth in the hospital and going through chemo and radiation and stuff… and he said I didn't need any help. I have people helping me clean, do a little housekeeping, help me getting into the bathtub and stuff, and he wrote down on the paper that I didn't need any help. So I felt that, I don't know what was wrong with him, you know what I'm saying?

My direct doctor, I don't think she does [know about SDOH concerns]. I filled that out or marked that... a handful of months ago, and I was just at the doctor's office last week for a checkup and nothing was ever brought up and nothing was ever said. So I'm thinking she is not aware.

I don't think that there is a lot of communication between her nurse practitioner and my doctor, cause most of the time I've seen the nurse practitioner, I've only seen my actual doctor once. I've given my concerns to the nurse practitioner but I don't necessarily think that she has relayed that information.

The majority of adult patients in Group B articulated in the phone interview that their SDOH challenges are affecting their health; in contrast, relatively few parents felt that their SDOH challenges are affecting their child's health.

Do you think your challenges are affecting your (your child's) health?			
	Yes	**No**	**Unsure**
Adults	**74%**	**24%**	**2%**
Parents	**17%**	**83%**	**0%**

I don't think so. I'm kind of going through it because I lost my husband and being helped, it, lately just seems like it's hard for me… I just don't discuss it. [Do you think that your challenges are affecting your children's health?] No, not really.

I would say yes and no. Yes because my body has low vitamin D and low iron, and that could be because the intake of foods which is not balancing for me because of my food issue budget, so it's like, I might want to eat a hamburger and that will fill me up all day, you know what I'm saying? So, my vitamin D is low and my iron is low, and as far as the heat, like my heat bill, I don't wanna turn my heat up to try to stay warm so, I be cold all the time because I have low iron.

Yes. I mean, I have high blood pressure so stress can complicate things like that, so yeah, that's another reason why I talk to him about certain stuff was like I have high blood pressure and stressful situations, getting notices from the bank and not having employment and vehicles breaking down...kind of explaining everything in my life to him, yeah of course I have high blood pressure. I'm stressed out.

Yeah, I do because I think it adds to stress and anxiety and depression. Because its hard living on a limited income. When you're below poverty level, and you're not eligible for help because you make too much but you're still below poverty level, it's frustrating and... I do think it affects your health.

Overall, patients in Group B expressed disappointment at the lack of PCMH follow-up after they disclosed SDOH needs. There is variability on whether patients believe providers know about their SDOH concerns, even if there is no discussion about it, and variability on the extent to which SDOH needs affect the health of patients and/or their children.

Experiences of Group C – Refusal of PCMH help. Patients in Group C responded on the mailed survey that they reported an SDOH concern to their PCMH, but they did not want help with those concerns. During phone interviews, the most common reason for not wanting help was that the patient or parent felt they could handle the situation on their own. Other patients indicated that they were already getting help. Many patients also gave other responses, such as they didn't feel their situation was bad enough to need outside help, or that they expected the PCMH would refer them to an agency that they had already tried.

Why didn't you want [PCMH] to help?		
	Adults	**Parents**
Nothing PCMH can do	**18%**	**0%**
Already getting help	**23%**	**25%**
Can handle on my own	**41%**	**50%**
Other	**41%**	**25%**

I'd like [PCMH] to stay focused on my health. I think if you get pulled into too many different directions, they don't stay as focused on your health.

I am a veteran, and I can go to the VA… The VA is easier to deal with. Either they straight up tell you what to do, or they send you to another source.

They said to make sure you talk to your caseworker if you have one...near town there's usually places you can go for some help and that they would be more than glad to if I had to...needed that information, but I said at the moment I didn't.

No, I didn't. But they showed me where all of that information was available, because when I go in for my yearly physical, it's always discussed...how are things? How are things at home? Are things good? How are you mentally? They really do a good job of making sure, at least for me I've always felt like I've got those resources at my fingertips should I need them.

We're kind of prideful, and it's kind of hard to ask for that kind of situation when you've been turned down already and numerous times, you kind of just resign to plug away at what you've got and make it work.

Well, we solved them. I'm a fairly good advocate and I said I just need to talk to my primary care doctor about this and in fact I had, and she said it was okay, and so we just had more hoops to jump. So I helped myself.

When I said that I didn't need any help, I didn't feel like anything was in jeopardy even though that sounds crazy because you have no income coming in. I look at it like it'll be okay, I just have faith that things will work out. And then also during that time, I did not know how severe my injury was. I just assumed that it was just a swollen knee.

Yeah, I want someone else [not PCMH] to help. I want results. I've been with [PCMH provider] a couple of years, and he's very slow at the things he needs to do. Don't nobody want to wait 3 months to do stuff, that's not cool. I wouldn't have got this far within this if I had someone ask or try to help me when I reached out.

I am one of those ones that will go and go until there is no end and then I ask at the last minute. And like I said, all they can do is give you the resources to go to which I already have too.

I guess my thing was I didn't really know what they could help me with because of the fact that, like, I have Medicaid which covers my medical bills. I live here and have a contract with them that I eventually have to pay them the accumulated amount, but I do have a roof over my head and I do have food stamps. So as far as getting help, I don't know what help is out there that they would be able to help me with. Because they are a doctor's office and I already do have Medicaid.

Overall, patients in Group C had a variety of reasons that they didn't want help. In some cases, they felt they were able to help themselves. In other cases, they preferred to get help from a different source, not the PCMH. Many patients explained that the timing was just not right, because the situation was not dire enough to require additional help. Many of those patients recalled that their PCMH had offered assistance and seemed willing to take advantage of that offer in the future if necessary.

Experiences of Group D – Reluctance about screening for SDOH needs in the primary care setting. Patients in Group D responded on the mailed survey that they believe their primary care office should not ask patients about SDOH needs. During phone interviews, the most common reason for this belief among adult patients was that people would not answer honestly; in contrast, the most common reason among parents was that it was not appropriate for a doctor's office. Several patients indicated that doctors should only ask if they notice a problem that is affecting the patient's health.

Reasons not to ask about SDOH at PCMH	**Adults**	**Parents**
Don't want others to know	8%	16%
Nothing PCMH can do	7%	2%
Not appropriate for doctor's office	20%	38%
People won't answer honestly	27%	15%
Other	6%	9%
Actually, they should ask	*21%*	*22%*

Many respondents said people might feel offended or embarrassed and may not answer truthfully if their PCMH or doctor asked them if they needed any assistance.

Well, cause it's something, in my opinion, and this is only my opinion, it's something personal and I just don't...I probably wouldn't give them a right answer anyway.

Well, basically, I don't think people would give you a great answer. That's a really personal issue, and, I believe that the doctor should provide people with the opportunity to ask for help if they want it, like maybe give them a form at the beginning of a doctor's visit, maybe a mail-in form where they could request help if they wanted it, but people are not going to give you a straight answer about that. You're not my mom, you're not my dad, and that's just too private, too personal.

Similarly, some respondents expressed that these questions may do more harm than good to families, such as bringing attention to government agencies, or resulting in different treatment by PCMH staff.

Sometimes I just feel that some people could take certain things out of context and then it just causes more trouble for families where they might be having a hard time but they'll discuss it with their family and whatnot, but if they open up sometimes to a doctor or whatnot and then end up getting reported, then it just brings a big mess on that family that they didn't need, they were already dealing with enough and trying to make things work. To me, I just felt like that's your own personal business, and if you wanna provide that information to a counselor or someone you speak to, I guess I could see that, but I don't feel that you should want to have to share that information with the doctor.

I wouldn't directly ask them because a lot of people feel they may be discriminated against, or put in a category as poor or something like that and they may not get equal attention as someone who has a better income. So they would need a different approach. I don't see where it would help the doctor's office...what can they do?

A common criticism was that personal SDOH issues were not a concern for the PCMH, and the physician should focus on the patients' medical needs rather than their SDOH needs since they have limited time with the doctor.

Because it doesn't have anything to do really with what you're going to the doctor for. My quality of life ain't their concern, just my quality of health.

I just think, I come from a medical background, and I think that the time that a provider has to spend with a patient is limited, and it should focus on the patient's health issues...

A few respondents said that there should be a well-developed enough relationship between the patient and the physician so that the physician doesn't have to ask them, but rather the patient feels comfortable opening up to them about their struggles and needing assistance. Many of these respondents added that they had a comfortable, communicative relationship with their physician.

Actually, I think that doctors should be more involved with their patients so if their patient has a question like that, it should be something that they talk to their doctor about. It shouldn't be something that a doctor should ask them about. I go to my doctor, I wouldn't tell my doctor "Hey, how are you doing on food?" I think that if I go to my doctor it should

be something that..."Oh my gosh, is there something that you can help me with? I'm hurting for food." That should be something that I feel free to talk to my doctor about.

When asked what their PCMH could do differently to make patients feel more comfortable about sharing about their SDOH issues, the respondents also had a range of answers from the type of doctor-patient relationship formed to discrete methods of providing assistance. Most of the respondents felt that the physicians should work to build a more comfortable relationship with the patient by really listening to their concerns, getting to know them and their families better, and ask more sensitive questions in a way that doesn't come off so direct.

Well it ain't about asking, it's about when you ask and how you ask. Because a lot of people have a lot of pride about things like that.

I guess I would say, maybe just more time spent with the patient actually talking to them. Like they could give them the opportunity to speak, you know, sometimes people just like to go in to the doctor and go in and out, and there's other people that may have more needs going on, like if they are dealing with anxiety or depression then that may be more of a topic of conversation. I think it definitely makes a difference when the doctor sits down and talks with you versus just coming in, checking you out and then leaving.

The other majority of respondents said that they should provide assistance in more discrete methods through brochures and pamphlets in the lobby, or sending out confidential surveys before arriving to the PCMH.

I guess just offer more pamphlets, information at the check-out or anything, in case people are embarrassed of it or ashamed. Then they can just grab a pamphlet.

Maybe before they came to the appointment, if they can send them a...like you sent me a survey...or maybe an e-mail. Maybe more people would be more likely to answer those questions than in person. And if an application came through the desk, it should be by a number and not through a person's name.

Other respondents suggested having a separate staff member available at the PCMH who specifically worked in SDOH areas of need and could provide onsite help.

Maybe have somebody extra go in for strictly that, who they can go to. Cause it takes time away from the doctors, and they're busy as heck. I've sat there waiting in the room for a half an hour, waiting for the doctor.

Many Group D respondents felt that there was nothing more that the PCMH could do to help. They either felt that their PCMH was already providing the best service they could and had no further suggestions or that the PCMH should not address the issues all together and the patient should be self-sufficient.

I think people that have life challenges should help themselves. I'm a very self-sufficient person, I raised all my kids to be that way, and I just think people should fend for

themselves and not count on the government and the doctor and anyone else for help. They've got problems of their own, why do they have to help somebody else with theirs?

Well in my personal opinion, nothing really because it's really not your physician's business, it's more of a social situation. It's not really your physician's business about that kind of stuff. So in my opinion, I wouldn't say they are doing anything wrong, I just don't think they should be asking those questions. A lot of people feel that its private stuff. If they had an issue with that, they would go to whom they felt comfortable going to, and I don't think a physician would necessarily be that person. Because they go there for their health needs, not their private needs.

Roughly 1 in 5 adult patients and parents in Group D changed their minds, and indicated during the phone interview that their PCMH actually should ask about SDOH concerns.

At the particular time when I filled that out, I didn't really think about any of the questions until later on. And then I thought about it, a lot of people won't tell what's really going on. And I think we should tell doctors what's going on in our lives because maybe that will help them understand why we feel the way we feel… I don't think they need to get real deep in their lives, but enough for the patient to feel good about telling them if something is going wrong in their life.

Other SDOH screening experiences. Across all interview groups, 43% of adult patients and 37% of parents indicated that they been asked about SDOH needs through other sources, including their health plan, a hospital or emergency room, or their MDHHS caseworker. However, the majority of adults and parents said that nobody outside their PCMH had asked about SDOH needs.

Sources of other SDOH screening	**Adults**	**Parents**
Health plan	19%	16%
Hospital/ER	17%	17%
Caseworker	18%	18%
Other	9%	0%
Nobody else has asked	57%	63%

Nearly one third of adults and parents cited their PCMH as the most preferred location for asking about SDOH needs; nearly the same proportion cited their MDHHS caseworker. Fewer adults and parents preferred that SDOH screening be done by their health plan or hospital. Nearly one third of adult patients, and 40% of parents, preferred that screening occur in multiple locations.

Preferred location for SDOH screening	**Adults**	**Parents**
PCMH	31%	32%
Caseworker	31%	29%
Health plan	13%	14%
Hospital/ER	9%	8%
Other	14%	17%
SDOH screening should occur in multiple locations	32%	40%

Experiences of Group E. The patients in Group E responded on the mailed survey that they either did not recall SDOH screening at their PCMH, or they did not report an SDOH need; however, other survey responses suggested that the patient may have an SDOH need. Among this group, 72% described an SDOH need during their phone interview, including general issues with paying bills, affording healthy food, transportation related, or mental health.

Group E represents patients that, for some reason, may not be reached through current SDOH screening protocols.

> *I have talked to my doctor, and she acted like it [SDOH challenges] wasn't really her concern and she was like talk to somebody else about that and she didn't have no time to talk to me about it…Well I had called her and was telling her the reason why my blood pressure kept going up and she just didn't have the time to sit down and talk to me about it, she was kinda busy, and I'm like okay...*

Possible confusion with care management. Only 30% of adult patients and 19% of parents reported having a care manager through their PCMH, health plan, specialist or another office. Thus, for the majority of patients, addressing SDOH needs would not cause any conflict or confusion with care management.

Location of care management	**Adults**	**Parents**
PCMH	19%	7%
Health plan	10%	7%
Specialist's office	3%	2%
Other	7%	3%
No care management	70%	81%

A relatively small group of adult patients (8%) reported having more than one care manager. Most of these patients (77%) said their care managers share information with each other. However, 37% said that having multiple care managers is confusing

Health equity. Patients reported whether they had ever felt that a doctor or medical staff judged them or their child unfairly or treated them with disrespect. For the 19% of adults and 9% of parents who reported disrespectful treatment, their most common reason was related to their insurance status or ability to pay. Less often, disrespect was related to race/ethnicity or appearance.

Causes of disrespect in the health care setting	**Adults**	**Parents**
Race/ethnicity	2%	2%
Health insurance/ability to pay	13%	6%
Other (health condition, weight, religion)	4%	1%

SUMMARY

Key findings from the patient experience surveys are highlighted below.

From the brief mailed survey:

- Most adult patients and parents of pediatric patients have positive interactions with PCMH providers and staff that likely contribute to an environment that encourages disclosure of SDOH needs. Patients gave lower ratings for provider encouragement to ask questions and raise concern; for some patients, this perception may inhibit their disclosure of SDOH needs.
- Overall, 2 out of 5 patients recalled answering questions about SDOH needs at a PCMH visit in the past year. In response to those questions, half of adult patients and 30% of parents indicted they had reported an SDOH concern.
- Three quarters of patients who reported an SDOH need said the PCMH discussed their concern, and three quarters said they wanted help with their SDOH need.
- Overall, 4 in 5 adult patients and parents indicated that their or their child's PCMH *definitely* or *probably* should ask patients about SDOH concerns. Roughly the same proportion felt that patients would answer such questions honestly.
- For adults, female patients and those receiving care management in the PCMH setting were more likely to recall SDOH screening; older patients and those receiving care management were more likely to have an SDOH concern. There were few associations among pediatric patients.

From the follow-up phone interviews:

- Most patients gave consistent information about SDOH needs on both the survey and interview.
- Patients/parents reported a wide range of SDOH needs. Health problems of the patient and/or a family member often exacerbated other challenges.
- Among patients who said the PCMH addressed their SDOH needs, most were referred to another agency. Often, patients received some assistance but it did not completely address their SDOH need.
- Among those who said they did not want help, key reasons were that they felt they could handle it on their own, they thought the PCMH could not do anything, or they felt the situation was not dire enough to require outside assistance.
- The majority of patients had no other SDOH screening. The PCMH was the most preferred location for SDOH screening.
- Patients who expressed reluctance about SDOH screening in the primary care setting commonly felt that the doctor's office should be focused on medical issues, that SDOH needs should be private, and that the PCMH should wait for patients to raise SDOH issues. Patients had few suggestions for how the PCMH could improve the process of SDOH screening.

Michigan State Innovation Model: Clinical Community Linkages Survey of Healthcare Providers and Associated Stakeholders

2019 Survey Results

January, 2020

January, 2020

Support

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About

MPHI is a Michigan-based and nationally engaged non-profit public health institute that is dedicated to a vision of building a world where tomorrow is healthier than today. MPHI's mission is to advance population health through innovation and collaboration.

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SIM Clinical Community Linkage Survey

of Healthcare Providers & Associated Stakeholders

September 2019

This survey assessed health care provider experiences with screening for **Social Determinants of Health** (SDoH) and **Clinical-Community Linkages** (CCLs) to address patients' social needs. The survey answers three questions:

1. What are health care provider beliefs and attitudes around the value of addressing patient social needs within the health care setting?
2. What progress has been made in implementing SDoH screening and CCLs in participating Patient Centered Medical Homes?
3. What is the impact of participating in screening and CCLs on patients, providers, practices, and community systems?

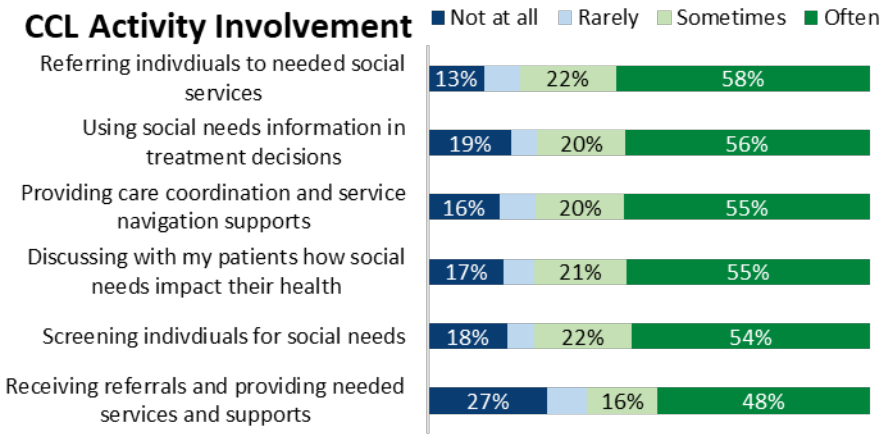
608 Total Respondents

30 Physician Organizations Participated

166 Practices Participated

Respondent's Roles

CCL Activity Involvement



Healthcare providers understand the importance of **addressing patients' SDoH** as part of **healthcare delivery.**

Percent of respondents reporting high agreement[1]:

Primary care has an important role to play in identifying/ addressing the social needs of patients

Providers understand that social needs impact the health/wellbeing of their patients

Providers make better treatment decisions when they have a fuller understanding of patient's social needs

Screening for social needs helps providers build trust with their patients

[1]High agreement is defined as respondents who answered either "Quite a bit" or "A great deal" on a 6 point scale.
[2]PCPs include physicians, nurse practitioners, and physician assistants.

Healthcare providers are aware of patients' social needs and the available community resources to address those needs.

SIM Impacts

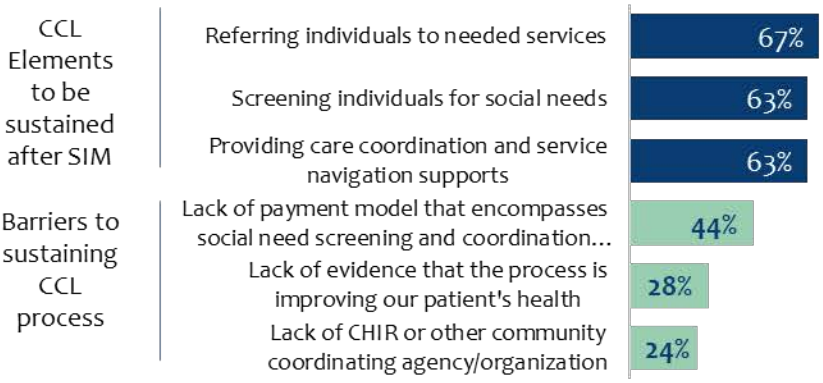
45% agree that **patients** are becoming **more aware** of the **services/supports available** in their community.

24% agree that **patients** are getting **healthier.**

27% agree that **practices** are **improving** their **efficiency.**

Agreement is defined as respondents answering "a great deal" or "quite a bit" on six-point scale.

Respondents identified the top 3 CCL Process elements their organization is most likely to sustain after the conclusion of SIM & the most common barriers to the continued success of the CCL Process.



Barriers to Success

- Respondents indicate that lack of funding and a reimbursement model for care management and CCL activities will prevent them from continuing the process of screening and referring for social needs
- Respondents also indicated that lack of resources in the area were a barrier to their ability to address patients social needs (E.G. Transportation, food, etc.)

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[2]2018 data is taken from the Adl-PO rollup report.

Executive Summary

Key Findings

Healthcare providers participating in Michigan's State Innovation Model (SIM) continue to report high levels of motivation and progress related to the implementation of screening patients for social determinants of health and referrals for social services. SIM continues to provide needed resources and supports to better align these efforts across participating health systems and communities. Providers are reporting that SIM-supported efforts are leading to positive impacts on their patients' health, their practice's awareness of community resources, coordination efforts with social service providers and overall practice-level policies.

Healthcare providers reported low levels of support for statements related to reductions in their workload and improvements in their delivery of care. Providers also reported that the CCL process presented additional strain on their already overburdened patient workflow and they needed additional capacity to sustain these processes.

Background

As part of the statewide evaluation of Michigan's State Innovation Model (SIM), this survey was originally developed to assess health care provider attitudes and procedures related to the impact of screening patients for social needs and linking them to needed social services – collectively referred to as Clinical Community Linkages (CCLs). 2019 was the second year this survey was conducted. The goal of the survey was to answer the following questions:

- What are health care provider beliefs and attitudes around the value of addressing patients' social needs within the health care setting?
- What progress has been made in implementing screening for social needs and CCLs in participating patient centered medical homes?
- What is the perceived impact of participating in screening and CCLs on patients, providers, practices, and community systems?
- What major changes did we observe from year 1 to year 2?

Data for this report came from a statewide sample of 1498 stakeholders from the health care sector in 2018 and 2019.

- ✓ In 2018, respondents included PCPs (n=125, 14.0%), Care managers/care coordinators (n=205, 23%), Practice Administrators (n=104, 11.7%), and PO Staff (n=65, 7.3%). A total of 391 respondents did not provide a role.

- ✓ In 2019, respondents included PCPs (n=170, 28.0%), care managers/care coordinators (n=129, 21.2%), Practice Administrators (n=75, 12.3%), and PO Staff (n=112, 18.4%). A total of 122 respondents did not provide a role.

Survey Results

The following provides a description of the primary findings. Strong agreement is defined as the selection of "Quite a bit" or "A great deal" on the six-point scale ranging from "Not at all" to "A great deal."

Health care professionals continue to endorse the importance of addressing patients' social needs as part of health care delivery.

- ✓ In 2019, 84% providers strongly agree that social needs impact the health and well-being of patients
- ✓ In 2019, 84% providers strongly agree that better treatment decisions are made when they have a fuller understanding of patients' social needs
- ✓ In 2019, 75% providers strongly agree that screening for social needs helps providers build trust with their patients
- ✓ Providers inside CHIRs are more likely to perceive the importance of social needs screening than providers outside CHIRs.

In their second year of implementation, provider awareness of patients' social needs and available community resources have largely remained the same compared to 2018. In 2019, tracking referral outcomes remains a challenge for over 2/3 of providers.

- ✓ Providers in CHIRs report 4% higher levels of Implementation progress than providers outside CHIRs.
- ✓ Care Managers/Care Coordinators' (CM/CCs') outside CHIRs ratings of implementation progress has fallen in 2019 as compared to 2018, while CM/CCs inside CHIRs have reported similar progress over time.
- ✓ 71% of providers strongly agree that staff at their practice are aware of the major social needs of their patients
- ✓ 63% of providers strongly agree that they are aware of the social services available in the community

- ✓ 64% of providers strongly agree that they are aware of the gaps in social services to meet their patients' needs
- ✓ 33% of providers strongly agree that their practice is able to track what happens when patients are referred to social services

Respondents reported slightly greater levels of patient impacts related to screening for social needs and referral for services, and similar practice level impacts related to their efforts to coordinate patient care with social service providers in 2019 as 2018. In 2019, roughly 1 out of 4 respondents agreed that patients are becoming more self-sufficient as a result of SIM.

- ✓ 45% of providers strongly agree that patients are becoming more aware of the services and supports available to them in their community
- ✓ 24% of providers strongly agree that patients are getting healthier
- ✓ 27% of providers strongly agree that practices are improving their efficiency in delivering care
- ✓ 22% of providers strongly agree that patients are becoming more self-sufficient

CM/CCs in CHIRs continue report provider and system impacts related to participating in SIM in 2019, but CM/CCs outside of CHIRs report less provider and system impacts in 2019 as compared to 2018.

Compared to primary care providers in 2019, CM/CCs in 2019 report:

- ✓ 18% higher scores for SIM supporting a shift in how they think about health and what is needed to improve health outcomes
- ✓ 14% higher scores for SIM supporting their becoming more aware of the services provided by organizations/agencies in their community
- ✓ 19% higher scores that SIM is helping them to integrate a stronger focus on social determinants of health in the work that they do

Respondents located inside of CHIRs, report higher levels of community advocacy than those outside of CHIRs.

In 2019, compared to providers located outside of a CHIR, providers located within a CHIR report:

- ✓ 21% higher scores for advocating for changes to make their community healthier
- ✓ 18% higher scores for understanding what community investments are needed to improve patient access to needed services in their communities
- ✓ 16% higher scores for advocating for local changes that would improve service access and/or coordination of their patients
- ✓ Similar levels of supportiveness for efforts to implement screening and referrals for social services for their patients

Providers in CHIRs are more likely to recognize the role of a coordinating organization that helps coordinate systems change across the community and within the practice.

- ✓ Respondents located inside CHIR reported higher levels of agreement with statements related to the support of coordinating organization in their community than did respondents living outside a CHIR.
- ✓ CM/CCs and PCPs inside CHIRs are especially more likely to recognize the role of a coordinating organization as compared to CM/CCs and PCPs outside CHIRs.
- ✓ Practice Admin recognize the role of a coordinating organization more in 2019 than 2018.

When given space to provide open-ended comments, respondents continued to identify resourcing as their greatest need, especially in rural areas.

In 2019, providers reported that resources are needed to:

- ✓ Fund the expansion of social services for patients, especially in the areas of behavioral health, housing, transportation, and food
- ✓ Support patient transportation to social services
- ✓ Support for sustained funding and creation of payment model to support care management and CCL activities
- ✓ Fund supplement staffing so addressing social needs doesn't take time away from clinical care management, (staff report being overburdened already)
- ✓ Offset costs related to employing care managers

Respondents also indicated that CCL process of screening and making referrals for social services is adding to their already busy schedules.

Some providers reported that:

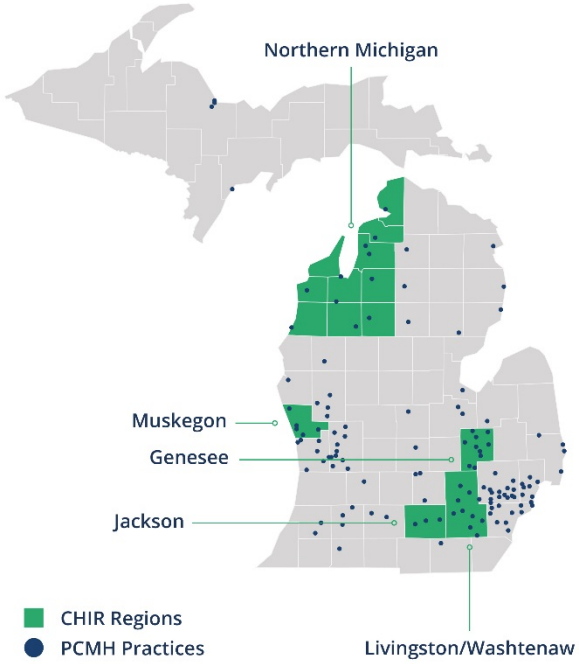
- ✓ Screening all patients is unnecessary and inefficient
- ✓ Screening all patients requires time to document and upload into their EHR system which takes away from time spent with patients
- ✓ They do not have the capacity to conduct screenings and referrals without the support of care managers and care coordinators.

I. Background

Michigan's State Innovation Model

The statewide evaluation of Michigan's State Innovation Model (SIM) involves multiple contractors assessing key strategies of the model. One key strategy is the support and promotion of screening patients for Social Determinants of Health (SDoH) and Clinical Community Linkages (CCLs). This strategy is embedded within two broad areas of SIM – the **Patient Centered Medical Home (PCMH)** initiative and the **Community Health Innovation Region (CHIR)** initiative[1]. The PCMH initiative is statewide, serving 305 PCMHs across 37 managing organizations. The CHIR initiative is embedded in five regions across the state. Figure 1 shows the distribution of CHIR regions and SIM participating PCMH practices across the state. As there are SIM participating PCMH practices located in CHIR regions, these two initiatives serve partially overlapping populations.

Figure 1. SIM CHIR Regions and Participating PCMH Practice Locations



Evaluation Questions

The main goal of this element of the evaluation is to gather health care stakeholder input on the implementation of perceived outcomes related to screening for SDoHs and linking patients with identified needs to social services (CCLs). (Note that community impact on sectors outside of health care are addressed in other reports.)

Specific evaluations include:

1. What are health care provider beliefs and attitudes around the value of addressing patient social needs within the health care setting?
2. What progress has been made in implementing screening for social needs and CCLs in participating PCMHs?
3. What is the perceived impact of participating in screening and CCLs on patients, providers, practices, and community systems?

[1] Additional information on Michigan's State Innovation Model and the two initiatives describe here at: https://www.michigan.gov/mdhhs/0,5885,7-339-71551_64491---,00.html

II. Methodology

Survey Design

An online survey design was selected to gather health care provider input for this component of the evaluation for the second iteration in 2019. Survey content was driven by program design and identified from a variety of sources, including established national surveys, scientific literature, and was kept consistent with the 2018 Provider Survey. Program leadership also had input into the survey content. Response options for each question were unified across survey constructs. Given the tailoring of survey content and response options, survey data were subjected to analyses to assess content validity and reliability.

Survey Administration

MPHI communicated with each of the participating Physician Organizations (POs) to identify their preferred method of survey distribution. In order to increase response rates for the survey MPHI let each PO choose whether they would allow MPHI to handle the survey dissemination or they would distribute it internally through a key contact. MPHI discussed logistics with each PO to ensure maximum participation from each entity and provided them with the necessary dissemination info to provide to their staff.

PCMH Provider Survey

The PCMH Provider Survey was developed by Michigan Public Health Institute (MPHI) (with input and coordination with the MSU CHIR member and partner survey in 2018) and administered to PCMH health care providers and associated stakeholders, including:

- PCPs: physicians, physician assistants, and nurse practitioners,
- Care Managers/Care Coordinators (CM/CC)
- Practice Administrators: front office managers, billing managers, etc.
- PO Staff

Survey recruitment was managed by both MPHI and by those PO contacts who opted to distribute the survey link to their constituent PCMH practices on their own. Anonymous data were collected via a Qualtrics online survey hosted by MPHI. Appendix 1 provides a copy of the PCMH Provider Survey.

Timing

Data for the survey was collected from June through August in 2019.

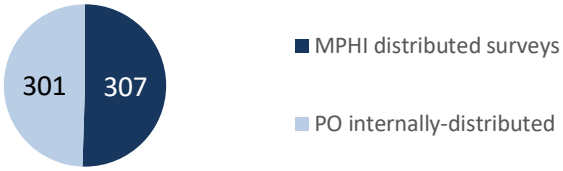
Response Rates

Health Care Providers and Associated Stakeholders

Figure 2 displays the response rates from both distribution methods that were utilized: MPHI distributed surveys and PO internally-distributed surveys.

Figure 2. Overall and Response Rates in 2019

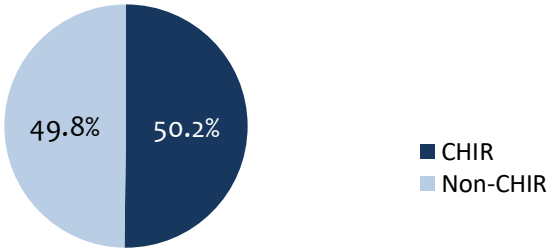
The sample size for analyses outlined in this report is 608 compared to 890 from 2018.



Notes. Of those that responded, 167 respondents (30.3%) worked for a Physician's Organization, 348 respondents (63.0%) worked for a Patient Center Medical Home, and 37 respondents (6.7%) worked for some other type of practice, such as a private practice.

Figure 3. Distribution of Health Care Sector Respondents across Community Health Innovation Regions (CHIRs)

50% of respondents were located within a CHIR compared to 76% in 2018.



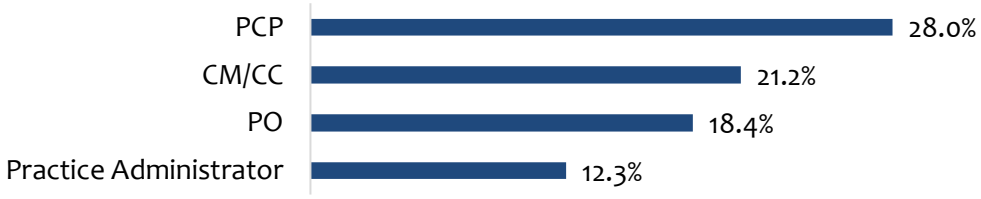
Primary Role

Respondents were asked to indicate which roles they serve within their employment. Roles were diverse and overlapping. For example, individuals could identify as both a Registered Nurse and a Care Manager or as a Physician and a Care Manager. To simplify analyses, respondents were assigned a primary role based on the following decision criteria:

1. If a respondent indicated that they are a Care Manager or Care Coordinator and did not indicate that they were a Physician, they were assigned the role CM/CC regardless of the practice they represent.
2. If a respondent indicated that they represented a Physician Organization and were not CM/CC, then they were assigned the role of PO.

3. If a respondent indicated that they are Physician, Physician's Assistant, or Nurse Practitioner and they did not represent a Physician Organization; then they were assigned the role of PCP.
4. If a respondent indicated that they represented PCMH/FQHC, that they were not a CM/CC or PCP, and that they were some type of administrative staff (E.G. office manager, billing manager, etc.); then they were assigned the role of Practice Administrator.
5. Any respondent who did not meet the criteria for being a CM/CC, PCP, PO, or Practice Administrator was excluded from the analysis comparing roles.

Figure 4. Distribution of Respondents across Primary Roles

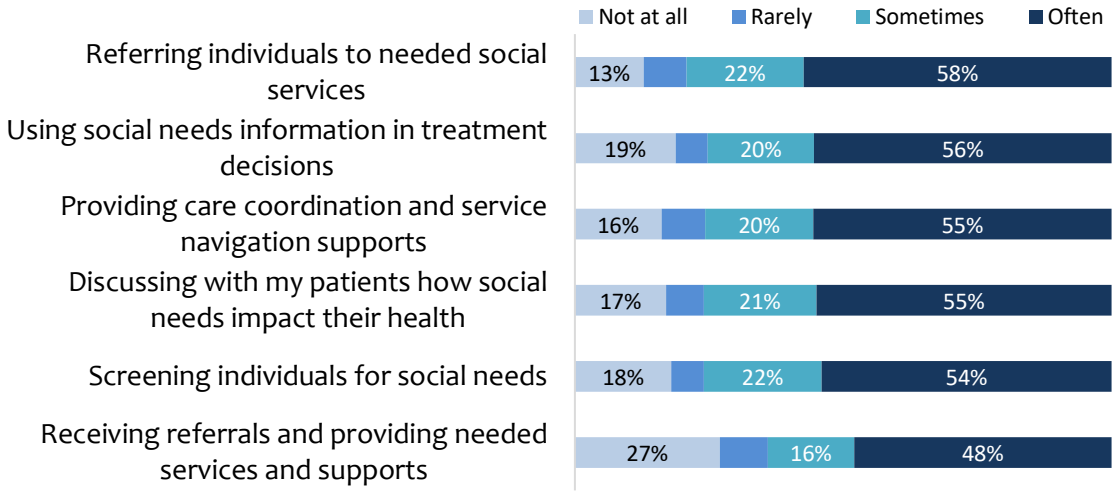


Notes. "No Response" accounted for 18.3% of respondents.

Participation in SDoH Screening and CCLs

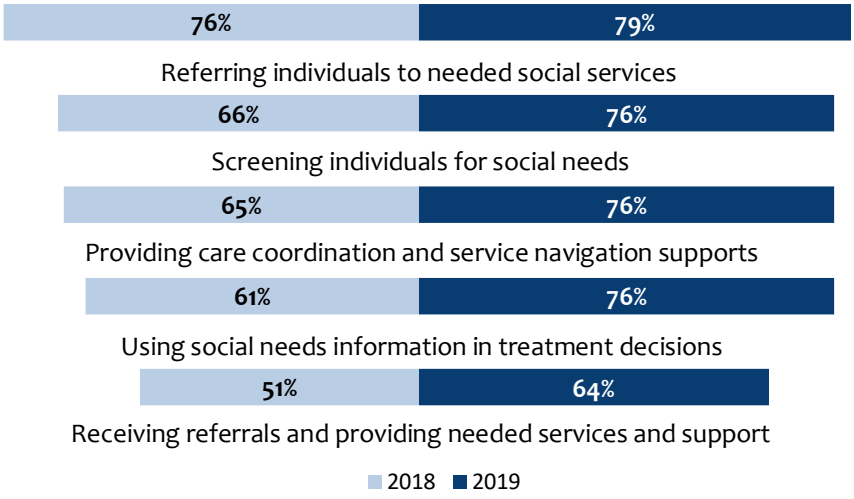
Respondents were asked to indicate with which elements of SDoH screening and CCL activities they participate in and how often they participate in those activities. Figure 5A provides each of the listed activities along with the frequency at which respondents indicated they participate in that activity.

Figure 5A. Respondent's Frequency of Participation in SDoH Screening and CCL Activities



Notes. Self-described "other" activities mostly included community outreach and collaboration with other providers within the community, as well as training new staff members in the existing CCL activities.

Figure 5B. Comparison of Respondent's Participation in SDoH Screening and CCL Activities in 2018 vs. 2019[3]



[3]Notes. The 2018 Provider Survey did not include the prompt "Discussing with my patients how social needs impact their health." For comparison purposes 2019 scores reflect respondents who selected either "Sometimes" or "Often" in regard to how often they engage in each of these CCL activities.

Psychometric Properties

A factor analysis was conducted to establish the construct validity and reliability of the survey in 2018. The analysis yielded statistically satisfactory results and indicated the survey items clustered into six higher order constructs:

- Provider Motivation (6 questions)
- Implementation Progress (9 questions)
- Patient Impact (9 questions)
- Practice Impact Attributed to Coordination Efforts (4 questions)
- Provider and System Impact Attributed to SIM (8 questions)
- Community Advocacy (4 questions)

A confirmatory factor analysis was conducted in 2019 in order to test whether the factor structure found in 2018 could be retained. The factor structures were supported. Section III of this report is organized by these constructs. To support ease of interpretation, Provider and System Impact Attributed to SIM is broken out into separate sections.

III. Survey Constructs

1. Provider Motivation

Providers' **motivation for implementation** of screening for social determinants of health (SDoH) and linking patients to needed social services (Clinical Community Linkages – CCLs) was assessed by asking six questions about their beliefs on the importance of understanding and addressing patients' social needs. Table 1 below provides each question asked along with the frequency distribution for each response option.

Table 1. Motivation for Implementation: Beliefs on the Importance of Addressing Patients' Social Needs

At my practice, we…	Not at all	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	Mean
1. Believe that primary care has an important role in identifying and addressing the social needs of their patients.	0.6%	1.5%	4.0%	9.2%	28.7%	**56.0%**	5.32
2. Understand the impact of social needs on the health and well-being of patients.	0.0%	0.6%	4.6%	11.0%	30.8%	**52.9%**	5.31
3. Believe better health care decisions can be made when a patient's social needs are understood.	0.0%	0.6%	4.8%	11.1%	31.2%	**52.3%**	5.30
4. Believe screening for social needs can help build trusting relationships between providers and their patients.	0.6%	2.1%	8.1%	14.4%	30.2%	**44.6%**	5.05
5. Believe that improved health and social service coordination ensures we are not overlooking the needs of our community members.	0.0%	0.7%	9.0%	19.7%	28.7%	**41.9%**	5.02
6. Can better accomplish our goals by coordinating with health and social service providers.	0.3%	1.4%	7.3%	20.4%	29.8%	**40.8%**	5.00

Figure 6. Level of Motivation for Implementation of SDoH Screening and CCLs.

Providers reported strong beliefs in the importance of understanding and addressing patients' social needs in supporting their health. Additionally, providers reported strong beliefs in the importance of cross-sector collaboration to improve patient health.

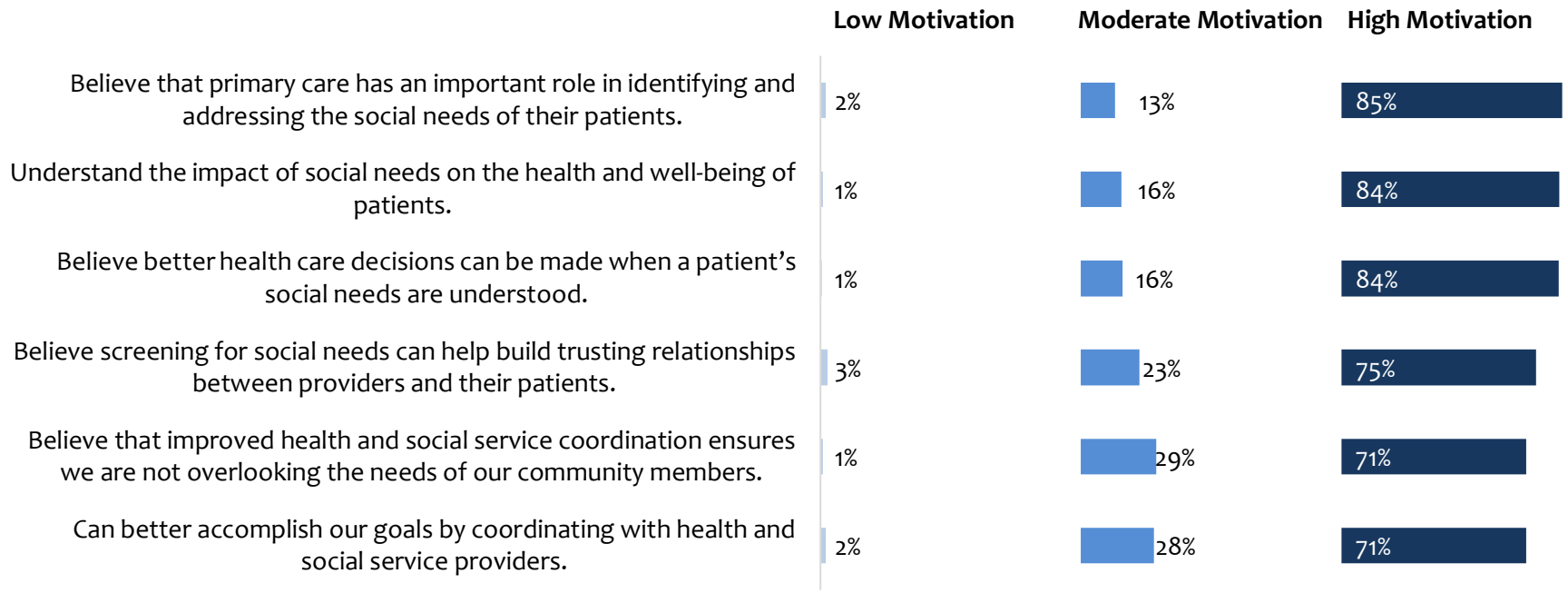


Figure 7. Motivation for Implementation Scale Score Comparison

The six motivation for implementation questions were aggregated into a mean scale score. These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. For the entire sample of respondents, Motivation for Implementation was significantly higher inside CHIRs (M = 5.205, SD = .789) as compared to outside CHIRs (M=5.098, SD=.890; F (1,1226) = 4.599, *p* = .032). More specifically, CM/CC respondents located inside a CHIR reported higher Motivation for Implementation than respondents located outside a CHIR (F(1,286)=5.911, *p* = .016). There was no significant difference in 2019 compared to 2018 (F(1,1226)=1.016, *p* = .314) for all respondents. Similarly, there was no significant difference in 2019 compared to 2018 within role types. There was no significant interaction between year and whether or not respondents were located within a CHIR (F(1,1199)=2.740, *p* = *ns.* We also conducted ANOVAs to test whether there was an interaction between year and whether or not respondents were located in a CHIR for each respondent role type. None of these interactions were significant.

Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

2. Implementation Progress

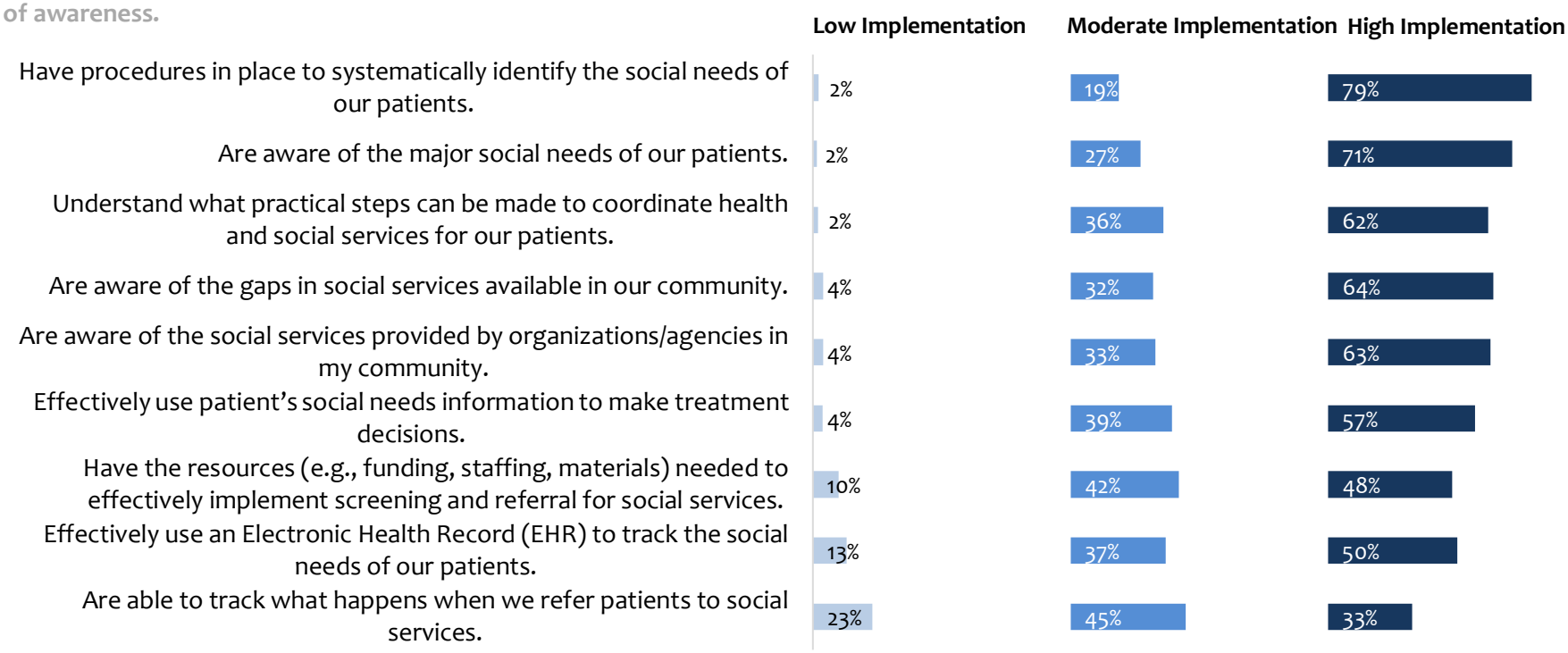
Providers' **implementation** progress for SDoH screening and CCLs was assessed by asking nine questions about their awareness, procedures, and tracking for effectively addressing their patients' social needs. Questions ranged from awareness of patients' major social needs and available social services to tracking socials needs in an electronic health record and referral outcomes. Table 2 below provides each question asked along with the frequency distribution for each response option.

Table 2. Implementation Progress: Provider Awareness and Systems Supporting SDoH Screening, Linkages to Social Services in 2019

At my practice, we…	Not at all	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	**Mean**
1. Have procedures in place to systematically identify the social needs of our patients.	0.3%	2.0%	4.7%	14.1%	25.6%	**53.2%**	5.22
2. Are aware of the major social needs of our patients.	0.2%	1.3%	9.4%	17.7%	35.3%	**36.1%**	4.95
3. Understand what practical steps can be made to coordinate health and social services for our patients.	0.3%	2.1%	11.5%	24.7%	27.8%	**33.7%**	4.78
4. Are aware of the gaps in social services available in our community.	0.4%	3.1%	12.1%	20.0%	32.1%	**32.3%**	4.77
5. Are aware of the social services provided by organizations/agencies in my community.	0.2%	3.3%	12.9%	20.5%	**33.2%**	29.9%	4.73
6. Effectively use patient's social needs information to make treatment decisions.	0.3%	3.4%	12.5%	26.8%	**33.9%**	23.1%	4.60
7. Have the resources (e.g., funding, staffing, materials) needed to effectively implement screening and referral for social services.	2.7%	7.4%	18.6%	23.3%	**25.7%**	22.3%	4.29
8. Effectively use an Electronic Health Record (EHR) to track the social needs of our patients.	5.5%	7.8%	14.7%	22.5%	23.2%	**26.3%**	4.29
9. Are able to track what happens when we refer patients to social services.	4.5%	18.5%	**24.7%**	19.9%	18.5%	14.0%	3.72

Figure 8. Implementation Progress for SDoH Screening and CCLs in 2019.

Providers reported high levels of awareness of their patients' social needs as well as gaps in available social serves. Providers more frequently reported moderate and low levels of tracking patients' social needs and referrals when comparing the proportion of moderate and low reports of awareness.



Note. Low Implementation was defined as "Not at All" and "A Little" responses. Moderate Implementation was defined as "Somewhat" and "Mostly" responses. High Implementation was defined as "Quite a Bit" and "A Great Deal" responses.

Figure 9. Implementation Progress Scale Score Comparison

Each of the nine implementation progress questions were aggregated into a mean score. These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. Implementation Progress was higher among respondents located within a CHIR (M=4.666, SD=0.900) as compared to those who were located outside a CHIR (M=4.508, SD=0.984, F(1,948)=9.063, *p*=.003). Implementation Progress was higher in 2019 (M=4.68, SD=0.928) as compared to 2018 (M=4.528, SD=0.941, F(1,948)=7.049, *p*=.003). We tested whether the interaction between year and whether or not respondents were located in a CHIR accounted for significant variance and found that it did not (F(1,948)=3.167, *p*=.056). We then repeated the analysis among sub-groups of respondents reporting similar roles. We found Implementation Progress was higher in 2019 than in 2018 among PCPs. We found Implementation Progress was higher for CM/CCs inside CHIRs as compared to CM/CCs outside CHIRs. The interaction between year and whether or not respondents were located within a CHIR was significant among CM/CCs (F(1, 243)=4.228, *p*=.041), such that CM/CCs outside of CHIRS Implementation Progress decreased more over time and CM/CCs located inside CHIRs reported relatively stable Implementation Progress over time.

Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

In figure 9 above, respondents in a CHIR reported 4% higher levels of implementation progress than those outside of a CHIR. Implementation progress was 3% higher in 2019 as compared to 2018. Specific sub-group analyses revealed:

- ✓ PCPs reported higher implementation progress in 2019 as compared to 2018
- ✓ CM/CCs located inside CHIRs implementation progress scores stayed stable between 2018 and 2019, while CM/CCs located inside CHIRs reported lower implementation progress in 2019 than 2018.

3. Patient Impacts

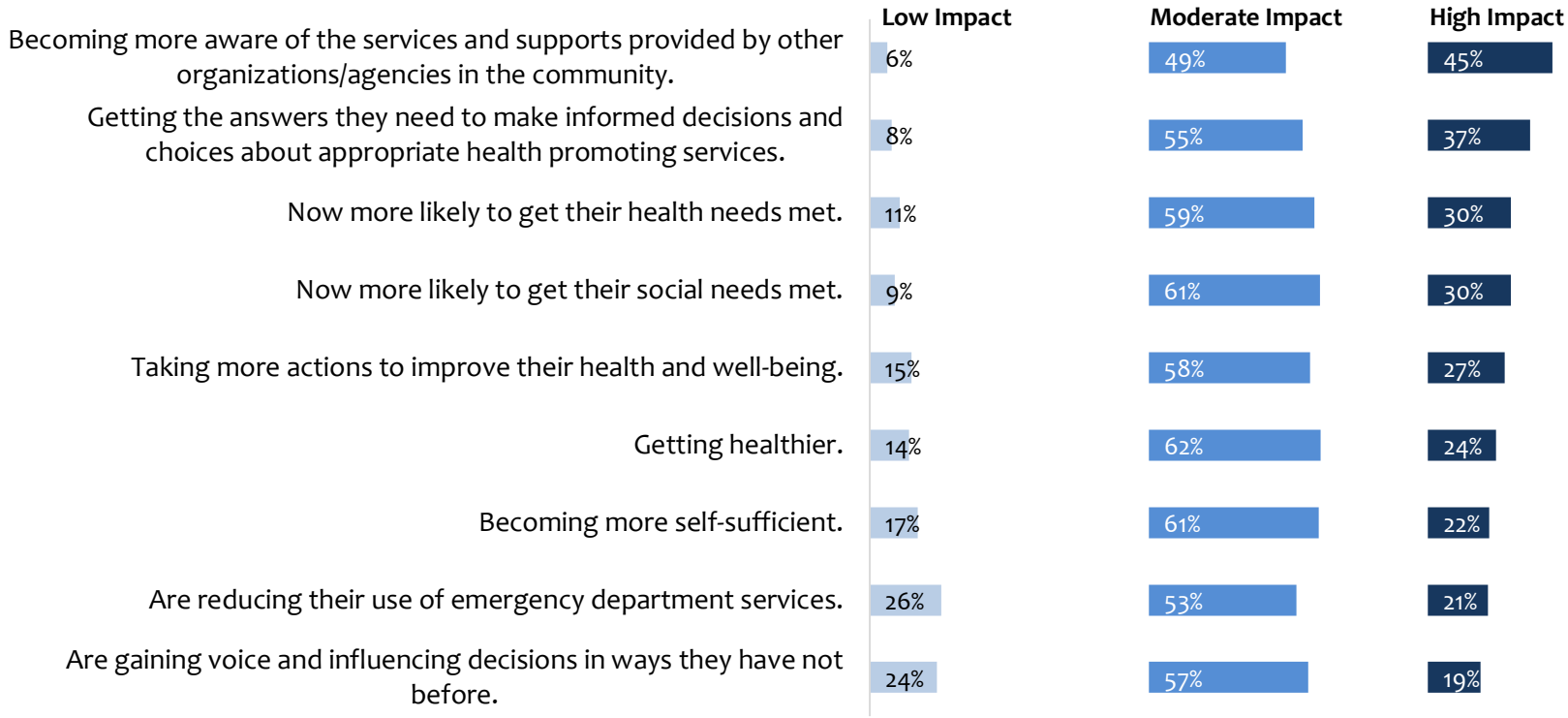
Patient impacts attributed to screening for SDoHs and referral for social services as part of a practice's CCLs was measured by nine questions that assessed patients' knowledge, voice, health, and well-being. Table 3 below provides each question asked along with the frequency distribution for each response option.

Table 3. Patient Impacts Attributed to Screening for SDoHs and Referral for Social Services in 2019.

Because of screening and referrals for social services, patients are…	Not at all	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	**Mean**
1. Becoming more aware of the services and supports provided by other organizations/agencies in the community.	0.7%	5.6%	27.8%	21.2%	**28.9%**	15.8%	4.19
2. Getting the answers they need to make informed decisions and choices about appropriate health promoting services.	0.9%	7.0%	24.0%	**31.4%**	23.5%	13.1%	4.09
3. Now more likely to get their social needs met.	0.7%	8.4%	**30.9%**	30.5%	18.1%	11.5%	3.91
4. Now more likely to get their health needs met.	1.1%	9.7%	29.1%	**30.2%**	17.8%	12.0%	3.90
5. Taking more actions to improve their health and well-being.	2.3%	12.7%	**35.1%**	22.6%	16.1%	11.3%	3.71
6. Getting healthier.	2.1%	12.1%	**34.6%**	26.9%	15.9%	8.4%	3.68
7. Becoming more self-sufficient.	2.5%	14.6%	**33.4%**	27.5%	13.3%	8.7%	3.60
8. Are reducing their use of emergency department services.	6.2%	19.6%	**29.4%**	23.5%	13.0%	8.4%	3.43
9. Are gaining voice and influencing decisions in ways they have not before.	4.8%	19.1%	**36.4%**	20.7%	11.1%	7.8%	3.38

Figure 10. Patient Impact Attributed to Screening for SDoHs and Referral for Social Services in 2019.

Providers reported that patient impact was most directly related to their becoming more aware of social services and supports available to them. Providers also reported moderate impact in regards to patient's self-efficacy and their ability to get their needs met.



Note. Low Impact was defined as "Not at All" and "A Little" responses. Moderate Impact was defined as "Somewhat" and "Mostly" responses. High Impact was defined as "Quite a Bit" and "A Great Deal" responses.

Figure 11. Patient Impact Scale Score Comparison

Each of the nine implementation progress questions were aggregated into a mean scale score. These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. Patient Impacts were significantly higher in 2019 (M=3.761, SD=1.064) than in 2018 (M=3.447, SD=1.278, F(1, 1059)=9.308, *p*= .002). Patient Impacts were significantly lower among respondents located inside a CHIR (M=3.474, SD=1.257) as compared to respondents located outside a CHIR (M=3.726, SD= 1.107, F(1,1059)=4.728 , *p*=.030). We then repeated the analysis among sub-groups of respondents reporting similar roles. We found Patient Impact was lower in 2019 (M=3.410, SD=1.187) than in 2018 among CM/CCs (M=3.803, SD=1.171, F(1,252)=6.586, *p* = .011). We found no significant effects of whether or not respondents were located inside a CHIR for any role subgroup. The interaction between year and whether or not respondents were located within a CHIR was significant among CM/CCs (F(1, 252)=4.979, p=.027), such that CM/CCs outside of CHIRS Patient Impact Scores decreased more over time and CM/CCs located inside CHIRs reported relatively stable Patient Impact Scores over time.

Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

In figure 11 above, Patient Impacts were 9% higher in 2019 than in 2018. Patient Impacts were reported lower in 2019 than in 2018 among CM/CCs. However, it appears likely that this effect is driven by CM/CCs who were located outside CHIRs.

Patient Access to Services

Providers were asked whether or not they referred patients to a range of social services. For each social service they made referrals to, they were asked to rate how frequently their patients gained access to the services/supports. Table 4 below provides the list of social services assessed along with the distribution of responses.

Table 4. Provider Ratings of Patient Access to Social Services – Sorted by Frequency of Access in 2019.

In you referred, how frequently did the individuals gain access to needed services/supports?	N	Never Got Access	Sometimes Got Access	Often Got Access	Always Got Access	**Mean**
1. Food Security/Nutrition	174	1.7%	17.2%	**44.3%**	36.8%	3.16
2. Clothing and Household Necessities	124	2.4%	16.9%	**43.5%**	37.1%	3.15
3. Protective and Legal Systems	85	7.1%	18.8%	28.2%	**45.9%**	3.13
4. Childcare, Early Childhood, and Parenting Supports	112	4.5%	19.6%	**39.3%**	36.6	3.08
5. Personal Safety/Domestic Violence	68	7.4%	17.6%	**38.2%**	36.8%	3.04
6. Dental, Vision, & Hearing	129	2.3%	18.6%	**54.3%**	24.8%	3.01
7. Disability and Senior Supports	150	2.7%	26.0%	**39.3%**	32.0%	3.00
8. Transportation	194	3.1%	24.7%	**43.3%**	28.9%	2.98
9. CHAP (Children's Healthcare Access Program)	32	15.6%	12.5%	**43.8%**	28.1%	2.84
10. Mental/Behavioral Health	229	0.9%	35.8%	**42.8%**	20.5%	2.83
11. Housing and Utilities Supports	142	5.6%	31.7%	**43.7%**	19.0%	2.76
12. Substance Use Treatment/Support	141	5.0%	36.2%	**39.0%**	19.9%	2.74
13. CHIR Hub/Hublet/Process [asked only of providers located in CHIR regions]	40	22.5%	15.0%	**32.5%**	30.0%	2.70
14. Legal Assistance & Civic Supports	54	11.1%	**38.9%**	25.9%	24.1%	2.63
15. Income Assistance/Employment	97	6.2%	39.2%	**44.3%**	10.3%	2.59
16. Adult Education and Higher Education	51	9.8%	37.3%	**39.2%**	13.7%	2.57
17. Early Childhood Education	87	5.7%	16.1%	**39.1%**	**39.1%**	2.42

4. Provider Impacts Attributed to SIM

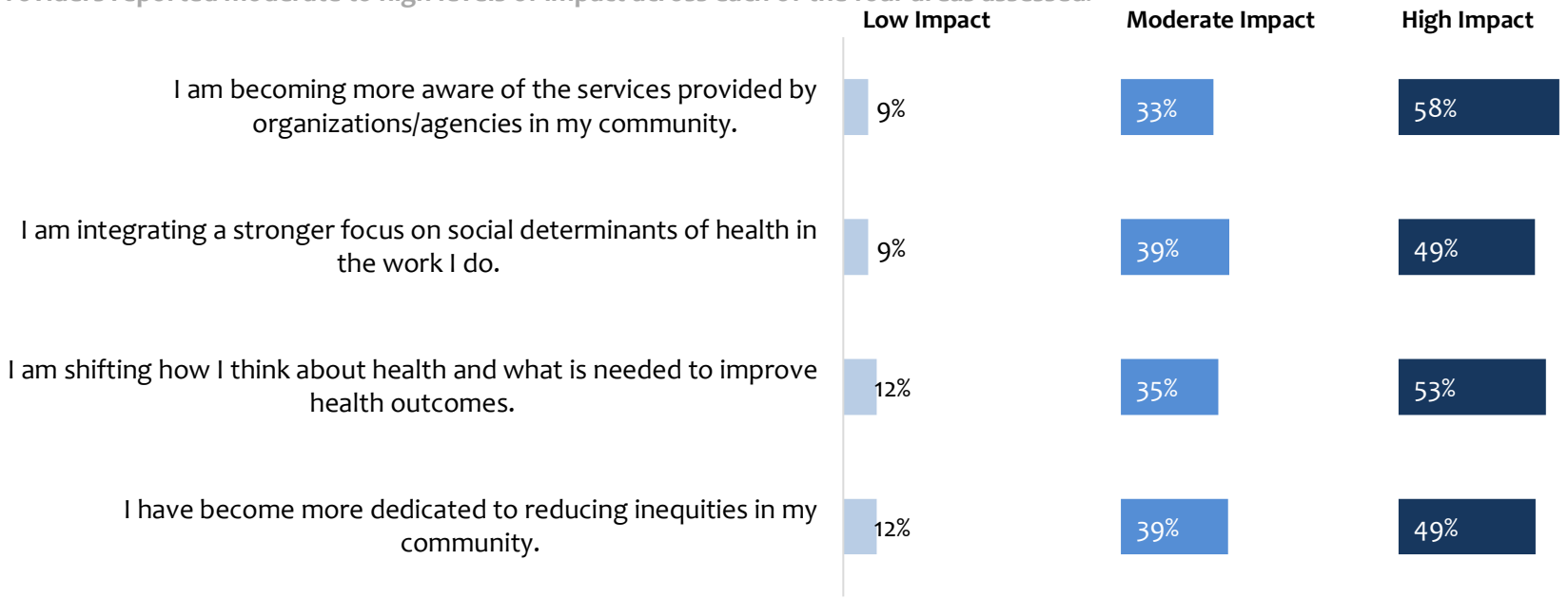
Provider impacts attributed to participating in SIM was measured by four questions that assessed self-reported change in awareness, dedication, and practice. Table 5 below provides each question asked along with the frequency distribution for each response option.

Table 5. Provider Impacts Attributed to Participating in SIM in 2019.

Because of the SIM…	Not Yet	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	**Mean**
1. I am becoming more aware of the services provided by organizations/agencies in my community.	3.0%	6.0%	12.4%	20.8%	**29.2%**	28.5%	4.52
2. I am integrating a stronger focus on social determinants of health in the work I do.	3.7%	5.4%	16.1%	16.1%	**32.2%**	26.5%	4.47
3. I am shifting how I think about health and what is needed to improve health outcomes.	5.4%	6.4%	14.7%	20.4%	26.4%	**26.8%**	4.36
4. I have become more dedicated to reducing inequities in my community.	5.4%	6.7%	21.5%	17.1%	**26.5%**	22.8%	4.21

Figure 12. Provider Impacts Attributed to SIM in 2019.

Providers reported moderate to high levels of impact across each of the four areas assessed.



Notes. Low Impact was defined as "Not Yet" and "A Little" responses. Moderate Impact was defined as "Somewhat" and "Mostly" responses. High Impact was defined as "Quite a Bit" and "A Great Deal" responses.

Figure 13. Provider Impact Scale Score Comparison

Each of the four provider impact questions were aggregated into a mean scale score. These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. Provider Impact Scores were similar in 2019 and 2018 ($F(1,1024)=0.519$, p=ns) across all respondents. However, differences in Provider Impact Scores differed between 2019 and 2018 among respondent role subgroups. CM/CCs reported lower Provider Impact in 2019 as compared to 2018 ($F(1,226)=19.573$, $p<.001$). PCPs reported higher Provider Impact in 2019 ($M=4.638$, $SD=1.128$) as compared to 2018 ($M=3.790$, $SD=1.365$, $F(1,236)=26.963$, $p<.001$). Provider Impact Scores were higher among respondents located inside a CHIR ($M=4.441$, $SD=1.200$) as compared to respondents located outside a CHIR ($M=4.233$, $SD=1.288$, $F(1,1025)=4.334$, $p=.038$). More specifically, Provider Impacts were significantly higher among CM/CCs located within CHIRs as compared to CM/CCs who were not ($F(1,226)=7.044$, $p=.009$).

There was no significant interaction between year and whether or not respondents were located inside a CHIR on Provider Impact across the entire sample ($F(1,1025)=0.857$, p=ns) or among role subgroups.

Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

In figure 13 above, Provider Impact reports appear to have been maintained across all respondents from 2018 to 2019. Across years, Provider Impact Scores were 5% higher among respondents located inside CHIRs as compared to respondents located outside CHIRs. Sub-group analyses revealed:

- ✓ CM/CCs, specifically those who are located outside CHIRs, reported lower Provider Impacts in 2019 as compared to 2018
- ✓ PCPs reported 22% higher Provider Impacts in 2019 as compared to 2018

5. Practice Impacts

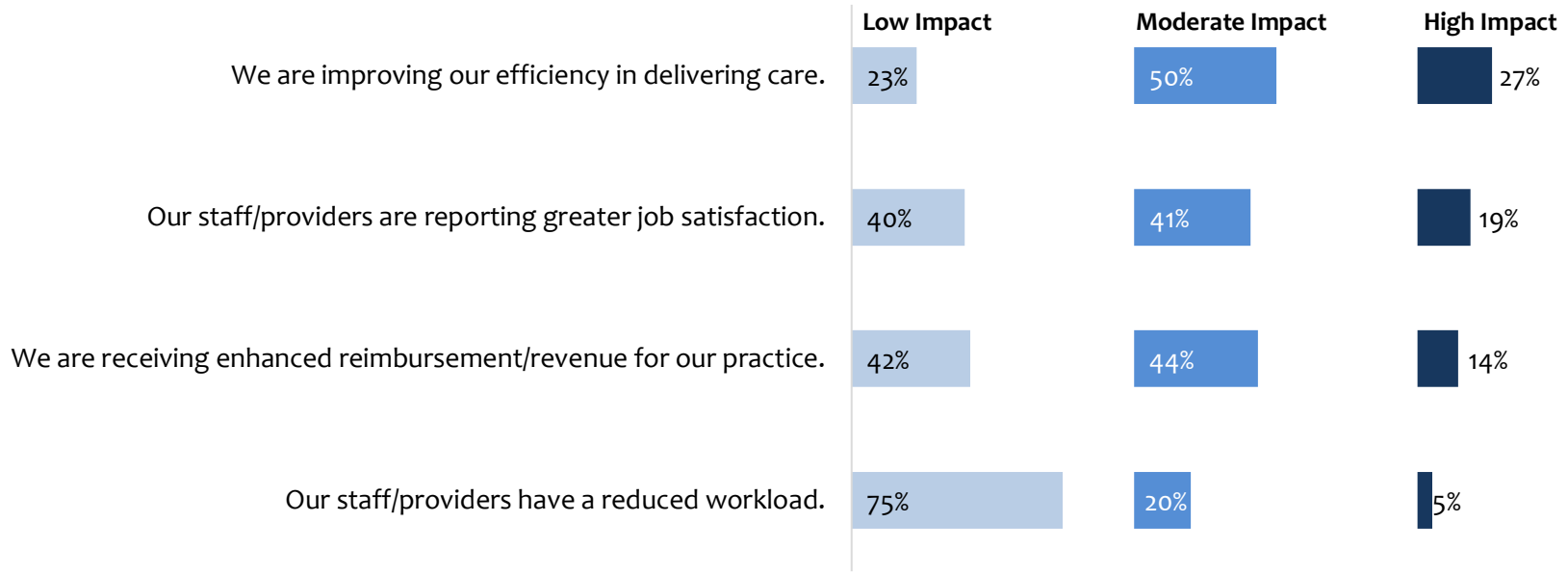
Practice impacts attributed to efforts at coordinating health and social services were assessed by four questions that ranged from job satisfaction to revenue. Table 5 below provides each question asked along with the frequency distribution for each response option. Overall results indicate low levels of positive practice impact related to coordination efforts with health and social services. It should be noted, however, that limitations in the response scale prevented the measurement of negative system impacts (e.g., greater workload).

Table 6. Practice Impacts Attributed to Coordination Efforts with Health and Social Services.

Because of our coordination efforts with health and social services…	Not at all	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	**Mean**
1. We are improving our efficiency in delivering care.	8.1%	15.0%	**28.8%**	21.5%	14.6%	11.9%	3.55
2. Our staff/providers are reporting greater job satisfaction.	23.1%	16.9%	**27.3%**	13.8%	15.4%	3.5%	2.92
3. We are receiving enhanced reimbursement/revenue for our practice.	21.0%	21.0%	**30.5%**	13.2%	10.7%	3.7%	2.83
4. Our staff/providers have a reduced workload.	**53.8%**	20.8%	13.8%	6.2%	3.8%	1.5%	1.90

Figure 14. Practice Impacts Attributed to Coordination Efforts with Health and Social Services

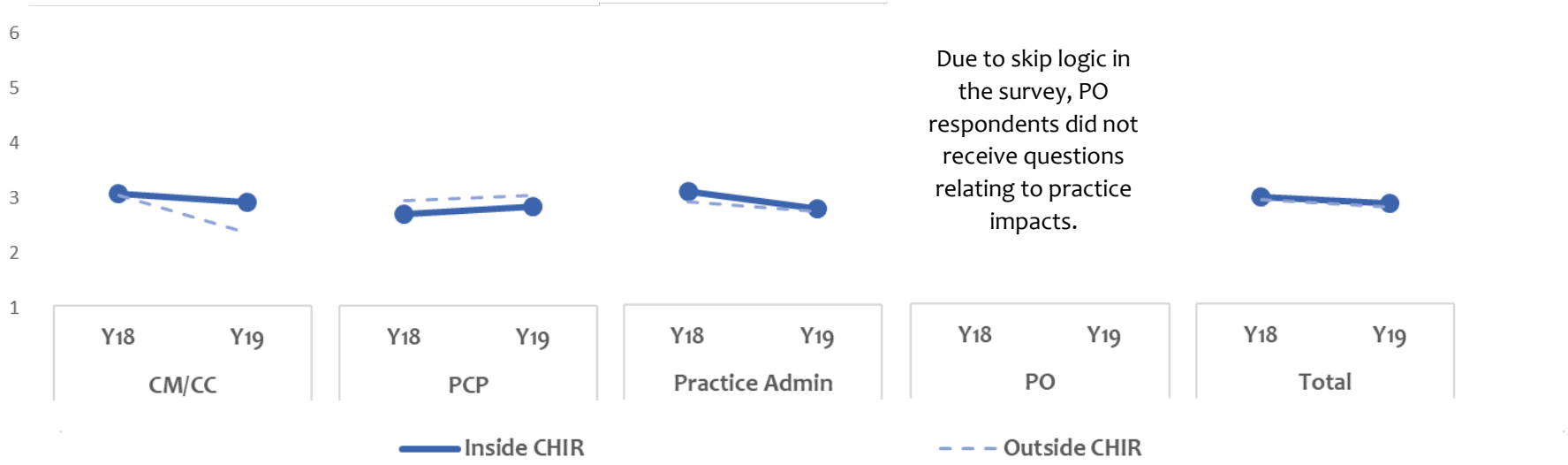
Providers reported low to moderate levels of practice impact attributed to coordination efforts with health and social services. Providers reported very low levels of endorsement that they have a reduced workload.



Note. Low Impact was defined as "Not at All" and "A Little" responses. Moderate Impact was defined as "Somewhat" and "Mostly" responses. High Impact was defined as "Quite a Bit" and "A Great Deal" responses.

Figure 15. Practice Impact Scale Score Comparison

Each of the four practice impact questions were aggregated into a mean scale score. These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. There was no significant difference between 2018 and 2019 for Practice Impact across all respondents ($F(1,789)=0.022$, p=ns). There was no significant difference in Practice Impact Scores among respondents located inside a CHIR compared to those located outside a CHIR ($F(1,789)=0.298$, p=ns). Across all respondents, there was no significant interaction of year and whether or not respondents were located within a CHIR on Practice Impact Scores ($F(1,789)=1.801$, p=ns). We repeated the analysis among each specific role sub-group of the entire sample. We found CM/CCs reported lower Practice Impacts in 2019 ($M=2.639$, $SD=1.237$) as compared to CM/CCs report of Practice Impacts in 2018 ($M=3.020$, $SD=1.196$, $F(1, 229)=5.342$, p=.022). We found no other significant effects or interactions of year and whether or not respondents were located within a CHIR within role sub-groups.



Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

In figure 15 above, Practice Impacts appear to be maintained from 2018 to 2019 across the entire sample, regardless of location inside or outside CHIRs. However, role subgroup analyses show:

- ✓ CM/CCs reported 13% lower Practice Impacts in 2019 as compared to 2018.

Practice Impact vs. Patient Benefits

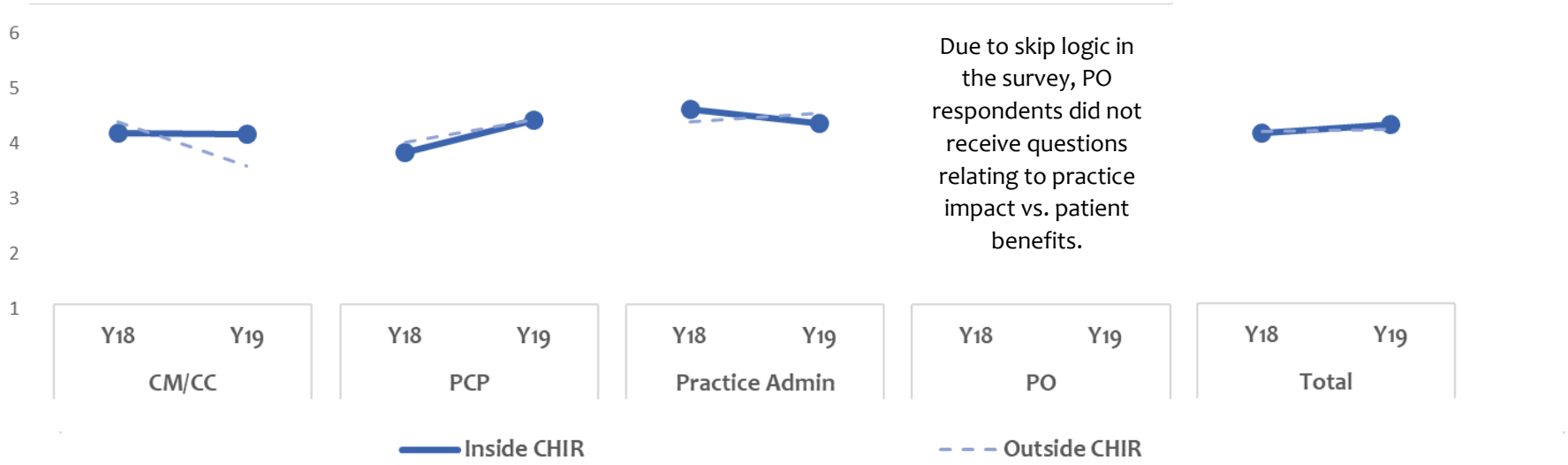
As indicated above, the response options prevented an assessment of negative practice impacts related to coordination efforts with health and social services. A standalone question did, however, assess whether the benefits to patients outweighed the added work/challenge related to these efforts. Table 6 provides the frequency distribution for each response option. Results indicated that **66.6% of respondents believed that the benefits to patients at least "mostly" outweighed the added work/challenges**.

Table 7. Practice Impacts Attributed to Coordination Efforts with Health and Social Services.

Because of our coordination efforts with health and social services…	Not at all	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	**Mean**
1. The benefits to our patients outweighs the added work/challenges.	2.3%	9.6%	20.3%	22.2%	**24.9%**	20.7%	4.20

Figure 16. Practice Impact vs. Patient Benefit Comparison

These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. There was no significant difference between 2018 and 2019 across all respondents ($F(1,618)=1.271$, p=ns). There was no significant difference among respondents located inside a CHIR compared to those located outside a CHIR ($F(1,618)=0.051$, p=ns). Across all respondents, there was no significant interaction of year and whether or not respondents were located within a CHIR ($F(1,618)=0.002$, p=ns). We repeated the analysis among each specific role sub-group of the entire sample. We found CM/CCs located inside CHIRs reported similar Practice Impacts Vs. Patient Benefits in 2019 and 2018, whereas CM/CCs located outside of CHIRs reported lower Practice Impacts vs. Patient Benefits in 2019 compared to 2018 ($F(1, 202)=4.454$, p=.036). We found PCPs reported higher Practice Impacts vs. Patient Benefits in 2019 ($M=4.340$, $SD=1.249$) as compared to 2018 ($M= 3.850$, $SD=1.465$, $F(1,217)=7.002$, p=.009). We found no other significant effects or interactions of year and whether or not respondents were located within a CHIR within role sub-groups.



Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal).

In figure 16 above, it appears that practice impacts vs patient benefits appears similar in 2018 and 2019, regardless of location inside or outside CHIRs. Role subgroup analyses show :

- ✓ CM/CCs located outside CHIRs reported 19% scores in 2019 than in 2018, while CM/CCs scores are similar across years.
- ✓ PCPs reported 13% higher scores in 2019 than 2018.

6. System Impacts Attributed to SIM

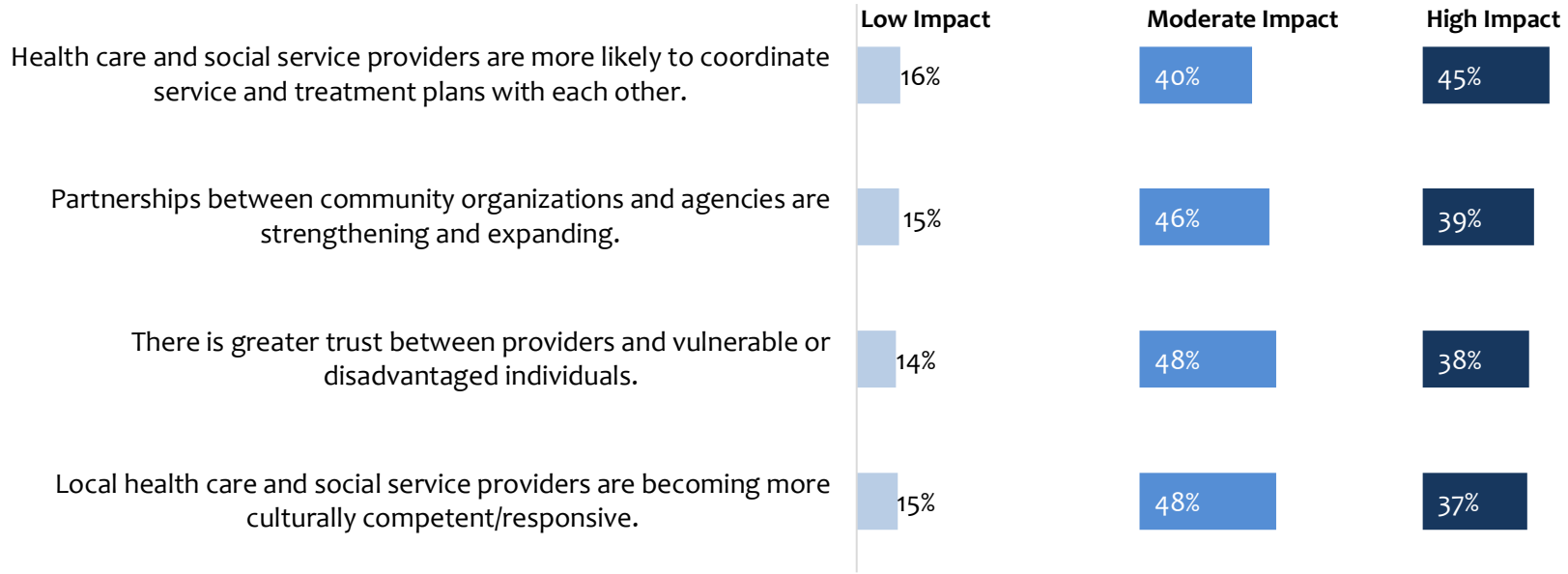
System impact attributed to SIM was measured by four questions that assessed community systems change. Table 8 below provides each question asked along with the frequency distribution for each response option.

Table 8. System Impacts Related Attributed to SIM in 2019.

Because of the SIM…	Not Yet	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	**Mean**
1. Health care and social service providers are more likely to coordinate service and treatment plans with each other.	5.7%	9.8%	19.9%	19.9%	**26.6%**	18.2%	4.06
2. Partnerships between community organizations and agencies are strengthening and expanding.	4.1%	10.8%	22.7%	23.1%	**25.8%**	13.6%	3.96
3. There is greater trust between providers and vulnerable or disadvantaged individuals.	3.7%	10.1%	**26.9%**	21.5%	24.6%	13.1%	3.93
4. Local health care and social service providers are becoming more culturally competent/responsive.	4.4%	10.1%	**26.9%**	21.5%	23.2%	13.8%	3.91

Figure 17. System Impacts Attributed to SIM in 2019.

Providers reported moderate levels of systems impacts attributed to SIM. The greatest change was that healthcare and social service providers are more likely to coordinate services/treatment plans with each other because of SIM.



Note. Low Impact was defined as "Not Yet" and "A Little" responses. Moderate Impact was defined as "Somewhat" and "Mostly" responses. High Impact was defined as "Quite a Bit" and "A Great Deal" responses.

Figure 18. System Impact Scale Score Comparison

These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. There was no significant difference between 2018 and 2019 across all respondents ($F(1,751)=2.322$, p=ns). There was no significant difference among respondents located inside a CHIR compared to those located outside a CHIR ($F(1,751)=3.204$, p=ns). Across all respondents, there was no significant interaction of year and whether or not respondents were located within a CHIR ($F(1,751)=0.083$, p=ns). We repeated the analysis among each specific role sub-group of the entire sample. We found CM/CCs located inside CHIRs reported similar System Impact in 2019 and 2018, whereas CM/CCs located outside of CHIRs reported lower System Impact scores in 2019 compared to 2018 ($F(1, 180)=4.585$, p=.034). We found POs reported higher System Impact in 2019 (M=4.255, SD=1.311) as compared to POs in 2018 (M= 3.939, SD=1.006, $F(1,92)=10.602$, p=.002). We found no other significant effects or interactions of year and whether or not respondents were located within a CHIR within role sub-groups.

Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

In figure 18 above, Systems Impacts appear to have been maintained over time across all respondents, regardless of location inside or outside CHIRs. Role sub-group analyses show:

- ✓ POs reported 8% higher Systems Impacts in 2019 as compared to 2018.
- ✓ CM/CCs located outside CHIRs report 22% lower System Impacts in 2019 than in 2018, while Systems Impacts were maintained over time among CM/CCs located within CHIRs.

7. Community Advocacy

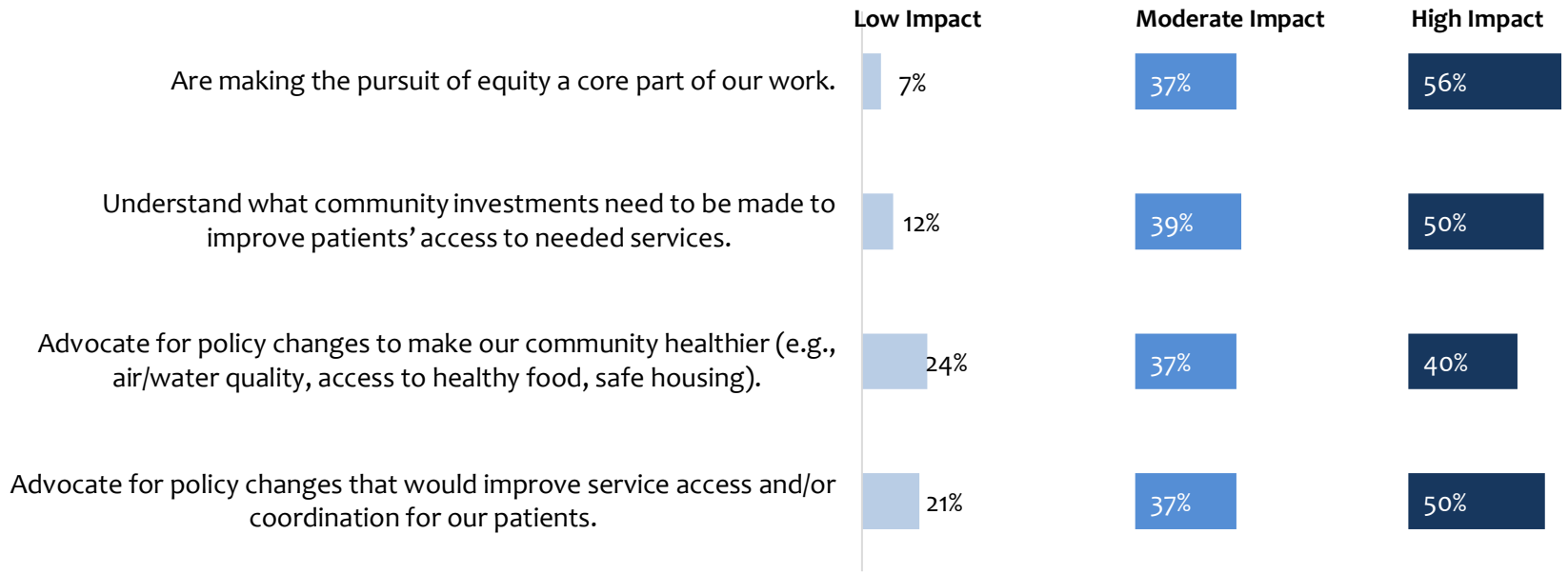
Community advocacy was measured by four questions that assessed equity, community investments, and access and coordination of services. Table 9 below provides each question asked along with the frequency distribution for each response option.

Table 9. Community Advocacy in 2019.

At my practice, we…	Not at all	A Little	Some-what	Mostly	Quite a Bit	A Great Deal	**Mean**
1. Are making the pursuit of equity a core part of our work.	3.6%	3.4%	13.1%	23.9%	27.5%	**28.4%**	4.54
2. Understand what community investments need to be made to improve patients' access to needed services.	2.5%	9.0%	16.0%	22.9%	**26.7%**	22.9%	4.31
3. Advocate for policy changes to make our community healthier (e.g., air/water quality, access to healthy food, safe housing).	9.7%	14.0%	17.4%	19.2%	**20.1%**	19.6%	3.97
4. Advocate for policy changes that would improve service access and/or coordination for our patients.	6.6%	14.1%	17.2%	19.7%	21.1%	**21.3%**	3.87

Figure 19. Community Advocacy in 2019.

The pursuit of equity was the highest rated form of community advocacy reported by providers.



Note. Low Advocacy was defined as "Not at All" and "A Little" responses. Moderate Advocacy was defined as "Somewhat" and "Mostly" responses. High Advocacy was defined as "Quite a Bit" and "A Great Deal" responses.

Figure 20. Community Advocacy Scale Score Comparison

These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. There was no significant difference between 2018 and 2019 across all respondents ($F(1,988)=0.315$, p=ns). Across the entire sample, respondents located inside a CHIR reported higher Community Advocacy ($M=4.488$, $SD=1.165$) compared to respondents who were located outside a CHIR ($M=3.897$, $SD=1.321$, $F(1,988)=52.659$, $p<.001$). Across all respondents, there was no significant interaction of year and whether or not respondents were located within a CHIR ($F(1,988)=0.028$, p=ns). We repeated the analysis among each specific role sub-group of the entire sample. We found significantly higher Community Advocacy Scores were reported for respondents located inside CHIRs as compared to respondents located outside CHIRs among CM/CCs, POs, and Practice Admin, but not among PCPs. We found no other significant effects or interactions of year and whether or not respondents were located within a CHIR within role sub-groups.

Note. The scale for these scores range from 1 (Not at All) to 6 (A Great Deal). "PO Administrators" from 2018 are equivalent to "PO" in 2019.

In figure 20 above, respondents located inside CHIRs reported 15% higher Community Advocacy Scores than respondents located outside CHIRs. Community Advocacy due to SIM has been maintained over time across all respondents. Role sub-group analyses show:

- ✓ CM/CCs report 18% higher Community Advocacy in CHIRs
- ✓ POs report 21% higher Community Advocacy in CHIRs
- ✓ Practice Admin report 11% higher Community Advocacy in CHIRs

8. Coordinating Organization Supporting Clinical-Community Linkages

Respondents were asked whether or not they were aware of an organization in their community that supported their CCL efforts. Five questions were asked that assessed supports for screening and referrals, the identification of service gaps in the community, and supports for cross-sector collaboration. Table 10 below provides each question asked along with the frequency distribution for each response option.

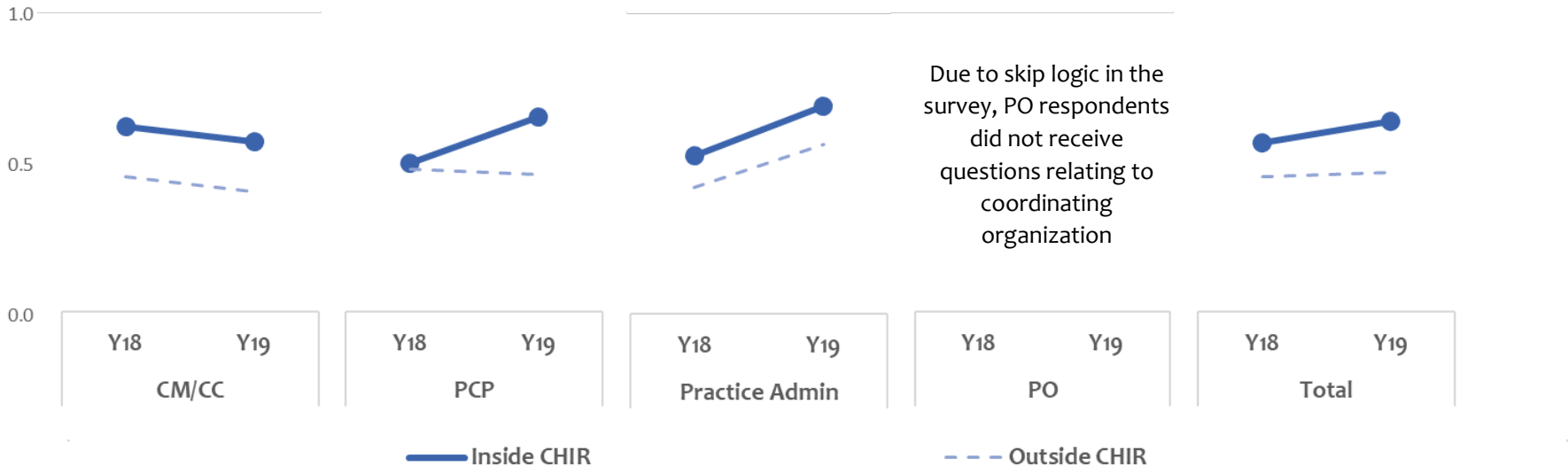
Table 10. Coordinating Organization in 2019.

In your community, is there an organization/entity that…	Yes	No	Don't Know	**Mean***
1. Supports your efforts in referring patients for social services.	**72.8%**	7.4%	19.8%	0.73
2. Supports your efforts in screening for social needs.	**68.3%**	9.2%	22.5%	0.68
3. Works to identify gaps between available social services and the needs of the community.	**57.0%**	9.9%	33.1%	0.57
4. Creates opportunities for significant improvement in the community that could not have happened without its support.	**51.4%**	11.6%	37.0%	0.51
5. Enables a level of cross-sector action and collaboration that could not have happened without its support.	**50.0%**	10.9%	39.1%	0.50

Note. Mean scores were calculated with "No" and "Don't Know" response options coded as 0. The "Yes" option was coded as 1.

Figure 21. Coordinating Organization Scale Score Comparison

Each of the five Coordinating Organization questions were aggregated into a mean scale score These scores were used to assess differences by year, provider's role and whether or not their practice/organization was located within a CHIR. There was no significant difference between 2018 and 2019 across all respondents ($F(1,633)=2.535$, $p=.112$). Across the entire sample, respondents located inside a CHIR reported higher scores ($M=0.650$, $SD=0.384$) compared to respondents who were located outside a CHIR ($M=0.496$, $SD=0.402$, $F(1,663)=25.846$, $p<.001$). Across all respondents, there was no significant interaction of year and whether or not respondents were located within a CHIR ($F(1,663)=0.712$, p=ns). We repeated the analysis among each specific role sub-group of the entire sample. We found significantly higher scores were reported for respondents located inside a CHIR as compared to respondents located outside a CHIR among CM/CCs and PCPs, but not among Practice Admin. We found Practice Admin held higher scores in 2019 ($M=.681$, $SD=0.350$) as compared to 2018 ($M=0.517$, $SD=0.416$, $F(1,139)=6.081$, $p=.015$). We found no other significant effects or interactions of year and whether or not respondents were located within a CHIR within role sub-groups.



Note. "Yes" was scored as 1 and "No" and "Not Sure" were scored as 0. "PO Administrators" from 2018 are equivalent to "PO" in 2019.

In figure 21 above, respondents located in CHIR regions reported 31% greater levels coordination attributed to SIM. Coordinating organization appears to have been maintained over time, regardless of respondent role. Role sub-group analyses show:

- ✓ CM/CCs inside CHIRs reported 39% greater coordination than CM/CCs outside CHIRs
- ✓ PCPs inside CHIRs reported 21% greater coordination than PCPs outside CHIRs
- ✓ Practice Admin reported 31% greater coordination in 2019 than in 2018

Coordinating Organization Impact

To assess the contribution of the presence of a coordinating organization on provider reported patient outcomes, a linear regression analysis was conducted. This analysis allows for the estimate of strength and significance of the association while controlling for other factors. For this analysis, the outcome variable was the patient impact scale score reported in part 3 above. The predictor variables included 1) Coordinating Organization, 2) Provider Motivation, 3) Implementation Progress, 4) Community Advocacy, 5) Provider Impacts Attributed to SIM, 6) Practice Impacts Attributed to SIM and 7) System Impacts Attributed to SIM. Table 11 below provides the results. The linear combination of predictors accounted for 64% of the variance in patient impacts.

Table 11. Regression Analysis of Predictors of Provider-Reported Patient Outcomes across Implementation Years

Implementation Progress Provider Impacts Attributed to SIM, and System Impacts Attributed to SIM significantly predicted Patient Outcomes.

		Unstandardized Coefficients		Standardized Coefficients		
Model	Predicting Patient Outcomes	B	Std. Error	Beta	t	Sig.
1	(Constant)	.200	0.207		.989	.334
	Coordinating Organization	0.144	0.089	0.052	1.612	.108
	Provider Motivation	0.060	0.059	0.045	1.015	.311
	Implementation Progress	0.188	0.061	0.154	3.111	.002
	Community Advocacy	0.122	0.034	0.139	3.634	< .001
	Provider Impacts Attributed to SIM	0.015	0.039	0.018	0.389	.697
	Practice Impacts Attributed to SIM	0.171	0.040	0.188	4.281	< .001
	System Impacts Attributed to SIM	0.261	0.043	0.303	6.016	< .001
	Located within a CHIR	-0.094	0.066	-0.042	-1.408	.160
	Year (2019)	-0.061	0.067	-0.027	-0.919	.358
	Role					
	CM/CC	-0.109	0.076	-0.046	-1.430	0.153
	Practice Admin	0.021	0.080	0.008	0.259	0.796
	PO	-0.549	0.671	-0.024	-0.818	0.414

Notes. ***Standardize Beta Coefficient.*** Model ANOVA: F (13, 445)=61.056, p<.001.

The results of the regression analysis indicated that the presence of a Coordinating Organization in the community did not make a significant contribution to provider-reported patient outcomes, independent of other contributing factors. It is noteworthy that the strongest predictors of patient outcomes were related to implementation Progress, Provider Impacts, Community Advocacy, Coordinating organization and System Impacts. Provider Motivation and Coordinating Organization were not statistically significant in the regression. This was unexpected given their moderate correlations with patient impacts. Provider motivation and implementation progress were highly correlated ($r = .696$; $p < .01$). Therefore, we reran the regression removing implementation progress to examine whether the correlation could be suppressing the effects of provider motivation and community advocacy on patient impacts (Table 12).

Table 12. Regression Analysis of Predictors of Provider-Reported Patient Outcomes when Implementation Progress is Removed

After removing implementation progress from the model, which was significantly correlated with other predictors, we found provider motivation and coordinating organization were significant predictors of patient outcomes as was expected by their correlations. The predictors accounted for 64.6% of the variance in patient outcomes.

	Unstandardized Coefficients		Standardized Coefficients		
Model Predicting Patient Outcomes	B	Std. Error	Beta	t	Sig.
(Constant)	0.348	0.191		1.821	.069
Coordinating Organization	0.104	0.032	0.131	3.284	.001
Provider Motivation	0.145	0.045	0.109	3.178	.002
Community Advocacy	0.165	0.030	0.188	5.426	< .001
Provider Impacts Attributed to SIM	0.027	0.037	0.031	0.738	0.461
Practice Impacts Attributed to SIM	0.180	0.037	0.199	4.811	< .001
System Impacts Attributed to SIM	0.267	0.041	0.308	6.570	< .001
Located within a CHIR	-0.119	0.061	-0.054	-1.943	.053
Year (2019)	-0.073	0.065	-0.031	-1.124	.262
Role					
CM/CC	-0.130	0.072	-0.055	-1.797	.073
Practice Admin	0.017	0.078	0.006	0.215	.830
PO	-0.205	0.129	-0.046	-1.596	.111

*Notes. *Standardize Beta Coefficient.* Model ANOVA: F (12, 517) = 76.689, p<.001.

Addressing Potential Response Bias as a Threat to Validity

There are # POs that had drastically different response rates in the 2018 and 2019 provider surveys.

PO Name	# Responses in 2018	# Responses in 2019
Affinia Health Network Lakeshore	0	86
Bronson Network, LLC	31	0
Henry Ford Medical Group	2	53
University of Michigan Health System	5	69
Huron Valley Physicians Association	20	0

In order to inform whether these POs' responses/non-responses affected the results presented in this report, we conducted some sensitivity analyses. We re-ran analyses (i.e., mean score descriptive statistics, regression) on the dataset with the above POs removed. We tested whether the mean scores of the reduced dataset significantly differed from the reported mean scores using t-tests. No significant differences were found. Finally, we compared the reported regression analysis results with the regression analysis results of the reduced dataset to identify whether the directionality of relationships and significance of predictor variables were retained. We found no differences between the sets of regression analysis results. In summary, we find no evidence that the POs with drastically different response rates in the two rounds of surveys impacted our results, including mean scores, mean scores by respondent role, and year-to-year descriptive comparisons.

IV. Appendix

Appendix 1: 2019 SIM PCMH Initiative Provider Survey

Distributed: June 17, 2019

TO COMPLETE THE SURVEY, PLEASE FOLLOW THIS LINK:

https://mphi.az1.qualtrics.com/jfe/form/SV_9ohMX6vyso7qacB

2019 SIM PCMH Initiative Healthcare Provider Survey

As part of the statewide evaluation of the Michigan Department of Health and Human Services' State Innovation Model (SIM), we are asking participating organizations to help us understand their experiences with implementing screening for the **Social Determinants of Health** (SDoH) and referral/linkage for social services. The SIM initiative is a four-year grant-funded demonstration project ending in January 2020 to test and implement an innovative model for delivering and paying for healthcare in the state. SIM is organized into three main umbrellas: Population Health, Care Delivery, and Technology. Community Health Innovation Regions (CHIRs), which are intended to build community capacity to drive improvements in population health, form the base of the Population Health component. The Care Delivery component of the project includes the Patient-Centered Medical Home (PCMH) Initiative and the promotion of alternative payment models.
In the questions below, we refer to individuals' **social needs**. These are the needs identified by SDoH screening, are socio-economic in nature, and include such factors as food insecurity, homelessness, inadequate transportation, financial and employment instability, domestic violence, etc.

1) **Were you previously familiar with Michigan's State Innovation Model (SIM)?**

O Yes

O No

2) Is your practice located in a Community Health Innovation Region (CHIR)?
(CHIRs are located in Genesee, Jackson, Livingston, Washtenaw, Muskegon counties and the Northwest Lower Peninsula)

O Yes

O No

O Don't know

---

3) What type of practice do you represent?
If you are employee of a Physician's Organization, but primarily work in a PCMH practice, please select (PCMH).

O Physician's Organization

O PCMH/FQHC

O Other, please specify: _____

4) Please select your practice by first selecting your representative Physician's Organization, if applicable, and then your individual practice. (If you do not belong to a Physician's Organization, please select "Individual Applicant" for your PO.)
If you represent more than one practice, please select the one where you spend the most time.

Physician's Organization: _____

Individual Practice: _____

5) Which roles do you serve in your position? ***Select all that apply.***

☐ Social Worker

☐ Care Manager

☐ Care Coordinator

☐ Office Manager

☐ Physician

☐ Registered Nurse

☐ Nurse Practitioner

☐ Physician Assistant

☐ Director/CEO

☐ Other, please specify: _____

6) To what extent do you personally participate in each of the following activities:

	Not at all	Rarely	Sometimes	Often	Don't know
A. Screening individuals for social needs	O	O	O	O	O
B. Referring individuals to needed social services	O	O	O	O	O
C. Discussing with my patients how social needs impact their health	O	O	O	O	O
D. Using social needs information in treatment decisions	O	O	O	O	O
E. Providing care coordination and service navigation supports	O	O	O	O	O
F. Receiving referrals and providing needed services and supports	O	O	O	O	O

7) Do you participate in any other Clinical Community Linkage activities that were not listed in the previous question? If so, please describe them here:

_____

_____

_____

_____

_____

8) **Has your practice ever been involved with any of the following PCMH provider incentive programs (past or current participation)?** ***Select all that apply.***

☐ MIPCT

☐ CPC+

☐ Blue Cross Blue Shield of Michigan Physician Group Incentive Program

☐ Other payers, please specify: _____

☐ I don't know

Important! The following set of questions asks about organizational-level practices. Please answer these questions in relation to the practice where you spend the most time. Out of respect for your time, we only ask that you complete this survey once. If, however, you would like to represent another practice, you may complete the survey again once you finish this one.

9) To what extent do you agree with the following statements about your practice?

At my practice, we...	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. understand the impact of social needs on the health and well-being of patients.	O	O	O	O	O	O
B. believe that primary care has an important role in identifying and addressing the social needs of our patients.	O	O	O	O	O	O
C. believe screening for social needs can help build trusting relationships between providers and patients.	O	O	O	O	O	O
D. believe better healthcare decisions can be made when a patient's social needs are understood.	O	O	O	O	O	O
E. are aware of the major social needs of our patients.	O	O	O	O	O	O
F. are aware of the social services provided by organizations/agencies in our community.	O	O	O	O	O	O
G. are aware of the gaps in social service in our community.	O	O	O	O	O	O

10) To what extent do you agree with the following statements about your practice?

At my practice, we...	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. have procedures in place to systematically identify the social needs of our patients.	O	O	O	O	O	O
B. have implemented a staffing plan and workflow to accomplish screening and referral activities.	O	O	O	O	O	O
C. have the resources (e.g., funding, staffing, materials) needed to effectively implement screening and referral for social services.	O	O	O	O	O	O
D. effectively use patient's social needs information to make treatment decisions.	O	O	O	O	O	O
E. effectively use an EHR to track the social needs of our patients.	O	O	O	O	O	O
F. are able to track what happens when we refer patients to social services.	O	O	O	O	O	O
G. find it easy to refer patients to social service providers and other agencies.	O	O	O	O	O	O
H. find it easy to refer patients to our CHIR (Hub/hublet/process).	O	O	O	O	O	O

11) At my practice, we...

	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. believe that improved health and social service coordination ensures we are not overlooking the needs of our community members.	O	O	O	O	O	O
B. understand what practical steps can be made to coordinate health and social services for our patients.	O	O	O	O	O	O
C. can better accomplish our goals by coordinating with health and social service providers.	O	O	O	O	O	O

12) In your community, is there an organization or entity that….

	Yes	No	Not sure
A. supports your practice's efforts in screening for social needs.	O	O	O
B. supports your practice's efforts in referring patients for social services.	O	O	O
C. works to identify gaps between available social services and the needs of the community.	O	O	O
D. enables a level of cross-sector action and collaboration that could not have happened without its support.	O	O	O
E. creates opportunities for significant improvement in the community that could not have happened without its support.	O	O	O
F. receives referrals from your practice for further assessment and/or linkage to social services.	O	O	O

13) Please list the organization/entity(s) referenced in the above (if more than one, please indicate which functions are associated with each organization/entity):

_____

14) Do you find it easy to refer patients to this entity?

O Yes

O No

15) At my practice, we…

	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. are making the pursuit of equity a core part of our work.	O	O	O	O	O	O
B. understand what community investments need to be made to improve patients' access to needed services.	O	O	O	O	O	O
C. advocate for policy changes that would improve service access and/or coordination for our patients.	O	O	O	O	O	O
D. advocate for policy changes to make our community healthier (e.g., air/water quality, access to healthy food, safe housing).	O	O	O	O	O	O

16) Because of screening and referrals for social services, patients are…

	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. becoming more aware of the services and supports provided by other organizations/agencies in the community.	O	O	O	O	O	O
B. taking more actions to improve their health and well-being.	O	O	O	O	O	O
C. now more likely to get their health needs met.	O	O	O	O	O	O
D. now more likely to get their social needs met.	O	O	O	O	O	O
E. getting the answers they need to make informed decisions and choices about appropriate health promoting services.	O	O	O	O	O	O
F. getting healthier.	O	O	O	O	O	O
G. becoming more self-sufficient.	O	O	O	O	O	O
H. reducing their use of emergency department services.	O	O	O	O	O	O
I. being harmed by being asked about sensitive topics or past traumatic events.	O	O	O	O	O	O
J. gaining voice and influencing decisions in ways they have not before.	O	O	O	O	O	O

17) In your own words, please describe how screening and referring in a systematic manner for social needs is making a difference for your patients?

_____

_____

_____

_____

_____

18) Because of our coordination efforts with social services providers…

	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. our staff/providers are reporting greater job satisfaction.	O	O	O	O	O	O
B. our staff/providers have a reduced workload.	O	O	O	O	O	O
C. we are receiving enhanced reimbursement/revenue for our practice.	O	O	O	O	O	O
D. we are improving our efficiency in delivering care.	O	O	O	O	O	O
E. the benefits to our patients outweighs the added work/challenges.	O	O	O	O	O	O
F. we are part of a system that provides holistic care.	O	O	O	O	O	O

19) Because of my connection to the SIM PCMH Initiative…

	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. I am becoming more aware of the services provided by organizations/agencies in my community.	O	O	O	O	O	O
B. I am shifting how I think about health what is needed to improve health outcomes.	O	O	O	O	O	O
C. I am becoming more dedicated to reducing inequities in my community.	O	O	O	O	O	O
D. I am integrating a stronger focus on social determinants of health in the work I do.	O	O	O	O	O	O
E. I am becoming more comfortable talking about social needs with my patients.	O	O	O	O	O	O

20) Because of the SIM PCMH Initiative…

	Not yet	A little	Some-what	Mostly	Quite a bit	A great deal
A. healthcare and social service providers are more likely to coordinate service and treatment plans with each other.	O	O	O	O	O	O
B. local healthcare and social service providers are becoming more culturally competent/responsive.	O	O	O	O	O	O
C. partnerships between community organizations and agencies are strengthening and expanding.	O	O	O	O	O	O
D. there is greater trust between providers and vulnerable or disadvantaged individuals.	O	O	O	O	O	O

21) In addition to the Clinical Community Linkages process, we would like to ask you a few questions about care management related to your practice.

To what extent do you agree with the following statements about your practice?

	Not at all	A little	Some-what	Mostly	Quite a bit	A great deal
A. Care managers are important members of our team.	O	O	O	O	O	O
B. Care managers improve our ability to meet patient needs.	O	O	O	O	O	O
C. Care managers serve an important role in screening for social needs and referral to services.	O	O	O	O	O	O
D. Care managers serve an important role referring patients to social services.	O	O	O	O	O	O
E. There is a good care manager-staff communication.	O	O	O	O	O	O
F. I have complete trust in care managers.	O	O	O	O	O	O
G. I refer eligible patients to care managers.	O	O	O	O	O	O
H. I would like care management to continue.	O	O	O	O	O	O

22) Think about your interactions with each listed service type over the past 90 days.

For each service type:	Have you referred individuals to this type of service/support in the last 90 days?		If you referred, how frequently did the individuals gain access to needed services/supports?				
	Yes	No	Never Got Access	Sometimes Got Access	Often Got Access	Always Got Access	I Don't Know
a. CHIR Hub/Hublet/Process	O	O	O	O	O	O	O
b. CHAP (Children's Healthcare Access Program)	O	O	O	O	O	O	O
c. Dental, Vision, & Hearing	O	O	O	O	O	O	O
d. Mental/Behavioral Health	O	O	O	O	O	O	O
e. Substance Use Treatment/Support	O	O	O	O	O	O	O
f. Access to Clean Water (distribution of water and filters)	O	O	O	O	O	O	O
g. Adult Education and Higher Education (adult education, vocational training, literacy, ESL programs)	O	O	O	O	O	O	O
h. Childcare, Early Childhood, and Parenting Supports (child/youth programs, breastfeeding supports, parenting support/education, home visiting, Early On)	O	O	O	O	O	O	O
i. Clothing and Household Necessities (non-profits providing necessities such as Goodwill and Salvation Army)	O	O	O	O	O	O	O
j. Disability and Senior Supports (mobility services, social engagement programs)	O	O	O	O	O	O	O
k. Early Childhood Education (Early Head Start, Head Start, preschool, pre-k programs)	O	O	O	O	O	O	O
l. Food Security/Nutrition (food assistance, community health/nutrition, healthy food access)	O	O	O	O	O	O	O

For each service type:	Have you referred individuals to this type of service/support in the last 90 days?		If you referred, how frequently did the individuals gain access to needed services/supports?				
	Yes	No	Never Got Access	Sometimes Got Access	Often Got Access	Always Got Access	I Don't Know
m. Housing and Utilities Supports (emergency shelters, non-profit housing services, government housing assistance, utility assistance)	O	O	O	O	O	O	O
n. Income Assistance/Employment (financial relief/assistance, insurance, job training/employment programs)	O	O	O	O	O	O	O
o. Legal Assistance & Civic Supports (immigrant/ refugee programs, disability rights, human rights, legal aid)	O	O	O	O	O	O	O
p. Personal Safety/Domestic Violence (shelters and support service programs for domestic violence, sexual assault and human trafficking)	O	O	O	O	O	O	O
q. Protective and Legal Systems (law enforcement, child abuse/welfare services, friend of the court, victim witness advocate)	O	O	O	O	O	O	O
r. Transportation (public transportation, transit services, vehicle assistance)	O	O	O	O	O	O	O
s. Other (please specify)	O	O	O	O	O	O	O

23) Which elements of the Clinical Community Linkages process does your practice intend to sustain following the conclusion of the SIM demonstration period? *Select all that apply.*

- [ ] Screening individuals for social needs
- [ ] Referring individuals to needed services
- [ ] Using social needs screening information in treatment/service decisions
- [ ] Providing care coordination and service navigation supports
- [ ] Receiving referrals and providing needed services and supports
- [ ] Practice does not participate in any of these activities
- [ ] I don't know

24) Are there any other elements of the Clinical Community Linkages process that your practice intends to sustain?

_____

_____

_____

_____

_____

25) Which of the following would help support your organization in maintaining participation in the Clinical Community Linkages processes following the conclusion of the SIM demonstration period? *Select all that apply.*

☐ Workflow facilitation and training programs

☐ Clear and standardized documentation formats

☐ Positive feedback from patients and stakeholders

☐ Clear guidance on roles and responsibilities

26) Are there any other supports or services that would enable your organization to maintain participation in the Clinical Community Linkages processes following the conclusion of the SIM demonstration period?

_____

_____

_____

_____

_____

27) Which of the following would be barriers for your organization to maintain Clinical Community Linkages processes following the conclusion of the SIM demonstration period? *Select all that apply.*

- [ ] Lack of payment model that encompasses social need screening and coordination of care
- [ ] No required reporting to MDHHS
- [ ] Lack of evidence that the process is improving our patients' health
- [ ] Lack of technical assistance
- [ ] Lack of CHIR or other community collaborative/coordinating organization/agency/entity
- [ ] I don't know, I am not involved in my leadership's decision-making process

28) Are there any other additional barriers that would prevent your organization from maintaining the Clinical Community Linkages processes following the conclusion of the SIM demonstration period?

_____

_____

_____

_____

_____

29) What additional feedback do you have that would be helpful for the SIM PCMH Initiative evaluators to know?

_____

_____

_____

_____

_____

30) PLEASE VOLUNTEER! We would also like to hear from the social service provider organizations that you work with. If you would like to opt into having your social service provider partners surveyed as well, please provide their names and contact info so that a link to the survey can be sent to them directly. The survey will be completely anonymous, and participant's responses will not be connected with their names.

31) Would you like to volunteer a social service provider that you work with to take the survey?

O Yes

O No

32) Please provide the name and the contact information for the social service provider that you would like to volunteer to take the survey.

O Name _____

O Organization _____

O Role _____

O Email _____

Appendix 2: CCL Provider Survey – Psychometric Analyses

Data Sources

- MPHI PCMH Provider Survey n = 408 (85.5%)
- MSU CHIR Member Survey n = 25 (5.2%)
- MSU CHIR Partner Survey n = 44 (9.2%)

Inclusion Criteria

- Respondent identified as working in the healthcare sector and who report working for a PCMH, FQHC, or Physician's Organization n = 470

Factor Analysis

- Principal Axis Factoring
- Promax Rotation
- Eiganvalues >1
- Loading Suppressed >0.25

Excluded Variables

- Coordinating Organization
- Care Management
- Policy Changes
- Referral Access

Syntax

```
DATASET ACTIVATE DataSet1.
USE ALL.
COMPUTE filter_$=(Org_Purpose = 1).
VARIABLE LABELS filter_$ 'Org_Purpose = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.

FACTOR
  /VARIABLES Q7_1 Q7_2 Q7_3 Q7_4 Q7_5 Q7_6 Q7_7 Q8_1 Q8_2 Q8_3 Q8_4 Q8_5 Q9_1 Q9_2 Q9_3 Q11_1
Q11_2
   Q11_3 Q11_4 Q12_1 Q12_2 Q12_3 Q12_4 Q12_5 Q12_6 Q12_7 Q12_8 Q12_9 Q13_1 Q13_2 Q13_3 Q13_4 Q14_1
```

```
  Q14_2 Q14_3 Q14_4 Q14_5 Q15_1 Q15_2 Q15_3 Q15_4
 /MISSING LISTWISE
 /ANALYSIS Q7_1 Q7_2 Q7_3 Q7_4 Q7_5 Q7_6 Q7_7 Q8_1 Q8_2 Q8_3 Q8_4 Q8_5 Q9_1 Q9_2 Q9_3 Q11_1
Q11_2
  Q11_3 Q11_4 Q12_1 Q12_2 Q12_3 Q12_4 Q12_5 Q12_6 Q12_7 Q12_8 Q12_9 Q13_1 Q13_2 Q13_3 Q13_4 Q14_1
  Q14_2 Q14_3 Q14_4 Q14_5 Q15_1 Q15_2 Q15_3 Q15_4
 /PRINT UNIVARIATE INITIAL KMO EXTRACTION ROTATION
 /FORMAT SORT BLANK(.25)
 /CRITERIA MINEIGEN(1) ITERATE(25)
 /EXTRACTION PAF
 /CRITERIA ITERATE(25)
 /ROTATION PROMAX(4)
 /METHOD=CORRELATION.
```

Results

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.956
Bartlett's Test of Sphericity	Approx. Chi-Square	10746.352
	df	780
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Patient Impact	20.574	51.435	51.435	20.299	50.747	50.747	17.105
Provider Motivation	3.478	8.696	60.130	3.190	7.974	58.722	11.796
Provider and System Impact	2.059	5.148	65.278	1.840	4.600	63.321	14.771
Implementation Progress	1.547	3.868	69.146	1.329	3.322	66.643	16.417
Community Advocacy	1.272	3.179	72.325	0.948	2.369	69.012	11.691
Practice Impact	1.113	2.781	75.107	0.780	1.950	70.962	10.951

Extraction Method: Principal Axis Factoring.

Factor 1: Provider Motivation

(7.9% variance explained, Crombach's Alpha: 0.93)

Question	Factor Loading
a. Believe that primary care has an important role in identifying and addressing the social needs of their patients.	1.020
b. Believe better health care decisions can be made when a patient's social needs are understood.	0.912
c. Believe screening for social needs can help build trusting relationships between providers and their patients.	0.900
d. Understand the impact of social needs on the health and well-being of patients.	0.810
e. Believe that improved health and social service coordination ensures we are not overlooking the needs of our community members.	0.652
f. Can better accomplish our goals by coordinating with health and social service providers.	0.509

Factor 2: Implementation Progress

(3.3% variance explained, Cronbach's Alpha = 0.91)

Question	Factor Loading
a. Effectively use an EHR to track the social needs of our patients.	0.826
b. Have the resources (e.g., funding, staffing, materials) needed to effectively implement screening and referral for social services.	0.800
c. Have procedures in place to systematically identify the social needs of our patients.	0.773
d. Effectively use patient's social needs information to make treatment decisions.	0.723
e. Are aware of the social services provided by organizations/agencies in my community.	0.711
f. Understand what practical steps can be made to coordinate health and social services for our patients.	0.655
g. Are aware of the gaps in social services available for our patients.	0.632
h. Are able to track what happens when we refer patients to social services.	0.564
i. Are aware of the major social needs of our patients.	0.459

Factor 3: Patient Impact

(50.8% variance explained, Cronbach's Alpha = 0.97)

Question	Factor Loading
a. Getting healthier.	1.083
b. Becoming more self-sufficient.	1.030
c. Taking more actions to improve their health and well-being.	0.925
d. Now more likely to get their health needs met.	0.925
e. Are reducing their use of emergency department services.	0.898
f. Getting the answers they need to make informed decisions and choices about appropriate health promoting services.	0.841
g. Now more likely to get their social needs met.	0.822
h. Are gaining voice and influencing decisions in ways they have not before.	0.770
i. Becoming more aware of the services and supports provided by other organizations/agencies in the community.	0.516

Factor 4: Practice Impact

(2.0% variance explained, Cronbach's Alpha = 0.86)

Question	Factor Loading
a. Our staff/providers have a reduced workload.	0.845
b. Our staff/providers are reporting greater job satisfaction.	0.636
c. We are receiving enhanced reimbursement/revenue for our practice.	0.509
d. We are improving our efficiency in delivering care.	0.390

Factor 5: Provider and System Impacts

(4.6% variance explained, Cronbach's Alpha = 0.95)

Question	Factor Loading
a. I am integrating a stronger focus on social determinants of health in the work I do.	1.040
b. I am shifting how I think about health and what is needed to improve health outcomes.	1.030
c. I am becoming more aware of the services provided by organizations/agencies in my community.	0.907
d. I have become more dedicated to reducing inequities in my community.	0.887
e. Local health care and social service providers are becoming more culturally competent/responsive.	0.510
f. Partnerships between community organizations and agencies are strengthening and expanding.	0.482
g. Health care and social service providers are more likely to coordinate service and treatment plans with each other.	0.446
h. There is greater trust between providers and vulnerable or disadvantaged individuals.	0.396

Factor 6: Community Advocacy

(2.4% variance explained, Cronbach's Alpha = 0.90)

Question	Factor Loading
a. Advocate for changes to make our community healthier (e.g., air/water quality, access to healthy food, safe housing).	0.999
b. Advocate for local changes that would improve service access and/or coordination for our patients.	0.979
c. Understand what community investments need to be made to improve patients' access to needed services.	0.506
d. Are making the pursuit of equity a core part of our work.	0.417

Appendix 3. Response Rates and Missing Data

Table 1. Sample Size across Survey Constructs

Valid N refers to the number of survey respondents who report they work within the health care sector and who completed at least 80% of the constituent questions within each construct.

	Data Source					
	PCMH Provider Survey		CHIR Member Survey		CHIR Partner Survey	
Total Targeted Sample Size	386		31		53	
	Valid N	% Missing	Valid N	% Missing*	Valid N	% Missing*
Provider Motivation	381	1.3%	26	16.1%	35	34.0%
Implementation Progress	300	22.3%	24	22.6%	23	56.6%
Patient Impact	364	5.7%	28	9.7%	26	50.9%
Practice Impact	355	8.0%	24	22.6%	22	58.5%
Provider Impact Attributed to SIM	357	7.5%	31	0.0%	36	32.1%
System Impact Attributed to SIM	351	9.1%	25	19.4%	0	100.0%
Community Advocacy	366	5.2%	24	22.6%	21	60.4%
Coordinating Organization in Community	376	2.6%	0	100.0%	0	100.0%

Note. % missing includes individuals who either 1) did not receive the question sets because they were unfamiliar with the CHIR, 2) did not participate in any part of CCL process, or 3) chose to not answer the question (approximately 10-20%).

Evaluation of the Collective Impact Efforts of the Michigan Community Health Innovation Regions (CHIRs)

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March, 2020

Table of Contents

Overview

Between 2017 and 2019 the System exChange team at Michigan State University evaluated the collective impact process and outcomes of the five Community Health Improvement Regions (CHIRs) in Michigan. Four questions guided this evaluation:

- What is the value of the CHIR?
- In what ways have the CHIRs been successful? What changes are emerging?
- What factors contributed to CHIR success?
- What lessons were learned from this effort?

> *This is really important work. The fact that we're 2 years in and we have, in many respects, more individuals around the table than when we started - and continue to engage in excitement around the work - speaks volumes to the effectiveness of what the CHIR can do.* ***It is my hope that we can find a way to sustain and spread what we've been able to accomplish.***
>
> -Health Sector, Member

Summary of Key Findings

Evaluation findings in 2018 and 2019 provide strong evidence for the value of the CHIR within the initial five regions. Survey and interview data indicate that CHIRs have significantly strengthened cross-sector partnerships, particularly between the health and social sectors. More importantly, through CHIR efforts, a community system is starting to emerge that is more aligned with moving health upstream:

- Individuals from health and social sectors described a significant paradigm change about health across their regions and reported they are more likely to integrate a focus on the social determinants of health into their own work. This impact is greatest for health sector representatives in 2019.
- Leaders reported that their organizations are becoming more effective because they are gaining knowledge and access to needed resources. Health sector organizations appear to be gaining the most benefits through their involvement.
- CHIR members and partners reported that the community system has become more integrated and efficient, with significant improvements in service coordination and referral processes. Even community stakeholders not engaged in CHIR efforts are reporting significant improvements in local health and social sector partnerships.
- CHIR members and partners reported that lives are starting to be transformed as individuals are gaining improved access to needed services/supports and are getting their needs met.

These outcomes emerged, in part, because CHIRs have created a collective innovation space for their region, a place where diverse stakeholders worked together to design innovative solutions to shared problems. CHIRs succeeded more in these collective efforts when they had:

- An **effective backbone organization** providing needed convening and implementation supports.
- A **shared vision** guiding collective efforts and integrated into local organizational operations.
- **Empowered residents** engaging in making decisions and taking action to improve their lives and communities.
- **Local capacity** to transform local conditions, including developing knowledge and skills related to policy/environment change, targeting local inequities, and leveraging resources for needed changes.
- An **active learning culture** within the collective and adopted by local organizations.
- A **prioritization of equity** and a reduction of local inequities.

Importantly, while multiple factors and conditions influenced CHIR effectiveness, two factors emerged as critical influencers: **Empowered Residents** and a **Continuous Learning Orientation**. Growth in these two factors significantly influenced simultaneous growth in all six outcomes examined in the CHIR survey. Interview data with key informants confirmed the critical role these two factors are playing in CHIR effectiveness. Because levels of these two factors remain relatively low across most CHIRS, continued efforts to strengthen these conditions within all regions seem important.

In addition, it is also important to note that our multilevel, multivariate longitudinal analyses suggest that changes in CHIR characteristics impact the range of CHIR outcomes differently: improvement in CHIR characteristics appear to have the **most effect on changes in organizational benefits** and the **least effects on changes in access to services**. When CHIR operations became more effective between 2018 and 2019 (e.g., better convening, stronger integration of the shared vision), these improved operations seem to have a powerful impact on the direct benefits derived by participating organizations. This finding is not surprising as CHIR operations create the context through which organizations can meaningfully gain the resources, information and relationships needed to improve their effectiveness. The low impact on access to services is also not surprising, as larger contextual forces (at the community, state, and federal level) constrain access to local resources (e.g., availability of affordable housing). Until the CHIR tackles these forces directly – through advocacy, policy change, or engagement of other sectors such as city officials – no matter how effective CHIR operations become, it is unlikely that significant improvement will happen in this outcome area.

In conclusion, CHIRs emerged as a worthwhile investment during this early implementation period. While CHIRs varied significantly in their strengths and accomplishments between 2017-2019, it appears they are creating the conditions needed for moving health upstream within their regions. Certainly, key to their future success will be the ability to improve the social determinant of health conditions within their region. This is a far more daunting task and CHIRs would benefit from significant leadership and support from state-level stakeholders as state AND community-level solutions are needed.

Evaluation Methods

A mixed-methods approach was used to conduct this evaluation. Survey data, key informant interviews, and secondary data from CHIR documents were collected between 2017-2019. A state-level evaluation advisory committee, consisting of state and local CHIR representatives was formed to guide evaluation design. State and local CHIR members were engaged in making sense of evaluation findings. Below is a description of the evaluation framework and data collection methods.

The CHIR Evaluation Framework

The CHIR Transformative Change Framework was developed to understand and identify those factors that contribute to CHIR effectiveness. Following a comprehensive literature review of the collective impact, community change, systems change, coalition/collaboration, and SDOH literatures, six elements that need to be in place within CHIRs to ensure they create sustained, transformative change were identified:

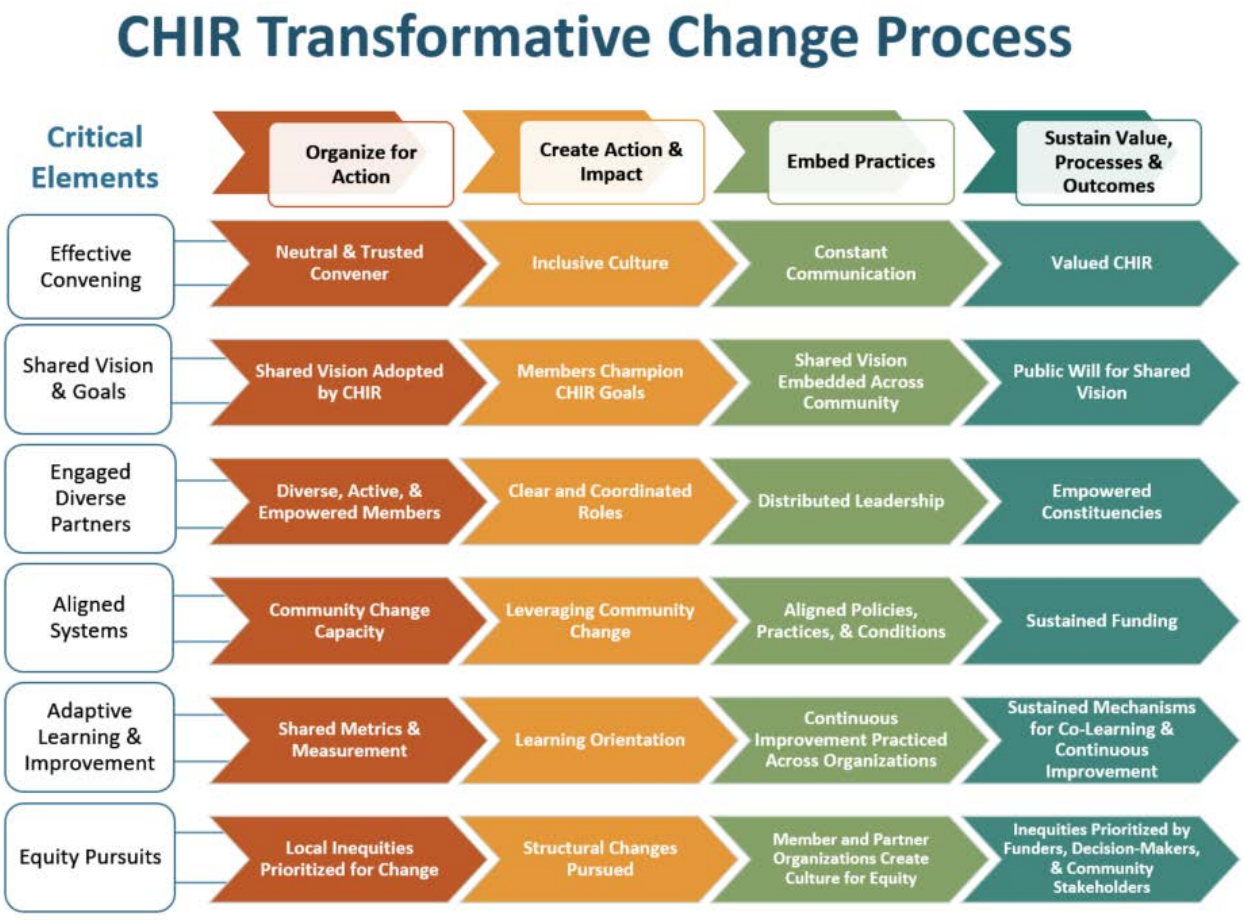
1. **Effective Convening:** A combination of convening, implementation, and facilitation processes support the effective engagement of diverse stakeholders in collective efforts. Includes the presence of a trusted, effective backbone organization (BBO), an inclusive culture, ongoing communication efforts, and the development of a valued collective effort.
2. **Shared Vision & Goals:** The adoption and integration of a shared vision that guides aligned actions across diverse stakeholders. Also includes the ongoing championing of this vision by CHIR members and the development of public will for these goals.

3. **Engaged Diverse Partners:** The active inclusion of diverse stakeholders and sectors who hold different perspectives of the problem and possible solutions. Effective systems engage these stakeholders in multiple ways by soliciting input and supporting them to become empowered change agents themselves.
4. **Aligned Systems:** The capacity of local stakeholders to transform their local community, the initiation of needed policy/practice changes within and between local organizations, and the emergence of transformed conditions that promote greater system integration and alignment around the shared vision.
5. **Adaptive Learning and Continuous Improvement:** The integration of a continuous learning orientation within the collective and participating organizations which includes effective use of feedback and data, rapid problem-solving, and adapting in response to insights and contextual shifts.
6. **Equity Pursuits:** A focus on understanding and targeting disparities in processes, outcomes and the sources of this disadvantage in the collective and participating organizations.

The CHIR evaluation also accommodates the developmental nature of the community/systems change process. Following a review of other community change developmental frameworks in the gray and academic literatures, four stages of change were identified:

- **Organize for Change:** Involves the foundational work of forming the collective and building the capacity to pursue a shared agenda
- **Create Action and Impact:** Involves the engagement of diverse stakeholders in initiating aligned actions in support of the shared agenda
- **Embed Practices:** Involves the integration of the collective agenda into the work of local organizations and surrounding community system
- **Sustain Value, Processes, and Outcomes**: Involves the alignment of public and key stakeholder support around the shared agenda and activation of a more empowered resident base

The figure below illustrates the CHIR Transformative Change Process Framework. This framework guided both the quantitative and qualitative data collection activities in 2018 and 2019.



CHIR Survey

To understand the form and functioning of each CHIR and the factors associated with CHIR success, a survey of key cross-sector representatives within each CHIR was conducted in 2018 and 2019. Survey items were developed to measure each of the 24 components of the CHIR framework. Items were adapted from existing measures whenever possible (see Appendix 1 for a description of each construct and corresponding survey items).

Survey Respondents

Data for the Collective Impact Survey was collected during two waves:

- Wave 1: Spring and Summer, 2018
- Wave 2: Fall, 2019

To determine who would receive a survey, the CHIRs provided rosters of community members, divided into the categories of **Member**, **Partner**, and **Stakeholder** based on their connection to the CHIR's work.

Each of these groups received a survey unique to their perspectives on the work. Members and Partners were asked different questions about the transformative change process, appropriate to their broader role and level of involvement with the CHIR.

Data Collection

Surveys were distributed via Qualtrics and tracked electronically, with the evaluation team working closely with each CHIR to encourage member, partner, and stakeholder participation throughout data collection. Survey data collection was tracked/measured in two ways:

- **Completed Surveys:** This is the number of usable surveys submitted. Surveys were assessed for the number of unanswered items. If a survey did not meet the threshold for completed questions (at least 70% completed), it was considered unusable.
- **Response Rates:** Response rates were calculated by looking at the number of completed surveys compared to the number of people asked to complete the survey:

  Completed surveys / number of people asked = Response Rate (RR)

Completed Surveys and Response Rates

Below is the number of surveys distributed and response rates across all CHIRs for each survey wave:

	Wave 1: 2018			Wave 2: 2019		
Role	**Surveys**		**Response Rates**	**Surveys**		**Response Rates**
Members	**180**	19-46/CHIR	58-82%/CHIR	**132**	18-39/CHIR	36%-88%/CHIR
Partners	**222**	20-63/CHIR	46-68%/CHIR	**144**	11-50/CHIR	29-40% CHIR
Stakeholders	**202**	7-87/CHIR	30-60%/CHIR	**221**	12-92/CHIR	40-80%/CHIR
Total	**604**	46-159/CHIR		**497**	44-160/CHIR	

Some items were asked and analyzed at the organizational level. Only unique organizations were counted. That is, organizations with multiple respondents were counted only once (responses were averaged across multiple responses within an organization, if needed). Collectively, the individuals in each survey wave represented:

- 310 unique organizations in 2018 (34-84/CHIR)
- 288 unique organizations in 2019 (35-91/CHIR)

Below is a description of the survey distributions and response rates for each CHIR:

CHIR-Level Response Rate Details

Wave 1	2018 Members		2018 Partners		2018 Stakeholders		2018 Total	Unique Orgs
	Surveys	RR	Surveys	RR	Surveys	RR		
Genesee	19	70%	20	57%	7	30%	46	34
Jackson	45	82%	59	61%	36	60%	140	58
LWCHIR	46	68%	26	46%	87	46%	159	74
Muskegon	39	58%	54	46%	47	40%	140	84
NMCHIR	31	82%	63	68%	25	50%	119	60
Total	**180**	**71%**	**222**	**55%**	**202**	**46%**	**604**	**310**

Wave 2	2019 Members		2019 Partners		2019 Stakeholders		2019 Total	Unique Orgs
	Surveys	RR	Surveys	RR	Surveys	RR		
Genesee	21	88%	11	35%	12	80%	44	35
Jackson	29	56%	29	30%	16	50%	74	38
LWCHIR	25	46%	17	33%	85	40%	127	69
Muskegon	18	36%	50	29%	92	47%	160	91
NMCHIR	39	61%	37	40%	16	59%	92	55
Total	**132**	**55%**	**144**	**33%**	**221**	**41%**	**497**	**288**

Longitudinal Sample

Data from members and partners participating in **both** 2018 and 2019 surveys was used to assess change over time. The response rate for this longitudinal sample was calculated in the following way:

2019 completed surveys / number of 2018 respondents asked to complete = Longitudinal Response Rate (RR)

	Longitudinal Sample		
Role	Surveys		Response Rates
Members	**100**	10-27/CHIR	45-100%/CHIR
Partners	**83**	7-23/CHIR	42-50%/CHIR
Total	**183**	26-46/CHIR	

Longitudinal Sample	Members		Partners		M+P	
	Surveys	RR	Surveys	RR	Surveys	RR
Genesee	19	100%	7	50%	26	79%
Jackson	24	59%	23	42%	47	48%
LWCHIR	20	57%	11	50%	31	54%
Muskegon	10	45%	23	44%	33	45%
NMCHIR	27	64%	19	50%	46	58%
Total	**100**		**83**		**183**	

Below is a graphic illustration of the 2018, 2019, and longitudinal samples included in this evaluation report:

CHIR Interviews

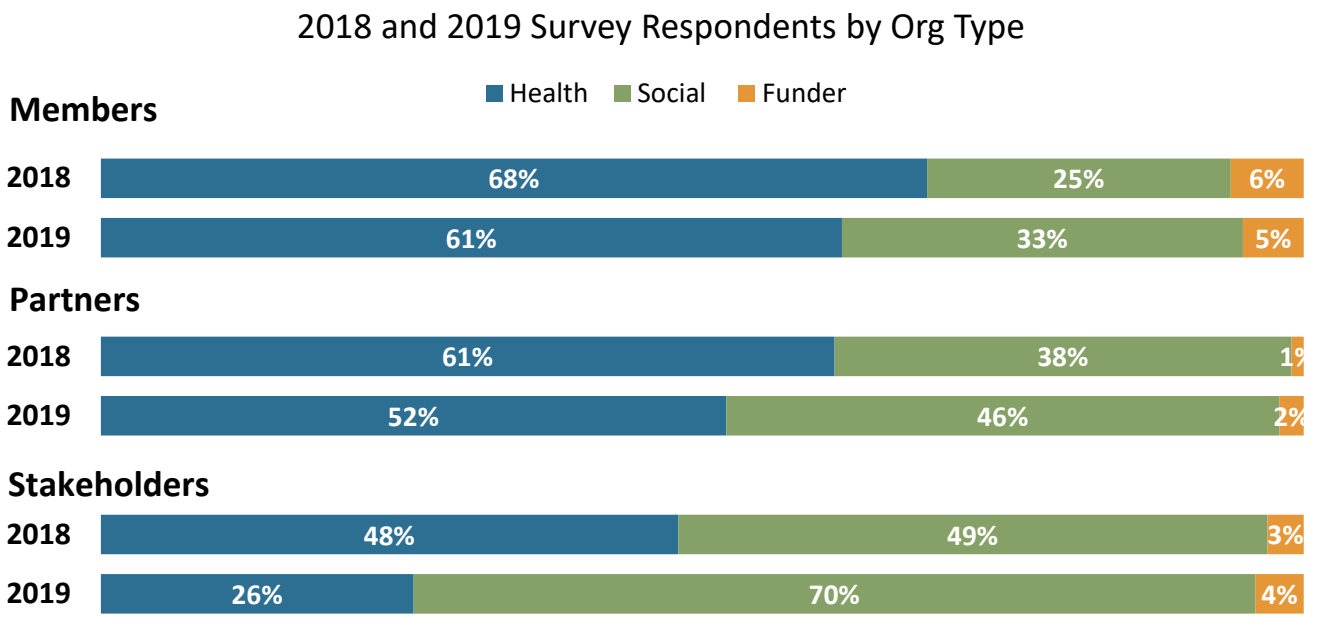
Backbone staff within each region nominated CHIR members, partners, and stakeholders to interview in 2018 and 2019. Interviewees were selected to ensure cross-sector representation and a longitudinal perspective. In all, 186 interviews were conducted between 2018 and 2019.

	All CHIRs		CHIR 1		CHIR 2		CHIR 3		CHIR 4		CHIR 5	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
CHIR members	**39**	**26**	9	5	7	3	7	6	11	7	5	5
CHIR partners	**27**	**22**	4	4	9	4	5	8	2	2	7	4
Community stakeholders	**22**	**17**	4	2	3	3	5	2	7	8	3	2
BBO staff	**25**	**8**	6	3	4	2	7	1	6	0	2	2
Total	**113**	**73**	23	14	23	12	24	17	26	18	17	13

Sample Description

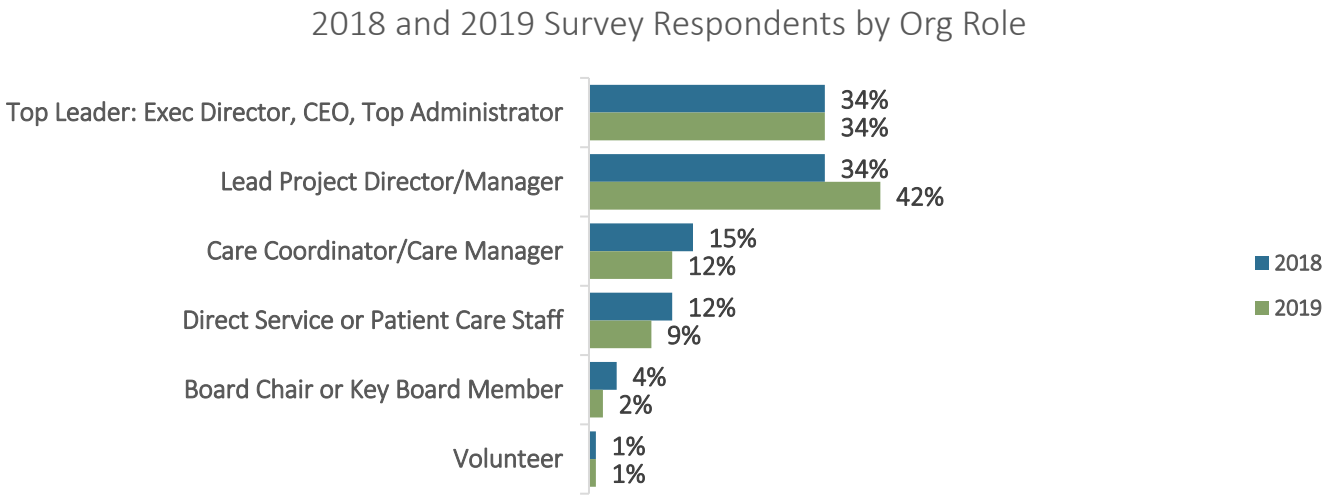
Survey Respondents by Organizational Type

In both years, the majority of respondents represented organizations focused on health-related services/supports. In 2019, however, a greater portion of survey respondents represented social service organizations than in 2018. The gap between health and social service organizations was smaller among partner organizations both years.



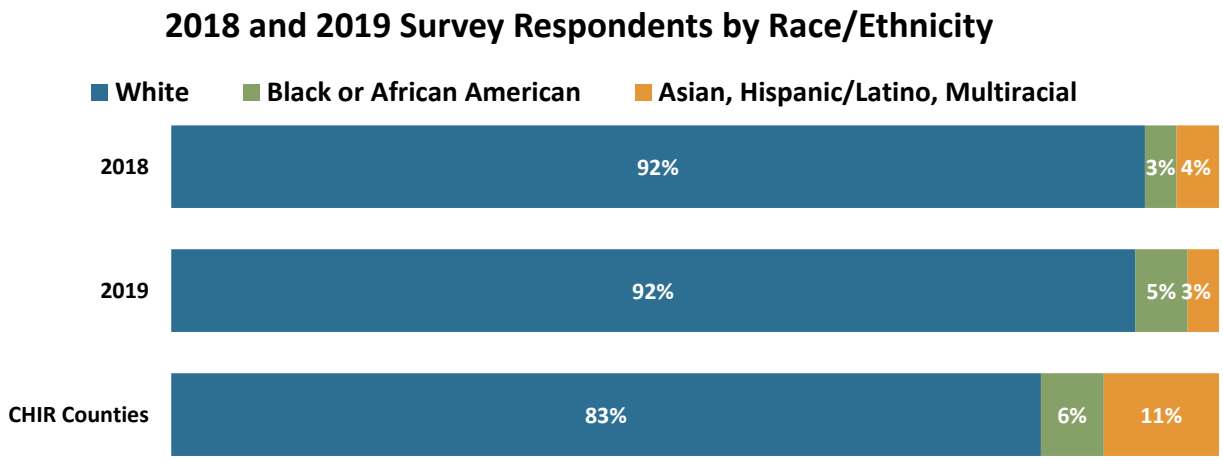
Survey Respondents by Organizational Role

In both years, over two thirds of members and partners were top leaders or lead project directors.



Respondents by Race/Ethnicity

In both 2018 and 2019, 92% of respondents were white. This is an overrepresentation of the white population across all CHIRs.



Data Preparation and Analysis

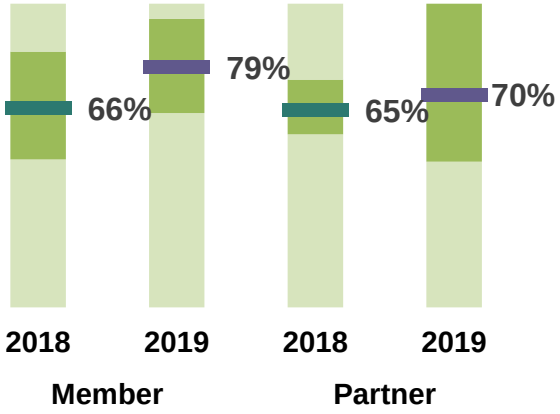
Multiple imputation was used to impute missing data in 2018 and 2019. Factor analysis was done to confirm scale and subscale construction; coefficient alphas were examined to assess the reliability of these measures. All scales reported in this report were deemed reliable, with alphas greater than .72.

A variety of statistical analyses were used to understand the cross-sectional and longitudinal findings: hierarchical and stepwise regressions, network analysis, hierarchical linear modeling, and paired t-tests. More details on these methods are provided below.

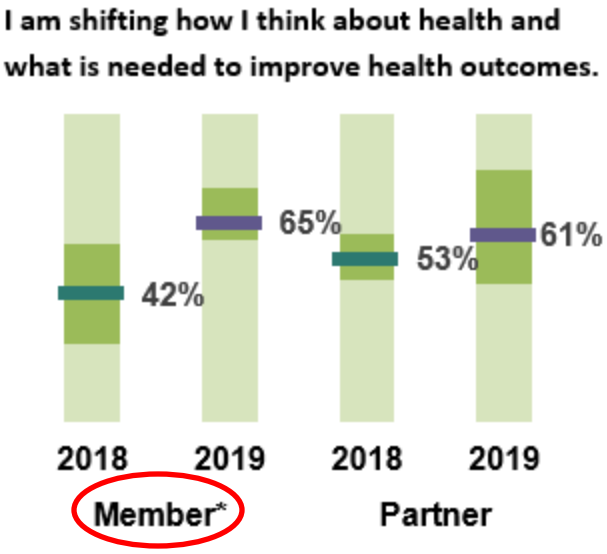
Reading the Data

Throughout this report, unless otherwise noted, percentages reflect the percent of cross-sectional respondents who selected, on average, “quite a bit” or “a great deal” for each item or construct.

Where data is presented about all 5 CHIRs, the darkest bar and number represent the average across 5 CHIRs. The darker area in the green bar represents the range across the 5 CHIRs.



To indicate if significant change occurred over time, we used the CHIR longitudinal survey sample: the 183 respondents who completed the survey in 2018 and 2019. Paired-tests using the full statewide sample and each CHIR's unique sample were conducted to see if individuals reported significant improvements in individual CHIR transformative change elements and outcomes between 2018 and 2019. Significance is noted throughout this report with * (P≤.05) or ** (P≤.10). For example, the * after "member" in the graph to the right indicates that CHIR members included in the longitudinal sample reported a significant increase between 2018 and 2019 in the extent to which they are shifting how they think about health and what is needed to improve health outcomes.



WHAT IS THE VALUE OF THE CHIR?

Evaluation findings in 2018 and 2019 provided strong evidence for the value of the CHIR. In 2018, sixty-five percent (65%) of CHIR members reported that the CHIR had quite a bit or a lot of value in their region. This perceived value was sustained in 2019 (also 65%). Partners' perceived value of the CHIR grew between 2018 (55%) and 2019 (65%) as they became more engaged in CHIR activities, experiencing firsthand how the CHIR enabled a level of action and created new opportunities for significant improvements. Interview data supported these findings, as members and partners alike highlighted the significant value of the CHIR within their region:

> *I think this is one of the best [projects] that I've seen that kind of really **looks at that community and that total population as a whole.** I think a lot of the other initiatives that we've been a part of only take one piece of a patient or one piece of a person and kind of leaving out the rest.*
>
> -Health Sector, Member

> ***We need more CHIRs**. ... I think a CHIR is what we've been missing. In all my years in healthcare, you always have all of these different organizations saying "we do this," no "we do this," no "we do it, too". I think when you are a patient . . . whether you have commercial insurance, Medicaid, Medicare . . .I don't think it really matters . . .you don't know where to go. You don't know what you have at your fingertips. You don't know who to go to. I consider a CHIR…the hub. It is to me the one thing that can pull all the community resources together**. It's your one stop shop**.*
>
> -Partner, Health Sector

In 2018, respondents noted that this value emerged because the CHIR was:

In 2018, interview respondents noted that the CHIR created a space that had not existed in the community before, a space where "everyone is in the room…spouting ideas and thoughts." This **opportunity for cross-sector partners to engage in innovative problem solving around shared concerns and goals played a critical role in facilitating the transformative actions that emerged from the CHIR.**

Creating a Collective Innovation Space

In each region, the CHIR successfully created spaces where diverse cross-sector partners worked together to **start a collective dialogue** and **solve problems together in real time.** Importantly, these spaces **provided opportunities for stakeholders to "have conversations that have never been had before" and to explore new solutions that challenged the status quo.** Because the CHIR was tackling "complex systems work," the opportunity to innovate was viewed as essential to effective design and successful implementation:

> *I think [the SIM Project] opened the door for some imaginative thinking about the way that we can combine housing and healthcare and stabilize people both in their housing and in their healthcare.*
>
> -Social Sector, Member

> *Organizations are coming together to **problem solve in real time** about challenges and barriers that individuals in our communities are facing… and to be engaged in their health and wellness in a way that **didn't previously exist**. That is having a real impact in the community that we serve.*
>
> -Health Sector, Member

> *I think the CHIR is creating the **space for people to work together towards a couple of common goals.** I'm thinking about the action teams…there's some work related to housing. These are people that work together all the time, know each other. But by **connecting with the CHIR**, they've had the **space available to really focus on a project together** and some funding that was made available because of the resources of the CHIR… It's this coordinating, connective effort that makes the space for some things to happen.*
>
> -Social Sector, Partner

Part of the success of the CHIR is how CHIR staff within each region created opportunities for community stakeholders to co-design solutions to shared problems:

> *With the CCL, there was a subgroup meeting to figure out how to implement this in various settings. We did have several of like our community health workers who were involved in those conversations **to figure out how to make it work best**. So no one is coming in and saying, "You will do this, and you will do it in this way." It's all discussion and trying to figure out what makes the most sense given what we all want to do. **How can we do this without it being a huge burden and making it work? I think the style of introducing any new initiatives or suggestions has been just spot on.*** -Health Sector, Member

IN WHAT WAYS HAVE THE CHIRs BEEN SUCCESSFUL? WHAT CHANGES ARE EMERGING?

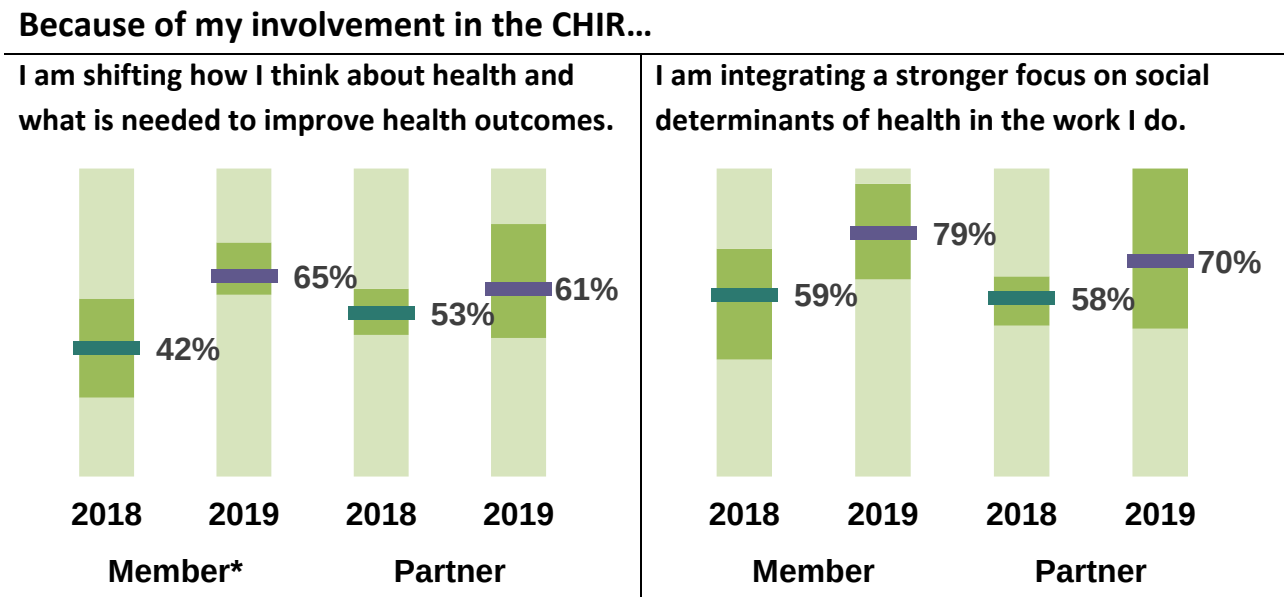
By creating this collective innovation space, the CHIRs have created novel opportunities for cross-sector stakeholders to work across boundaries and purse transformative solutions for their region. Early evaluation evidence suggests that these change efforts are starting to create the conditions needed for healthier communities: **more aligned community systems and transformed lives.**

PROMOTING A MORE ALIGNED SYSTEM

The CHIRs have promoted a level of cross-sector coordination, alignment and synergy that did not previously exist within their regions. This alignment emerged across three critical social/ecological layers: 1) individual CHIR members/partners, 2) participating organizations, and 3) the broader service system.

Promoting Alignment in Individual Attitudes and Behaviors

CHIRs are helping individual leaders and staff from cross-sector organizations to integrate a SDOH framework into their community work. Importantly, analysis of the longitudinal survey sample suggests that between 2018 and 2019, involvement in the CHIR significantly influenced the attitudes and behaviors of health sector representatives: health sector representatives in 2019 were significantly more likely to report that, because of the CHIR, they are now shifting how they think about integrating a stronger focus on social determinants of health in the work they do than in 2018.



As CHIR members from the health sector explained:

> *Certainly my **personal awareness** and **understanding** of all the things impacting the health and well-being of individuals and of our community as a whole has been **increased because of my involvement**.*
>
> - Funder, Member

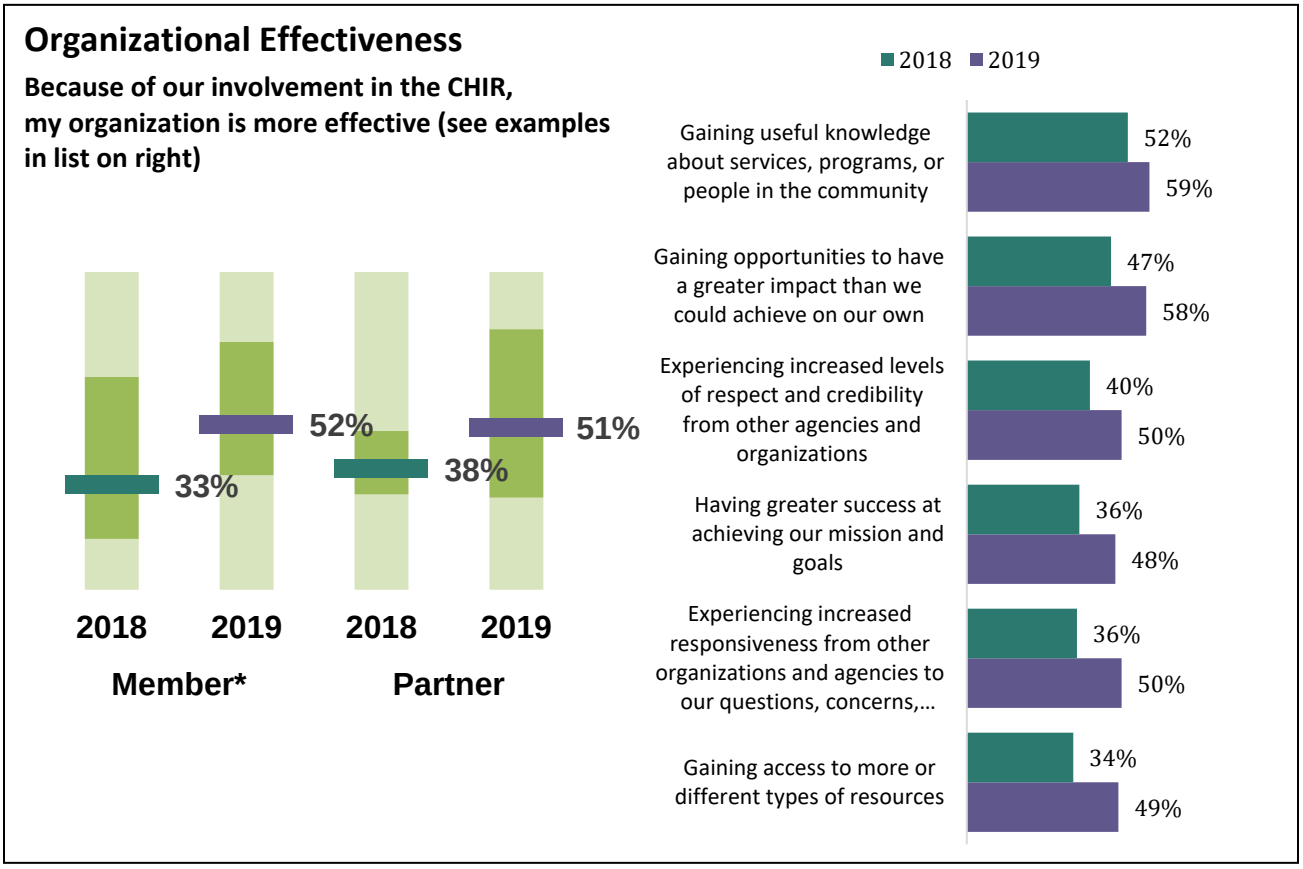
> *I peered down a microscope and dealt with bugs, infectious diseases during most of my career. So, I think [**the CHIR has] given me much more of a community orientation**. **I'm a fuller citizen** and maybe a little **more appreciative of nuances**… A population health model has always been in the back of my head, but this program has helped bring it to life.* - Health Sector, Member

Creating Aligned Organizations

> ***Working together** in this way is **an opportunity to achieve things you could never achieve organizationally on your own**. There's real power in that, in sharing those resources and sharing the brains that come to the table and really **thinking differently about working in a different way.***
>
> -Funder, Member

Organizational leaders also noted that participating in the CHIR has created significant benefits for their organizations in 2018 and 2019 (see graph on the next page). Importantly, CHIR members also reported that the amount of benefits their organization experienced between 2018 and 2019 grew significantly. In addition, in 2019, health organizations reported significantly more benefits than social service organizations in five of the six domains measured. This may be potentially due to the fact that early CHIR activities (e.g., screening and referrals) and decision-making bodies were more health sector focused. Thus, these organizations experienced more direct benefits through their involvement. Because experiencing such benefits is essential to sustaining stakeholder involvement in efforts like the CHIR (Nowell & Foster-Fishman, 2011), it seems important to consider how to ensure benefits for all participating organizations moving forward.

Organizational Benefits Acquired Through Participation in the CHIR



Interview data provided some insights into how CHIRs are promoting these benefits for participating organizations. According to interviewees, the CHIRS have:

- **Promoted awareness of local resources**

  *Our number one benefit from this is **to learn what is available**. . . We think we know but being able to have that communication amongst the steering committee members which come from every walk. . . **We have built so many more relationships** and been able to **find so many more community resources** via the CHIR.* - Member, Health Sector

  *We've **learned so much from the community resources**, like United Way… The housing sector, the mental health folks have been amazing… We've done a lot of **work with the health departments** and their CHWs that **we would not have done previously.** [We] **built those relationships** to try to **close some gaps** in care for our members, who maybe are diabetics that haven't had their core measures or just haven't seen a physician in the last 12 months. Things like that we're working on together, us[ing] the clinical Community Clinical Linkages as a referral base when we can't reach members.*

  -Health Sector, Member

A lot of my work has been focused on the nutrition and physical activity side of things outside of the CHIR. I always stayed in those lanes and didn't necessarily make connections with transportation or housing. ***Hearing about what their work is focused on, it set off new little light bulbs in my head. I felt like at least I had a name and a face that I could connect with****… They weren't necessarily new to the table in the sense of working on this community work. It was just that melting pot of all of us being at the table at the same time versus all of us working and going to meetings in our individual sectors.*

-Health Sector, Partner

- **Developed collaborative relationships:**

[The CHIR has] helped us ***develop stronger relationships*** *with the folks in the clinical setting, and even the other non-profit providers…When the next thing comes along,* ***I know who to call*** *and* ***now I have people that I can reach out to*** *and ask for ideas.* -Health and Social Sector, Member

There's been ***enormous goodwill*** *that the CHIR has* ***created between organizations****. That that has been an invaluable resource. This* ***sharing of effor****t, this* ***cross-pollination, cross-talking*** *has been huge.*

-Health Sector, Member

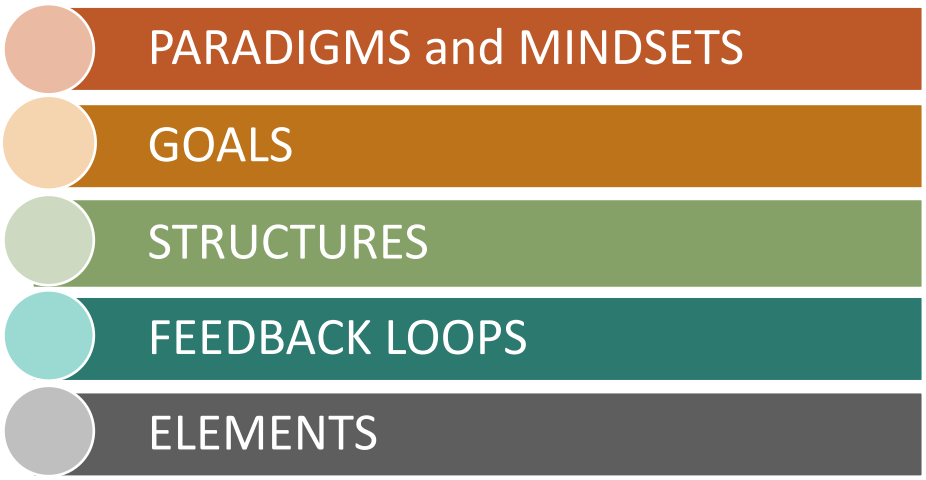
*[Collaboration] wasn't part of the culture. Not because there was anything wrong with it, but just that we kind of did our thing within our system. That was a different system and, in some cases, they were a competitor… [****The CHIR is] fostering that partnership*** *to really* ***focus on the people*** *and not necessarily the organization that you work for. It's just getting the work done… It has also* ***opened some doors for people to share their work****… The old way of working in silos and trying to get things done on your own wasn't working, and we needed to look at it differently.* -Health Sector, Partner

We are ***better coordinated*** *as a community. We* ***talk to each other*** *more readily. We're much more efficient when we try to have a conversation with one another because of the referral network and because of the referral platform. And we do* ***joint problem solving that we've never done before****…. A whole variety of operational and strategic planning is able to occur that never occurred before.*

-Health Sector, Member

Creating an Aligned Service Delivery System

Survey and interview data provide strong evidence that the CHIRs are also aligning and strengthening the community system. Systems scholars highlight several elements within a community system (see figure below) that need to become aligned with initiative goals in order for transformative change to happen (Meadows, 2008). Evaluation findings suggest that initial improvements in all areas are happening across the CHIRS.



Paradigms refer to the underlying beliefs and worldviews that determine how individuals make sense of their world. Paradigms are the most powerful drivers of a community system, determining what is considered possible and normative as well as the most difficult part of a community system to shift (Meadows, 2008). When local paradigms are incompatible with a change effort's pursuits, strong resistance will emerge and the change effort will likely fail. For these reasons, aligning local paradigms with an initiative's aims – particularly when the initiative challenges the status quo – is critical to overall success.

In many ways, **one of the most important SIM aims has been to embed a new understanding – a new paradigm – about what health is and what causes poor health outcomes**. Thus, **one of the most important wins emerging across the CHIRS is this paradigm change:** Within a relatively short period of time, the CHIR began to shift local mindsets about health.

Making Social Determinants of Health a Priority

Through **cross-sector explorations of local data and cross-sector conversations** about the barriers to effective outcomes for clients, local leaders realized, as early as 2018, the role of social determinants of health (SDOH) in influencing health and other outcomes.

> *We're **working across sectors,** and can see it developing into something that could **bring more awareness of the social determinants [of health]... The SIM initiative is bringing out those discussions, and how they affect so many different sectors.*** -Social Sector, Stakeholder

The SDOH screening tool has also created opportunities for local leaders and providers to have insights into the conditions impacting patient/client outcome:

> *[The] social determinants of health tool is **teaching our whole group that [SDoHs] have so much of an influence on a person's overall well-being**. This process **creates a doorway to a broader community understanding in a way that wasn't possible before*** -Health Plan, Member

> ***The collective focus on the social determinants of health aspect has been huge.** I don't think initially a lot of the practices who were involved had much emphasis in their internal practices on social barriers that clients might face and how they impact the ability to get to their appointments and stay connected to their doctor. **I think a lot of the practices have had kind of an "aha" moment in terms the social determinant of health screening that their patients have filled it out.** That's been huge, just the collection of all the various social determinant of health screenings and just kind of bringing right to the table all of the social barriers in our community faces. I think that part is huge.*
>
> -Health Sector, Partner

Interviews in 2019 confirmed that the CHIRs had continued to launch a paradigm change within their regions around several core areas:

Expanding Definitions of Health	Expanding Definitions of "Patient Centered Care"	Shifting Residents' Perception of the Health Sector
[The CHIRs] are playing a large role in raising awareness of the role of the social determinants of health in what is traditionally thought of as physical health and mental health, behavioral health, sort of rounding out that picture. I think they're a really big voice in understanding health from a larger perspective. -Social Sector, Partner	*As a result of the CHIR we are thinking about, "Is there a kind of patient that can no longer be managed by the sort of workers in the office? Even an enhanced patient-centered medical home? That it needs to maintain some sort of centralized function. Or is there a way to continue to push it out?" At some point needs can become different enough or severe enough that you may need specialists helping.* -Health Sector, Member	*People in the community now think that their doctor's office is a place where they can go to for help, regardless if that's high blood pressure or if it's the fact that they don't have transportation. That they can connect them and help them, which is a wonderful thing for the patients in the community.*

Increasing Value of Resident Voice

They're listening to people right down to the neighbors. That's something that was missing… My favorite example of this is in our zone. The roads in Muskegon Heights are the worst city streets I have ever seen in my entire life… From the outside, the city, the hospital people… are thinking they're gonna want their roads repaired. Come to find out after listening to the neighbors, they don't want their roads repaired because it keeps the drug dealers and crime off their roads, because they're so bad that they won't drive down them. It's a unique perspective, but they would never have heard something like that if they weren't listening and caring to listen… [It's] a mindset shift, they're at least aware and interested in knowing what neighbors think.

-Social Services, Partner

As one CHIR member described their own personal paradigm transformation:

I think for me the most interesting part was watching the first year of the CHIR here and then looking at emergency departments. I'm like, what are they doing? Why would you look at an emergency department? And then as it unfolded and as the information came out and as they drilled down to really some of the problems that the most frequent misusers of the emergency department were the fact that they didn't have transportation and they didn't have housing, and they didn't have a doctor that they could count on. . . the lightbulb started coming on - that makes perfect sense. Of course, your health would be poor if you had all these other things. . . ***That as that story started unfolding and going around the medical community, it really has made an impact***. -Health Sector, Partner

GOALS: The CHIRs are engaging diverse stakeholders around a new shared vision for health and wellbeing.

System goals refer to the purpose, outcomes and objectives pursued by diverse actors across the system. The more these goals become aligned with initiative aims, the more likely transformative changes will emerge. While paradigm changes are essential when trying to shift the status quo, those changes need to become visible within system operations. A shift in system goals can help to leverage those tangible changes.

CHIRs helped their regions imagine and calibrate a different set of goals through their integrated CHNA and visioning processes and the integration of a SDOH lens.

Some specific examples of shifts in purpose and adoption of a new set of shared goals include:

- **Physician residents are learning about SDoHs in the three local Genesee County hospitals.** Physician residents are now required to learn about social determinants of health and how to engage patients in the SDoH screening process.
- **Mercy Hospital in Muskegon has required all doctors to ask the Social Determinants of Health every single time they meet with a patient**.

That shift is huge because I may not have needs one checkup, but if I come back in 2 weeks I may have lost my job and my house. If somebody is not asking me, I may not know who to talk to. And the fact that it's a doctor who sees hopefully everyone in the community is really huge.

-Social Sector, Partner

- **A shared CHNA guided the development of shared priorities, goals, and metrics.** In the Northern Michigan CHIR, 154 partners went to 85 different community events and collected over 1800 responses to create MIThrive, a shared Community Health Needs Assessment (CHNA). MIThrive identified six common priorities throughout the 31-county region. Using the six priorities outlined in MIThrive, stakeholders identified shared change goals and metrics.

- **Three hospitals created shared priorities and a shared implementation plan around social isolation**. Three hospitals in Livingston/Washtenaw used SDOH screening data to determine priorities for a joint Community Health Needs Assessment (CHNA). The hospitals have elected to collaboratively address social isolation and are currently creating a joint Community Health Improvement Plan to drive implementation efforts across hospitals.

- **Munson Hospital in Cadillac embraced the goal of no longer discharging to homelessness.** This shift was a result of their engagement in the Homeless Systems Improvement project.

- **A Muskegon Literacy Initiative integrated a focus on SDOHs into the work of its literacy tutors.**

  We know that we have relationships with our clients because they see us every week for an hour and a half. We're trying to build on that to help them be able to help their learners meet all their needs. Just teaching them how to read isn't going to help them be successful in life if they don't have a car, if they don't have a house, if they don't have food on their table. ***So we're revamping our tutor training so that our tutors understand Maslow's Hierarchy of Needs****. You can teach them one thing, but if they don't have another need met, they're never going to advance up the Hierarchy of Need. They're never going to be able to be full active citizens in our community*. -Social Sector, Partner

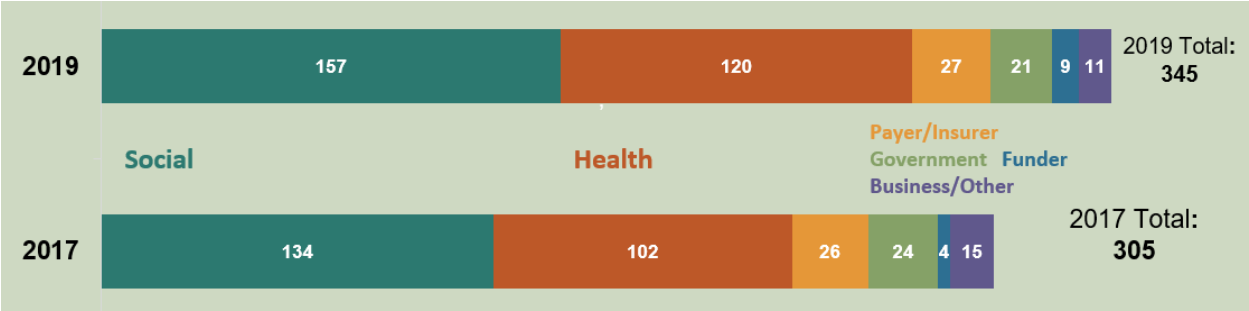
STRUCTURES: CHIRs are strengthening local health/social service infrastructures

Structures refer to the ways community systems organize and regulate themselves to get their work done. It includes the infrastructures put in place for decision-making and problem solving, the connections across sectors to promote information, client, and resource flows, the policies and procedures that govern behavior, and the system capacities to accomplished targeted goals.

Evaluation evidence suggests that the CHIRs have made significant improvements in the local community structures. These improvements are helping to build a system that is aligned with moving health upstream and being more responsive to needs. Specifically, within the first three years of operation, CHIRs are:

A. Expanding and strengthening cross-sector partnerships
B. Enhancing cross-sector coordination
C. Aligning policies, practices, and procedures
D. Generating sustained funding

A. Expanding and Strengthening Cross-Sector Partnerships. Since 2017, CHIRs have engaged 621 cross-sector organizations in their work. Most of these organizations have been engaged in cross-sector workgroups or committees tasked with designing and implementing CHIR strategies. Across all CHIRs, there has also been significant growth since 2017 in the number and diversity of community social sector partners, including: economic development, education, housing, labor union, and faith-based organizations.



Through these intentional cross- sector efforts, CHIRs have significantly strengthened cross-sector relationships. Engaging diverse stakeholders around the same table and in meaningful conversations has transformed the collaborative environment, fostering trust, building shared understandings, and forging new cross-sector opportunities.

The CHIR has Increased Commitment to Cross-Sector Collaboration. By bringing stakeholders together to explore common problems and develop shared solutions, organizations have renewed faith in the possibility of cross-sector collaboration:

> ***All of a sudden, everybody has started and found value in the fact that we can really get a lot further if we work together****… You are starting to see organizations having trouble giving the credit. Like, "I don't know where to give the credit to." It's happening in so many places now that it's hard to pinpoint where it started… At the end of the day, that is all that matters. It doesn't matter how it started. It really all sort of started happening together at the same time*. -Health Sector, Partner

> *I feel like they have created a system **where we have to talk to each other**. Like we should know who provides housing in the area instead of just knowing that somebody does. I feel like **they've helped kind of connect all of us together** and help us **realize that we're not fighting over people**, but instead **we can all work together to make the county better**, instead of everyone just trying to do their own thing.*
> - Member, Social Sector

> *[The CHIR has] brought medical and non-profit together where they never worked together previously... I don't even think they were aware of what each other did before… We all have the same goals in the community, but we all go about them in different ways. This has really **brought a focus together** to make sure **we're all working towards making things good for the residents** in our community and **making sure they have access to services that they need when they need them**.* -Social Service, Member

> *The value of the CHIR is they definitely brought partners from **different sectors together at the same table**, talking about getting our **language similar** and talking about **working with the same population**. How we can work better together? …Everyone is going their own direction, meeting the goals and the objectives of whatever their different funders are. This brought us together to help us to see that most of the time **our goals and objectives are very much aligned**. But how can we work together better and communicate better back and forth? That that has been the biggest benefit.* -Partner, Social Sector

The CHIR Has Promoted A Shared Cross-Sector Understanding. By coming together, SIM Project participants gained a better understanding of each other including services provided, language used, and policies and procedures that guide service provision. These insights, in turn, help to identify potential opportunities for improving system coordination and outcomes:

> *The [SIM] has made my job easier, in respect to just being **aware of organizations and services that can meet the need of our members**… It's not limited just to the members that I touch within my organization… For any individual that needs support or resource management and referrals, **I can, with confidence, refer them**.* -Health Sector, Member

> *It's been a nice chance **to reinforce relationships**, better understand how each of the organizations around the table are situated, what capacity they have, what populations they're serving…it gave me an indication of some of the **unique barriers or operational considerations** that other and smaller institutions have to consider as well.* -Health Sector, Member

Because of the SIM Project - being able to have all of those players in the same room to really begin to understand what the primary care's office does or what the behavior health clinic does. ***Everybody has their surface understanding, but when you really sit in meetings together and you take up the same space and you see and hear each other, you start to go, "oh, my God. I never knew you do that,"*** *or "I never knew we could create this partnership between us."* -Health Sector, Member

I think ***medical didn't know nonprofit [and] nonprofit didn't know medical. It is really pulling everybody together*** *to find out* ***what is needed and available, and what is missing*** *in the community …and that's huge.* -Social Sector, Stakeholder

I have a much better understanding of how services occur once the patient leaves the ED and what are some of the limitations. *What are the levers that can be pulled to help an individual patient, and consequently as I create protocols, I can use that information to try and make our efforts more successful. So that's a huge benefit of participating with these multidisciplinary teams.*

-Health Sector, Member

The CHIR Has Broken Down Siloes

According to informants, through their meeting and problem solving processes, the CHIR has helped to break down siloes, helping organizations think differently as they developed a better understanding of each other's work across SDoHs.

You have ***medical systems*** *sitting down with* ***homeless providers*** *sitting down with a* ***social community service provider*** *who works with older adults to a shelter . . . and it's not something that always happens, because otherwise you wind up going in your silos, v****ersus what we're trying to do, which is get everybody under the same roof****.* -Social Sector, Member

Because of the CHIR, we're seeing far ***more conversation and planning going on at a higher level than we've had in the past.*** *We're not as siloed as we have been…* ***everybody gives up a little something, but the greater good is gained****. So I think there's more conversations like that that are going on, and just the fact that those conversations are happening is a plus.* -Health Sector, Member

It's trying to get out of working in silos where, you've got two groups doing very similar things, but then not realizing that a lot of the work you're doing is overlapping. So when we finally started meeting more regularly as a larger group, then ***that's when things started to come together and more cross-aligned.***

-Health Sector, Member

The CHIR has Ignited New Partnership Opportunities

Through these expanded understandings and collaborative ties, **new opportunities for partnerships and coordination have emerged across organizations.** For example:

- **The Genesee CHIR has formed a new partnership with Habitat for Humanity.** This new partnership will help individuals to increase their financial stability and access housing resources.
- **Through their work with the Jackson CHIR, the Jackson Health Network has formed new connections and partnerships across sectors.** For example, the Jackson Health Network is now partnering with the Jackson Intermediate School District to identify opportunities for aligning care managers and school coordinators to better serve a shared pediatric population. A care manager has had the opportunity to go to the school to meet with coordinators and parents to develop a more holistic plan of care.
- **Health plans are now paying for community paramedic care in the home.** This shift emerged through the awareness partnerships forged in a CHIR workgroup.
- **The Livingston/Washtenaw CHIR has provided an opportunity for payers to build new relationships with service providers.** Now, payers like Blue Cross Complete have started to support these service provider organizations. For example, Blue Cross Complete has started to support programs at Avalon Housing and is working on an integrated behavioral health project with Washtenaw Community Mental Health.
- **In Muskegon, the 100-Day Challenge created new connections that are driving action.** Over 300 stakeholders participated in the 100-Day Challenge. Many of these stakeholders were new cross-sector partners such as business leaders, legislative aids, and attorneys. A number of these new partners have joined Action Teams and are helping to drive action across the county.
- **The Northern Michigan CHIR is expanding partnerships to include a diverse range of local organizations**. Currently, the CHIR works with community-based organizations through its workgroups: the Community Clinical Linkages Workgroup, the CHIR Steering Committee, and action teams. The CHIR is continually growing its partnership list, including engaging organizations that were initially outside of the CHIR. Collectively, these partnerships are allowing agencies to better integrate and align their work.

As several CHIR members explained, the opportunities to develop new understandings and new relationships through the CHIR work expanded the boundaries for shared work and promoted cross-sector synergy:

> *We've had ongoing partnerships and relationships with every organization around the table for the CHIR for many years, but now we have a better understanding of how another organization thinks about the criteria of the population and residents that they're managing.* ***We have new relationships*** *that we can draw upon, and a* ***better understanding of how to create a warm hand-off****, not just for those patients or residents within the intervention, but more broadly for those vulnerable in complex populations that*

*we're serving. So, we're able to more **effectively serve the communities** that we're responsible for serving, because we have a better understanding of each other.* -Health Sector, Member

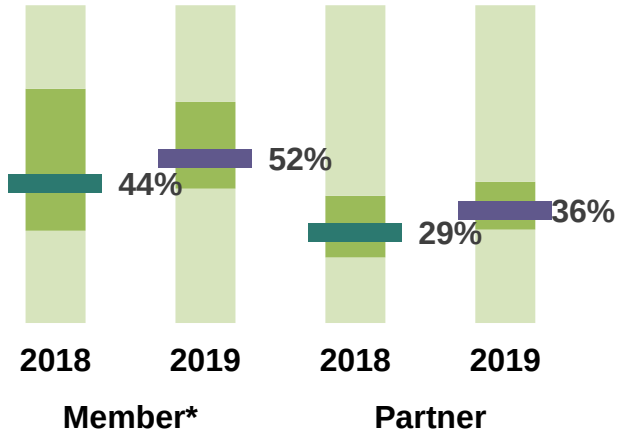
***It helps us be more cohesive together and it adds value to both sides.** As we s**ee the value in each other,** it allows us to do other kinds of work more efficiently… By having a close relationship with the hospitals and the medical community, other projects we are working on have easier pathways... because we are adding value in each system*. -Funder, Member

B. Enhancing Health and Social Sector Coordination. As a result of the CHIR's efforts, health care providers and community service staff reported they are becoming more integrated and aligned, offering more coordinated care and treatment plans, and become more connected to each other. Longitudinal data analysis confirmed these descriptions: across the state, CHIR members' reported greater improvements in cross-sector relationships in 2019 than in 2018.

*The **care managers** seem to feel they can do their job better. We have **care plans that are shared and that are** visible in the EDs because they go out to the Great Lakes Health Connect portal, and the care managers embedded in the EDs will be able to see them. So, **in terms of connectivity, we're much better off…*** -Health Sector, Member

*The esprit de corps is very strong, and our care managers are saying things like, **"This is the best thing that ever happened to care management in the community".*** -Health Sector, Member

Enhanced Coordination



As a result of the CHIR's efforts:

- Health care providers and community service organization/agency staff are more likely to coordinate service and treatment plans with each other.
- Health care and community service systems are becoming more aligned and integrated with each other.
- Partnerships between community organizations and agencies are strengthening and expanding.

Informants noted that this increased coordination occurred because the CHIR has strengthened cross-sector partnerships (as described above), forged new communication pathways and created shared screening and referral processes.

Forging New Communication Pathways

The relationships built through the CHIR have also facilitated **cross-sector connections and communication pathways** that promoted service access and coordination for clients/patients. As several informants described:

> *I think [the SIM Project] is really building good communication. It's **opening up contacts that were not there before… case managers know they can call people they never knew** they could reach out to before and vice-versa. It's really creating great connections and communication between everybody.*
>
> *-Social Sector, Stakeholder*

> *We're getting a lot of feedback from **care managers** that [the SIM] is extremely helpful because we now have hard-wired ways for them to **communicate with other care managers** and **social service agencies.***
>
> -Health Sector, Partner

> *If somebody comes in our office in the Community Living room and says, "Hey, I have an appointment with a doctor at The Center for Family Health but I can't remember what time and I really can't remember what I was supposed to do," **we can call one of their coordinators or navigators there right on-site**, and **we have a direct line to them, ask these questions and get information right away**. In the past you might have to call and then wait 24 hours before somebody can call you back. That's just sped up that process of **making sure people are getting their needs met right away and not having to wait or end up in the emergency room** because they didn't do what they're supposed to do.*
>
> -Social Sector, Partner

> *It's much easier **when you have this very open line of communication** between CMH and substance use, or between Jewish Family Services and a client, to really understand and better assist the client… for the clients, **I think that having the support of multiple people and knowing that they're all talking to each other and all working towards the same case has been very supportive and very helpful.** I think clients have even mentioned to their caseworkers: "it's nice that you guys are all talking." [and] I'm like, "We're all on the same page." So there has been a lot of improvement in that.* -Social Sector, Partner

Promoting Shared Screening and Referral Processes

These system improvements are emerging in part due to the screening and referral tool and platform, which has, according to local stakeholders **"transformed linkages between sectors."**

> *This tool that **connects those making a referral** from the **physician's office** or from these hubs into the **broader social service network** is a really incredible opportunity. We just weren't doing any of that in a way that was meaningful.* -Funder, Member

The development of a shared referral platform, a common referral process, and centralized database have also made it easier to connect clients to resources and to coordinate care:

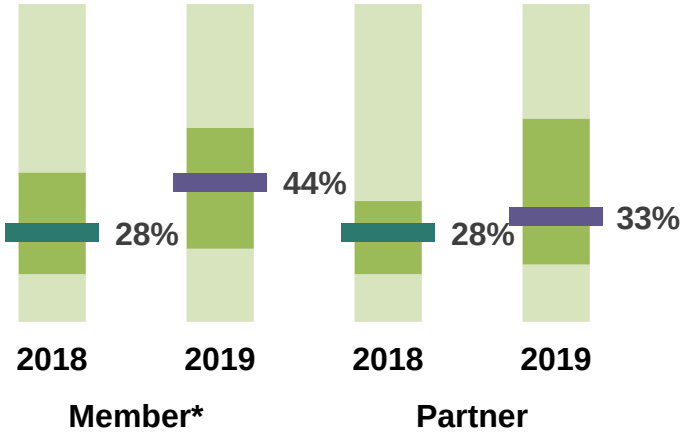
> *So having that **centralized data information** technology has really allowed us to kind of take things to the **next level** as far as **care delivery**.* -Health Sector, Member

*Now, we have **referral processes** that **everybody can see and embrace**. There was always in healthcare, at least a minimal level of working with Social Services. We maybe gave somebody a number to call if they had housing or food insecurity. The SIM Project work has championed ongoing relationships among providers, that in the past was a paper referral or you gave a patient a list of phone numbers and, "Here you go, you can call this."*

-Health Sector, Member

Overall, these improvements in communication and coordination processes have resulted in improved cross-sector referrals. Across the state, members reported statistically significant improvements in the referral process between 2018 and 2019, indicating that referrals are easier as a result of the CHIRs efforts and that health providers are more motivated to refer to social sector organizations as a result of the CHIR's efforts:

Improved Referrals



As a result of the CHIR's efforts:

- Health care providers and community service organization/agency staff are getting better at referring individuals to needed services.
- It is getting easier to refer individuals to needed services.

*The medical system, the hospitals and the partners are **way more aware of resources** that are available to their patients in the community and are **making referrals**. We did see an increase in the number of people coming through our doors. I do feel like the medical providers are listening to patients and are concerned about those other social determinants of health and making referrals to organizations.*

-Social Sector, Partner

Overall, stakeholders reported that these improvements in service coordination and referral processes have **enhanced system efficiencies:**

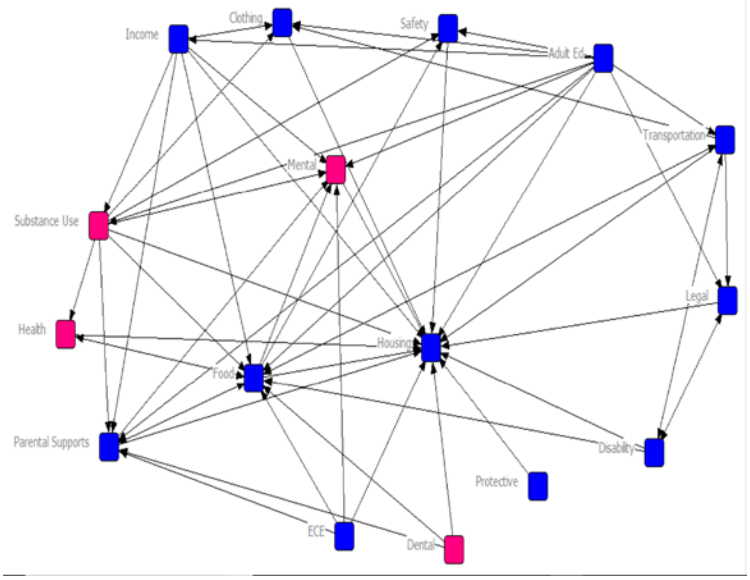
The increased coordination is a huge benefit for our clients, and it's reduced the frustration that we hear when we evaluate services... One of the most common frustrations is with all these different systems or silos… when you connect with one, you have the other one asking you the exact same questions. It's like the left hand doesn't know what the right hand is doing… ***If we're all working together, we can be way more efficient in meeting the needs of our clients*** *and* ***also increasing their satisfaction*** *and* ***their long-term outcomes*** *around housing, health and all of the social determinants of health… and making sure that we're doing things in a way that isn't creating more barriers for people.* -Social Sector, Member

The critical value of these increased referrals across the CHIRs cannot be overemphasized.

Simply put, prior to these efforts residents were not always referred to the services they needed. This is well illustrated by referral network analysis maps produced from the 2018 CHIR survey. Survey respondents were asked if they were part of the community linkages process (in any way), and if so, they were asked to respond to a set of closed network analysis survey items. Respondents were provided with the list of the social determinants of health and asked if they refer to organizations providing these services, if they know the outcome of that referral, and if so, what that outcome was.

Network analysis maps were produced for each CHIR in 2018 for each separate question. Below is the network map created when people responded that they referred to a SDOH organization. In an effective service delivery system, we would see many cross-sector referral linkages and a medium to high network density score.

Below is the 2018 referral network map for CHIR 3. We selected this CHIR because they did not yet have their technology platform in place at the time this data was collected and because they had a sufficient response to this set of questions to conduct a reliable network map. CHIR 3's map shares may similar traits with the other CHIRS**: the referral rate was relatively low compared to the possible referral linkages.**



Referrals in CHIR 3 in 2018:

Lines indicate that representatives from the one sector regularly refer to, or receive referrals from, the other sector.

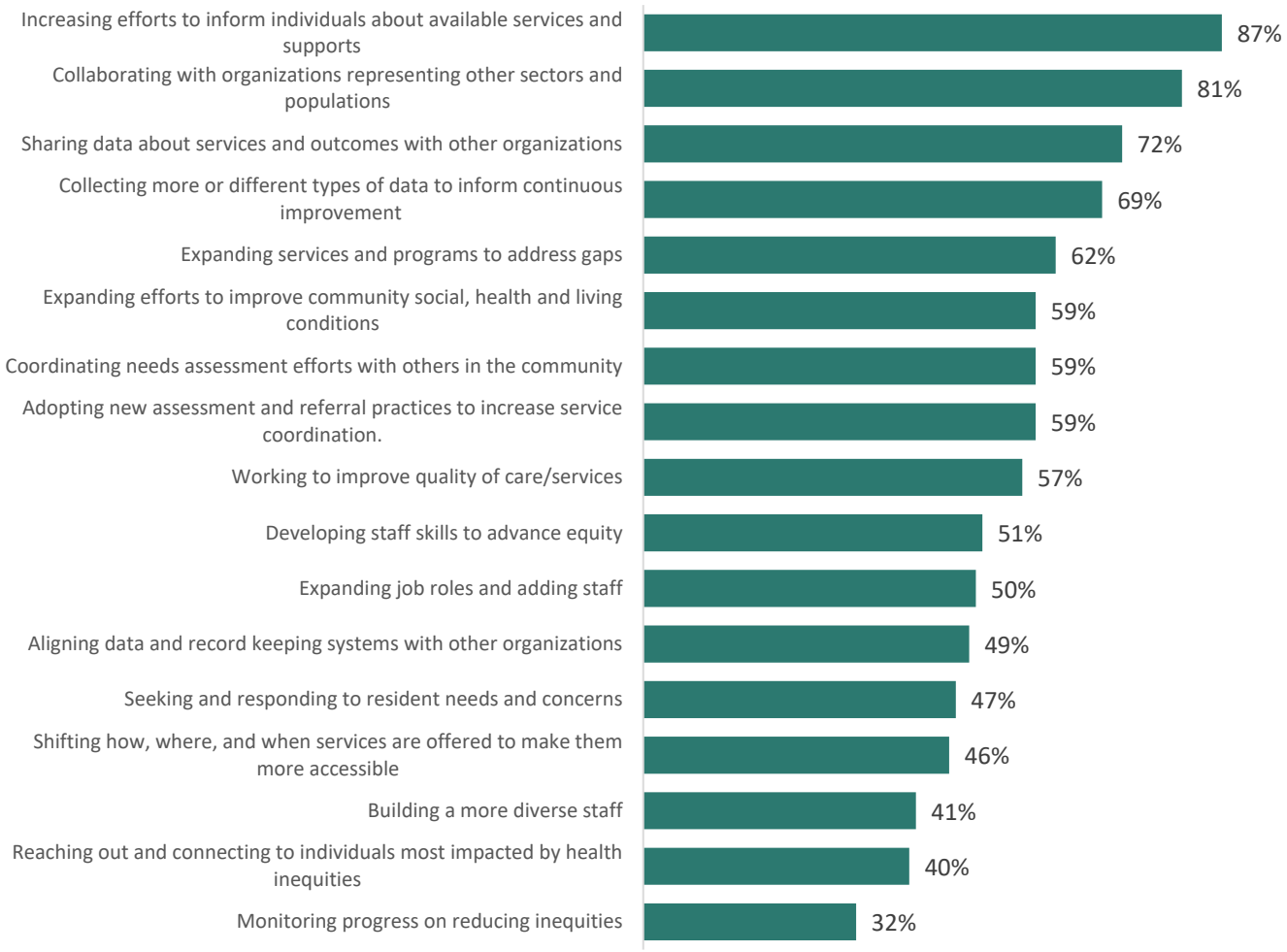
A density score of .23 indicates that there are multiple sectors consistently not sending or receiving referrals.

Unfortunately, the response rates in the 2019 CHIR survey were too low to conduct longitudinal network analysis. Future evaluations should explore this opportunity, as the 2018 data provides an excellent picture of the baseline network configurations prior to full CCL implementation.

C. Aligning Policies, Practices, and Procedures

Through their involvement in the CHIR, the majority of cross-sector leaders reported they are initiating needed policy, procedure, or practice changes in their own organization. In 2018, 51% of leaders reported that their organization is making policy/procedure changes to support the CHIR's efforts; by 2019, 60% of organizations' leaders* reported initiating or making these changes in their own agency. The initiation of these policy, practice and procedure changes is critical: prior research has found that communities are more likely to shift population level outcomes when they generate a "tipping point" of local community condition changes. While it is impossible to know the number of changes needed, we do know that this tipping point will not be reached unless the CHIRs work to align the internal policies/practices across diverse local organizations in support of CHIR aims.

The below graph illustrates types of the policy/practice changes made in 68 organizations in 2019:



Some example policy and practice changes that have emerged within the CHIRs include:

- **In the Genesee CHIR, new procedure in the emergency department connects patients with substance use disorder to resources**. Staff in the emergency department are now connecting SUD patients to peer recovery coaches 24/7 and screening for SDoH to provide wrap-around care for patients.

- **In Genesee, funders are aligning opportunities with CHIR priorities.** Funders, such as the United Way, are now asking potential grantees about adopting the Community Referral Platform in their own organizations

- **In the Genesee CHIR, the community referral platform is expanding to support other efforts.** The community referral platform is now used by the Flint Registry, which connects individuals impacted by the Flint water crisis to resources that support their health. In addition, the community referral platform is being used to enroll children and parents in healthcare coverage through Connecting Kids.

- **In the Jackson CHIR, the Community Living Room increases access to medical care.** The Community Living Room model removes barriers for residents by meeting people where they are. The Community Living Room model provides onsite services and resources to residents at a local housing complex to address a range of resident needs. For example, a primary care physician sees patients at Reed Manor 3 days per week.

- **In the Livingston/Washtenaw CHIR, new discharge policies will prevent individuals from being discharged from institutions into homelessness**. New discharge policies at the Livingston County Jail and community hospitals will prevent discharge to homelessness.

- **In the Muskegon CHIR, a cross-sector Action Team is creating shared resource lists and calendars**. To create connection, consistency, and alignment across the county, one 100-Day Challenge Action Team is establishing a shared, centrally-located listing of resources and events. As a result of this work, community resource lists are verified and more accessible to community members.

- **In the Northern CHIR, 2-1-1 is now updated and more aligned with other resource lists.** 2-1-1 was known to operate with limited or out-of-date information. The CHIR brought 2-1-1 into continuous improvement efforts, promoting information sharing among agencies and ensuring that 2-1-1 can serve as a reliable resource for community members.

D. Generating Sustained Funding

Because of their early successes, some CHIRs have or have plans in place to generate revenue and new funding streams to sustain and expand the work. For example:

- **In some regions, local Funders are aligning grant dollars around CHIR priorities.**
    - **In Livingston/Washtenaw, Blue Cross has a vision of funding CHW positions that would be dedicated to Blue Cross Complete outreach efforts.** These CHWs would engage their members who have not yet received a social determinants of health screening and would check in on the 3,300 members in Washtenaw County who are vulnerable to losing their health coverage because of the Medicaid work requirement.
    - **In the Northern Michigan CHIR, community foundations are shifting their granting to increase collaboration across sectors around SDoHs.** Funding is being allocated by local funders to address SDoH and associated cross-sector system improvement strategies. Funders are aligning their goals with the CHIR, connecting their funds to the CHIR, and even funding the CHIR directly.
- **The Northern CHIR anticipates Pathways Model certification for their Hubs.** The CHIR is exploring opportunities to certify the Pathways Community Hub model as a value-based reimbursement method. If the Hubs receive Pathways Model certification, Medicaid will pay for pathway completion and help to sustain screening and referrals.

FEEDBACK LOOPS: The CHIRs are building more adaptive local systems by using data and information flows to create a learning culture with closed-loop referrals and responsive action.

FEEDBACK LOOPS

Feedback loops are essential to effective community systems. They involve the bi-directional flow of information between entities **and** corrective action in response to this information. In other words, feedback loops are more than just information flows, they are system learning mechanisms where actors receive input on the efficacy and outcome of their actions, respond accordingly, and then receive additional feedback on those new efforts. Without feedback loops, community stakeholders are unable to adapt their behaviors in ways that will improve system functioning. Unfortunately, most communities lack sufficient feedback loops because data is not gathered or shared, effective communication pathways are not in place, and learning processes are not embedded into operations.

The CHIRs are starting to build more feedback loops within their regions, though the existence and efficacy of these processes varies significantly across the CHIRs. Overall, in CHIRs where the technology platforms were fully operational, information flows were in place; in some, but not all of these CHIRs, learning and action occurred in response to this data.

Below are some key ways CHIRs are building more feedback loops:

Several of the CHIRs Now Have Closed-Loop Referral Processes

Informants described how the new referral platform has facilitated communication and a closed-loop referral process between cross-sector organizations:

> *I go out to the nonprofit community and they feel very good about getting the referrals.* ***Being able to service those families or individuals, and then being able to kick back into the system that they did indeed provide the service: we've never been able to do before.*** *You could have never made that connection… people feel really good about it.* -Funder, Member

> *"The community referral network, because it's a* ***closed feedback loop****. . . Now when our specialty hubs, organizations with the social workers, the community health workers. . . When they make a referral,* ***they're directly communicating with dozens of community agencies.*** *That community agency doesn't only accept the referral;* ***they let us know the outcome****."* - BBO

> *Without the referral network you can make a community linkage for food insecurity, housing and transportation… The issue you have is you don't always have a true outcome. You know you made the referral. You know you gave the information on the housing linkage. You know you made this linkage for food insecurity, but you don't really know. Does the person get the food? Does the person get housed? It required a manual follow-up for feedback. What we have now is different. I mean* ***the whole reason we're doing all of this work is not just to go through the effort, but it's really to make sure that we're addressing these community health needs for the individuals while we're also making more systemic changes that move upstream****… The community agency doesn't only accept the referral; they let us know the outcome. So if our team makes a referral and the outcome comes back as something like "canceled or declined," anything but completed, we can follow back up with the client and say, "I understand that that agency couldn't help you with your housing needs. Let's take another run at this and make sure that you get that resolved."* –BBO

> *We have the MiCare Connect computer system and* ***it is so nice that you can log on and see what an organization did with a client****… I don't need to follow up with that client…I can send a message inside the system and that's been very useful…****If you are helping a client and you've completed a task, you let the rest of the team know through MiCare Connect****.* -Health Sector, Partner

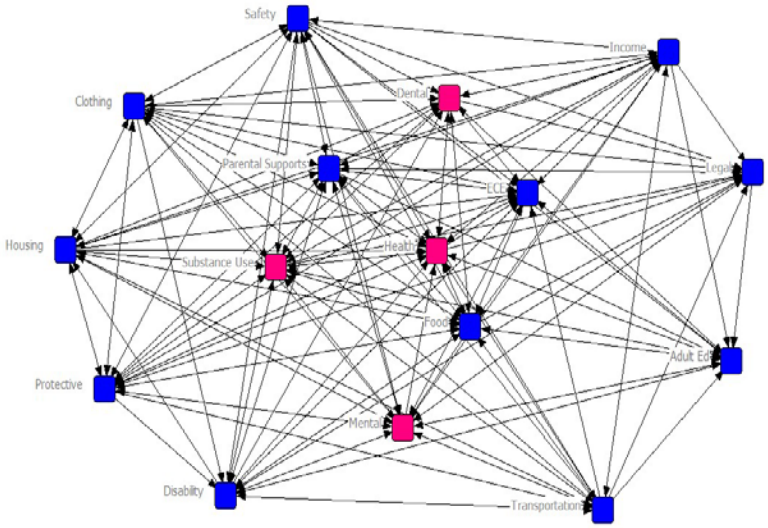
For these CHIRS, the new feedback loops are strengthening the community system and ensuring residents get their needs met.

> *Often times in the past, you could refer somebody, and you could even go so far as to make the appointment for the person, but you never really got common documentation or a common log type system. What did happen? I'd have to make 5 phone calls to figure out what happened. So now, everyone who has a piece in a referral process can see, "Where did that go? Did they get the community action needed? Did they get to the housing commission? Did they get to all these places and was that followed up on?" That is going really well.* ***And we know - ultimately the resident gets their needs met****. It's very cool.* ***Nobody is lost in space****.* -Health Sector, Member

The development of these feedback loops is critical, given the baseline conditions within most CHIRs.

The importance of the CHIR efforts in building these feedback loops is well illustrated by the network survey data collected in the 2018 CHIR survey. Below is the network map created when people responded that they referred to a SDOH organization but did not know if their client received access to services. In an effective service delivery system with operational feedback loops, we would see few network linkages and a low network density in this network map.

Below is the closed-loop network map for CHIR 3. CHIR 3's map shares many similar traits with the other CHIRS**: the majority of respondents noted that they did NOT know the outcome of their referral.**



Lack of Closed Loop Referrals in CHIR 3 in 2018:

Lines indicate that the referral agent did not know the outcome of the referral.

A density score of .68 indicates that most referral sources did not know if their referred individual received services.

Unfortunately, the response rate in the 2019 CHIR survey was insufficient to conduct a reliable wave-2 network analysis. It would be fruitful to continue to explore these network configurations in future evaluation work.

ELEMENTS: The programs across the system that are designed to support initiative aims.

System elements refer to the programs across the system that are designed to support initiative aims. While system elements matter, they are considered the weakest leverage point within a system given the number of elements that would be needed to achieve system transformation.

CHIRs have launched multiple elements in their regions. Ongoing efforts to track the efficacy of their efforts, and the diffusion of those that work will be essential to ensure these elements achieve desired scale of impact. Some example elements include:

Expanding Professional Capacity

- ⇨ **The Northern CHIR has ensured that all CHIR Community Health Worker (CHW) staff are Michigan Community Health Worker Alliance (MiCHWA) trained**. MiCHWA is an 8-week standardized curriculum that covers topics like ethical responsibility, coordination & reporting, and behavioral health & substance use disorders.
- ⇨ **The Jackson CHIR provided training on equity and social justice.** The CHIR has facilitated high-caliber equity and social justice training for a multidisciplinary group of stakeholders. These trainings brought equity conversations into new organizations across the community. For example, the Intermediate School District has instituted regular cultural competency trainings and discussions.

- ⇨ **The Livingston/Washtenaw CHIR has offered homeless diversion trainings for cross-sector providers.** A new diversion training has been provided to providers throughout the homeless response system. After diversion is piloted, diversion training will be provided to additional cross-sector partners in the health care and criminal justice systems. All diversion trainings will be recorded and replicable.

- ⇨ **The Washtenaw CHIR has supported behavioral health peer training**. Peers are being certified to work with patients on mental health and substance use issues.

Supporting New Programs

- ⇨ **New Neighborhood Associations created.** With the support of the CHIR, residents in Muskegon Heights created four new Neighborhood Associations and are in the process of establishing a Neighborhood Council. These new Neighborhood Associations can now apply for grant dollars to support their community.

- ⇨ **Muskegon Food Alliance launched.** The Muskegon Food Alliance is a new collaborative non-profit designed to promote equitable food access in Muskegon County.

- ⇨ **Business plan for new childcare center developed in Muskegon**. In order to increase access to quality child care, cross-sector partners are developing a plan for a new child care center. The new center would be located in a child-care desert and would use a shared services model to enhance quality.

- ⇨ **Supports for minority owned businesses established.** Championed by a member of Rotary, a 100-Day Challenge Action Team has partnered with the Muskegon Chamber of Commerce to identify minority owned businesses in the community. The Chamber has met with minority owned business owners and a minority owned business owner is now leading the diversity, equity and inclusion group at the Chamber.

- ⇨ **New youth mentorship program developed.** The youth mentorship program was launched as part of the 100-Day Challenge. The program will serve Muskegon Heights and is intended for youth who are not currently engaged in afterschool programming.

- ⇨ **Literacy initiatives implemented.** In partnership with the CHIR and through the 100-Day Challenge, new literacy programs have been created.
  - o The Muskegon County Literacy Collaborative was established as a cross-sector effort that engages diverse organizations focused on addressing low literacy levels.

- A new Reading Buddy Program, led by high school students, has been formed to help younger children improve their reading skills.

⇨ **The Jackson Community Living Room brings resources to people where they live.** Under the Community Living Room model, various organizations provide onsite services and screenings within a local housing complex. The Community Living Room connects individuals with case managers who can help them access resources like Medicaid. This program has helped to address inequities within the community by providing individuals with the opportunity to access resources regardless of variables like location and transportation access. Different agencies are now holding events at the Community Living Room including the Community Action Agency, Huntington Bank, and the Social Security office.

⇨ **Expungement fairs in Jackson and Muskegon supported the decriminalization of poverty.** The CHIR helped to form a partnership between MDHHS, Michigan Works, the County Courts, Legal Services, libraries, and city police. Partners collaborated to organize and staff two expungement fairs, furthering the Financial Stability Group's work around the decriminalization of poverty. The reach of the expungement fairs increased between the events from 25 to 160 individuals, and partners were able to provide funding to pay the fees associated with expungement for qualifying individuals.

⇨ **Behavioral health liaison position created in Jackson.** Through a cross-sector partnership between the hospital and the community mental health agency, stakeholders were able to use SIM funding create a new behavioral health liaison position. This position will help support community clinical linkage through the CHIR.

⇨ **The Genesee CHIR has launched a six-week SIM Obesity Intervention for adults and families**.

⇨ **In Livingston/Washtenaw, peers are being used across systems**. Peers are increasingly being used in mental health and substance use treatment contexts, as well as in the emergency departments at St. Joseph and the University of Michigan. Peers are conducting outreach, acting as coaches, and helping patients to access services.

⇨ **In Livingston/Washtenaw, Community health workers are planning to help preserve health coverage**. A plan is under development to fund community health worker outreach for 3,300 Blue Cross Complete members in Washtenaw County who are vulnerable to losing their health coverage because of the Medicaid Work requirement. Outreach workers will contact members who are at risk or who have not yet completed a SDOH screening.

TRANSFORMING PEOPLES' LIVES

The improvements in system conditions, including improved cross-sector partnerships and referrals, are creating the initial conditions needed to improve people's lives. In 2018, members and partners shared stories of how the CHIR was starting to transform individual lives by:

A. Connecting the Disconnected

- People who were **not previously known** to the system are **now getting the services and supports** they need outside of the ED.

I'm currently working with a client who was concerned about the amount of clutter she had in her home… She informed me that she hadn't been able to be reached because her phone doesn't work. So I've been working on getting her a new phone and trying to follow up with the agency that does that. … We've been slowly making more contacts, she's been feeling more confident and opening up and talking about the clutter that was in her apartment, which at first she didn't even mention when I spoke to her about goals she had… ***I don't know that she would've gotten that help with the hoarding issue if it weren't for SIM.***

-Health Sector, Partner

*We are hearing about patients that would have never received the help that they got unless they were given that screening….****I feel like, yes, we're saving lives one person at a time, and this is definitely the way to do it.*** *As an example, a person comes in, presents to the ER for something, and then we find out that the reason why they're at the ER is because they've been homeless. Then we find out that they're homeless because they lost their job a month ago, the person had a dog and her dog has been living in their car in the Meijer parking lot for the past 3 weeks. She was malnourished, and all of those things made her end up in the ER. From there, though,* ***we were able to connect that person with the resource they needed,*** *and now that person has a place to stay. I think that they actually got them a job.* ***They're actually able to get their life around and become a contributing member of society again****. You know, it's amazing.*

-Health Sector, Member

B. Saving Lives Outside the Emergency Department

- CHIRs are linking individuals to needed services and supports **before these unmet needs become a health care crisis**.

We had a client who was homeless for 5 years. He went into treatment. He went into our transitional housing program, got a job, was able to get a bike to get around... Literally he did like a little dance when he was getting into our transitional housing. He was doing a little dance in our hallway because he was that excited. ***It's just been an amazing thing to see the differences that people really have when they are supported*** *and* ***when they do have the access to the services that they need****.*

-Health Sector, Partner

We're working with a woman who we've been working with for a while, and she told the therapist this week that another one of her utilities was about to be shut off because she can't pay her bills. She gets some disability income, but by the time she pays her rent and her food and pays for medication that she's on, there's no money left. She has to prioritize what bills she's going to pay, and she's already had a situation where one of her utilities was shut off, and they went and got it turned back on, but it's that kind of thing where our therapists will take the client, maybe fill out forms in terms of assistance or take them to a place like Salvation Army or St. Vincent de Paul, and they'll work with them. They'll maybe pay enough on their bill to help them get their utility turned back on. ***It's that kind of real world stuff, taking them to the different food pantries so that they can get food and if they're getting some food that they don't have to pay for, then they can use that money that they would spend on food to pay for medicine.*** *A lot of that real practical stuff.* -Social Sector, Partner

[In our School navigator initiative] we have a family we are working with. The children are truant. If and when they come to school, they show up late. It's a single mom, she's homeless, and they're living in a tent. The navigator has worked with the mother in securing housing, working with the mother on transportation, working with the mother on employment, so that their lives can get stabilized. Once their lives are stabilized in the home, then we can begin to work on the behaviors of the children.

-Social Sector, Member

I just heard from a woman we've been working with for about 3 months, and she said ***"I don't know where I'd be if it wasn't for the SIM and for the work that you've done. You've literally saved my life."*** –Social Sector

➢ Meeting basic needs so health outcomes improve

I have an 80-year-old client that has social security and mental and physical disabilities. She went to the emergency room and was discharged to the shelter and she couldn't stay at the shelter because she needed more medical assistance than they could provide. ***The SIM project was able to get her a room****… She has services and people in the community working for her where she can stay in her room and she can go to the doctor,* ***they deliver food to her… her medications get delivered to her****. She has the heart monitor set up in her room. She has a* ***reminder when she can take her medication*** *and* ***she's safe****. [And], she's like, "I didn't know these types of services existed."* -Health Sector, Partner

➢ Reducing reliance on ED visits

One client was utilizing the emergency room quite often, it was at least a couple times a week… he was having great difficulty getting to his doctors' appointments and keeping up with his care… because ***I was able to do outreach and connect with him****, and get resources, and connect him with PACE. That was great because* ***now he hasn't been to the emergency room in 4 months.*** *He's playing the drums, he's in the band at PACE and he's in the men's group at PACE. If he didn't have a CHW to assist with that, I don't know where he would be.* -Health Sector, Partner

A young woman in her early thirties was coming to the ED probably 2-3 times a month with belly pain. She would get all of these evaluations without any clear reason… So she was referred to one of the Hublets - the Complex Care Team… The Complex Care Team provided education, connected her with a primary care physician every week, and connected her to cognitive behavioral therapy for her anxiety. ***Within 3 months, her behavior changed - she doesn't come to the ED any more****. Now she sees her primary care physician once a month, she calls the clinic if she has a question or a concern. This is a completely different patient… This is basically a* ***hublet model*** *of, "We're going to* ***look at this woman holistically****, and we're going to try to make sure that, whatever is going on with her, we figure it out."* ***And it worked****.* -Health Sector, Member

Not only has the CHIR integrated procedures and technologies to foster connection to local resources, but how navigation supports are offered through the CHIRs has also significantly impacted client outcomes. For example, clients participating in the Pilot Client Experience Survey [1]noted that the Hubs offers a new level of assistance and support:

[At the Hub,] ***I actually get the help.*** *I was able to see results. Other agencies send you to call someone, but then they are not offering the services.*

[At the Hub,] ***they made you feel like a human being****. Not like scum of the earth. They made it ok to ask for help.* ***Free from judgment****.*

More evidence emerged in the 2019 evaluation to suggest that the CHIR is transforming lives. Specifically, informants highlighted that, in addition to the above improvements in the local service systems, CHIRs have helped to:

➢ Ensure that care is received at the appropriate time and place

When you're willing to ***work with people where they're at to keep them housed****,* ***it makes a difference****. [For example], we had someone that's not paid rent for a while. He expressed that he was homeless before he moved here, and he struggled with a mental illness and substance use disorder. His nonpayment eviction started coming up. He was able to work with the Living Room CLR, not only to get help with his substance use, but he is getting a stipend for work in the CLR to help pay his back balance of rent so he can stay housed.* -Health and Social Sector, Partner

[Our PIHP] gave us a small grant to pilot putting ***recovery coaches****, who are people with certification with lived life experience, who are recovered addicts,* ***into the ERs to help begin the process of intervention*** *with people who have had an overdose… We did it with an on-call [coach], and we started*

[1] Source: Genesee CHIR Pilot Test of the Client Experience Survey, December 2018-January 2019
The pilot test was a partnership between GFHC (special thanks to Lori Kunkel and Stephanie Kile) and Sarah Clark of the University of Michigan's Child Health Evaluation and Research Center.

specifically with Hurley Hospital where they would call our staff 24/7. ***We put a staff member on every day, all day, 365. [When hospital staff] called the number, we were there within the hour****…. From there, we begin to advocate for appropriate level of care – that looks different for every person that's in there – and coordinate with the doctors, nurses, and family to say, "Here's how we can try and move forward from this. Let's look at what's available and start that handoff where basically I'm going to be your support system to help you advocate and navigate this system." From there, where do we need to take you? Do you have a safe and sober housing location? Okay, can we go there? Is there a shelter option? …It was hugely successful, almost immediately…* ***Where you meet the person where they are and help them from there, it showed success.*** -Social Sector, Partner

Between law enforcement and the ER and street outreach in Traverse City, they'll get people to our Safe Harbor Shelter; they will get them into detox or a residential rehab. ***Those systems are working together to make that happen.*** -Social Sector, Stakeholder

➢ Residents get supports that they could not find on their own

It was the fact that ***I felt like I finally had an advocate, some support****. I talked to a lot of people before and I felt like I had no support.* -HUB client

*[Navigator] sat with us for a long period of time, probably over an hour, with us, sitting and asking questions and listening. I really appreciated it. This is kind of new, uncharted territory for us. We've never been in a situation where finances or food was scarce****. I really felt cared for and cared about.***
-HUB client

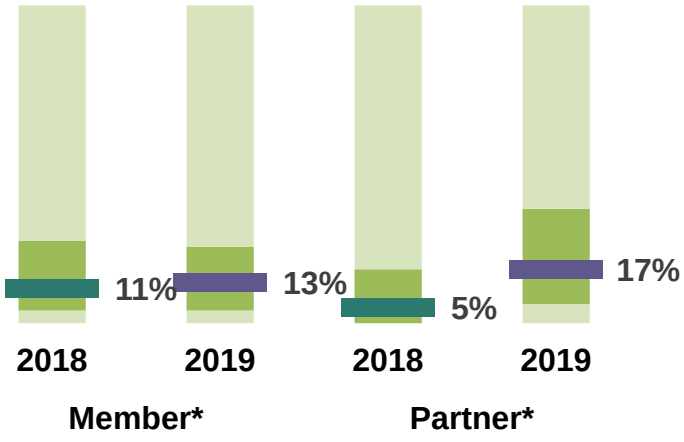
A disabled male was assigned to the Specialty Hub. The individual suffered from diabetes, amputation, morbid obesity, and other co-morbidities….A request to his Medicaid Health Plan to replace his damaged wheelchair had been denied. His wheelchair completely broke down leaving him homebound with limited capabilities within his home. Care management staff secured a loaner wheelchair and continued working with the wheelchair vendor and referring medical home to submit the necessary documentation (which included two additional health plan denials) to finally secure a new wheelchair restoring the client's ability to get to medical appointments and take care of his basic needs.
-HUB navigator

➢ People discharged from the hospitals are no longer discharged to homelessness

On Friday, the [homeless services provider] was called… And they said, "I have somebody who is homeless that's in the emergency room now. They're being treated, but we're hoping to discharge them tonight. Can you come meet with them?" She was like, "I'll be right there." So they were able . . . The nurses and staff were able to provide the healthcare and then know that ***somebody from the housing system was going to be able to be there and have the warmest of handoffs*** *and be able to work with that resident and understand what their options were so that* ***they weren't just on the streets when they left.*** -BBO

Overall, the CHIRs are positioned to transform individual lives because they are starting to increase access to local services and supports and residents are starting to get their needs met. In fact, longitudinal survey data indicated that both members and partners reported significant growth between 2018 and 2019 in service access and residents' needs getting met. Of course, it is important to also note, as the below graphs illustrate, the degree of changes in these outcomes are still relatively small. This is not surprising, given that these data still represent early implementation findings, about 1 and 2 years post implementation. Ongoing data collection should continue to ensure that more significant progress is made is these two critical areas.

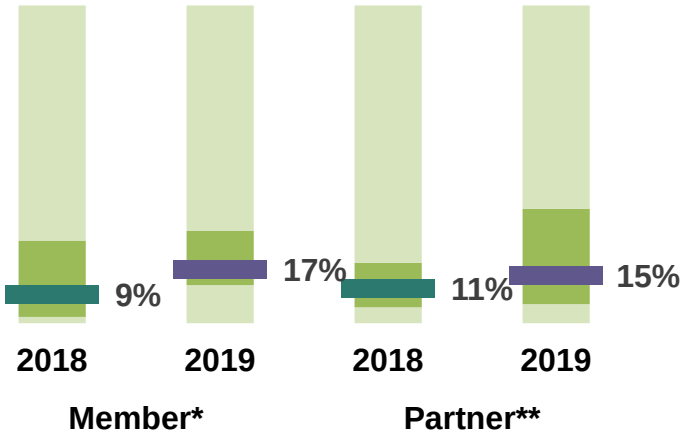
Improved Access to Services



As a result of the CHIR's efforts, access to needed services/ opportunities is improving, including:

- social, emotional, and behavioral supports
- health care
- healthy food
- needed transportation
- more affordable housing
- economic stability, including livable wage jobs

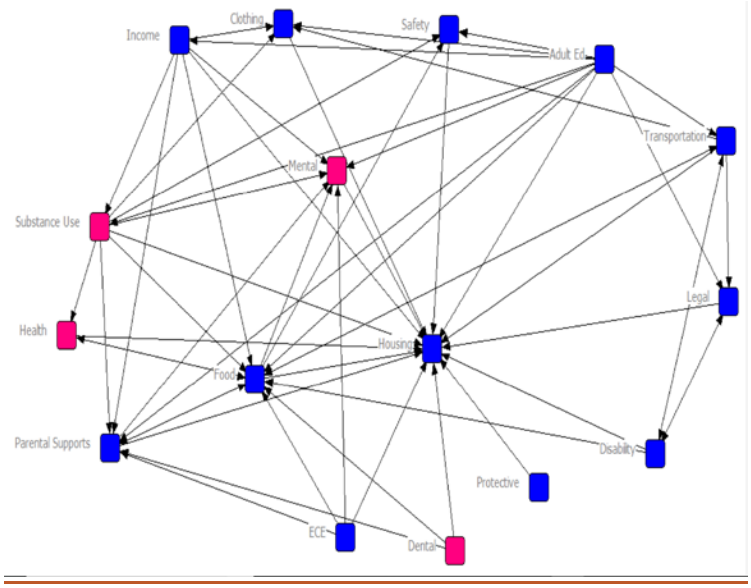
Residents Needs are Met



As a result of the CHIR's efforts, the individuals we serve/provide services to in our local community are:

- becoming more aware of the services and supports available in our community
- more likely to get their health and social needs met
- getting the answers they need to make informed decisions about appropriate services
- more likely to have greater housing stability
- reducing their use of emergency department services

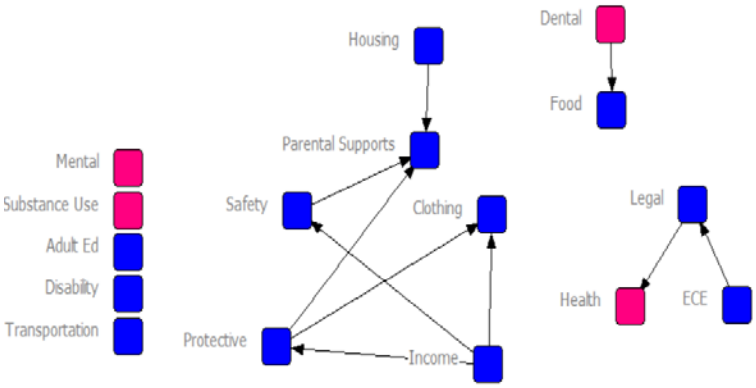
To further explore access to services, we conducted a network analysis of the data point "if you referred to this agency, did your client receive services." We again present below the network map for CHIR 3. To place the access map into context, we first present the referral network to illustrate the range of linkages where access could occur. The second map shows the access to services that was received from these referrals. As the second map illustrates, CHIR 3 representatives noted in 2018 that their clients most often **did not get access** to needed services.



Referrals in CHIR 3 in 2018:

Lines indicate that representatives from the one sector regularly refer to, or receive referrals from, the other sector.

A density score of .23 indicates that there are multiple sectors consistently not sending or receiving referrals.



Access to Services in CHIR 3 in 2018:

Lines indicate a referral was made and service were received.

This network is very sparse (density = .04) suggesting that clients are likely not receiving needed services and their needs may not be met consistently.

Cross-CHIR Summary of Key CHIR Outcomes over Time

The below table summarizes the key longitudinal findings related to the six outcomes measured in the CHIR evaluation. Paired t-tests were computed separately for members and partners as survey findings suggested they held unique perspectives on system functioning and CHIR performance. Analyses were also conducted separately for each CHIR. As this table illustrates, across the state, **CHIR members reported significant growth in CHIR outcomes in five of the six outcomes assessed in the survey**; CHIR partners only reported growth in outcomes related to transforming residents' lives, but that could be related to their role in implementing CHIR strategies directly with patients/clients.

When looking at the data specific to each CHIR, the table below also highlights how CHIRs varied in their growth in outcomes between 2018 and 2019. Please note that CHIR 5's growth in outcomes was hindered, to a large extent, by the high values given at baseline, primarily by CHIR members. The small sample sizes across all CHIRs also potentially reduced the power to detect differences, particularly the small effects we would expect during an early implementation phase.

Change in Key CHIR Outcomes over Time

	All CHIRs		CHIR 1		CHIR 2		CHIR 3		CHIR 4		CHIR 5	
	M N=92	P N=77	M N=23	P N=17	M N=9	P N=20	M N=21	P N=22	M N=19	P N=11	M N=19	P N=7
Aligned Individuals												
Individual Adoption of SDOH Focus						↑						↑
Aligned Organizations												
Greater Organizational Effectiveness	↑											
Stronger Community Systems												
Improved Referrals	↑				↑		↑		↑			
Increased Service Coordination	↑				↑		↑		↑			
Transformed Residents												
Access is Improving	↑	↑	↑									
Residents Needs are Met	↑	↑	↑				↑	↑	↑		↑	↑

↑ indicates statistically significant improvement between 2018 and 2019 (P≤.05)

↑ indicates marginally statistically significant improvement between 2018 and 2019 (P≤.10)

WHAT FACTORS CONTRIBUTE TO CHIR SUCCESS?

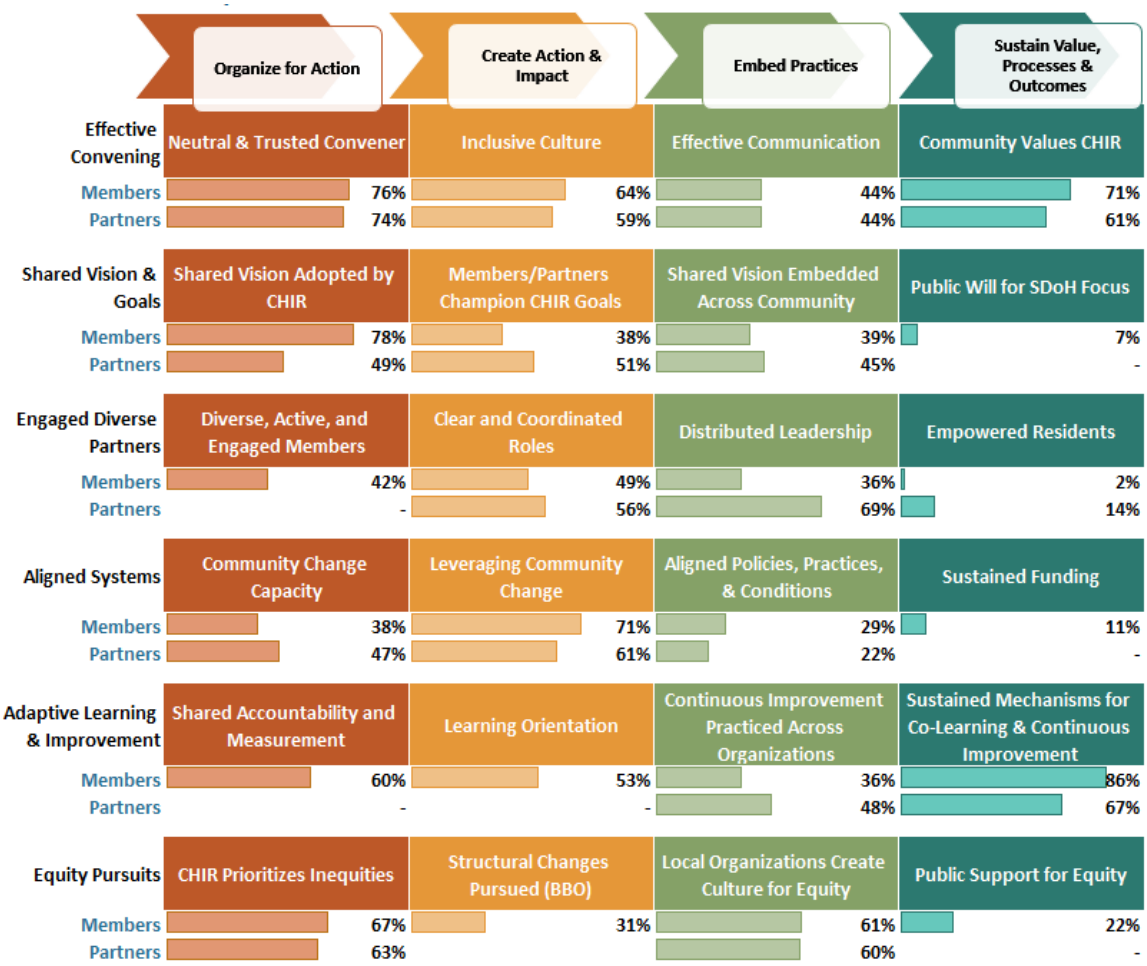
Confirming the CHIR Transformative Change Process Framework

We conducted a series of analyses to confirm the CHIR Transformative Change Process Framework. As described above, factor analysis was conducted to confirm scales and subscales. Correlational and regressions analyses were conducted to determine if each element within the framework was related to CHIR effectiveness: all factors emerged as strong predictors of CHIR effectiveness.

We also explored the validity of the framework and constructs in several ways. First, we compared CHIR's on several scales within the framework to determine if measured differences would correlate with our objective ratings of CHIR performance and with interview findings. These assessments provided initial confidence in the construct validity of the survey. For example:

- The backbone organization experiencing the most challenges in effectively convening its CHIR members received the lowest rating on the "neutral and trusted convener" scale; the backbone organization experiencing the most success received the highest rating on this scale.
- The measures on "diverse, active members" reflect the demographic data available on CHIR members.
- The CHIRs with well-developed action plans scored higher on "clear coordinated roles"
- Qualitative data mostly confirmed CHIR scale scores. For example, a CHIR that received low scores in "constant communication" also had key informant interview data that highlighted the weak communication practices within the CHIR. A CHIR that had a high shared vision score also had key informants highlight how the CHIR had effectively convened members around a shared vision.

Second, to assess the validity of the four stages included within the CHIR framework, we explored the extent to which the scale scores tended to decrease as you moved through the four developmental stages. One assumption underlying the framework is that the CHIRs would take longer to develop the collective factors in the later stages (right side) of the framework. The figure below provides the set of scores for one CHIR (and the pattern of findings for this CHIR represent the pattern mostly found in the other CHIRS). As this figure illustrates, in general, the scale scores decreased as you moved from left to right in the model, suggesting that the CHIR was more developed in the Organizing and Convening phase than it was in the Embed Practices or Sustaining phases. Overall, this set of findings coupled with the qualitative data suggests that the framework does appear to capture the different phases of the community change work.



Statistical Analysis

A variety of statistical tests were conducted in 2018 and 2019 to determine which elements from the CHIR Transformative Change Process Framework were most strongly related to CHIR effectiveness. CHIR effectiveness was measured with 6 outcome variables (See Appendix 1 for the survey items used to measure these outcomes):

- Individual adoption of an SDOH framework
- Benefits to participating organizations
- Enhanced cross-sector partnerships/service coordination
- Increased referrals
- Resident needs are met
- Easier access to local services/resources

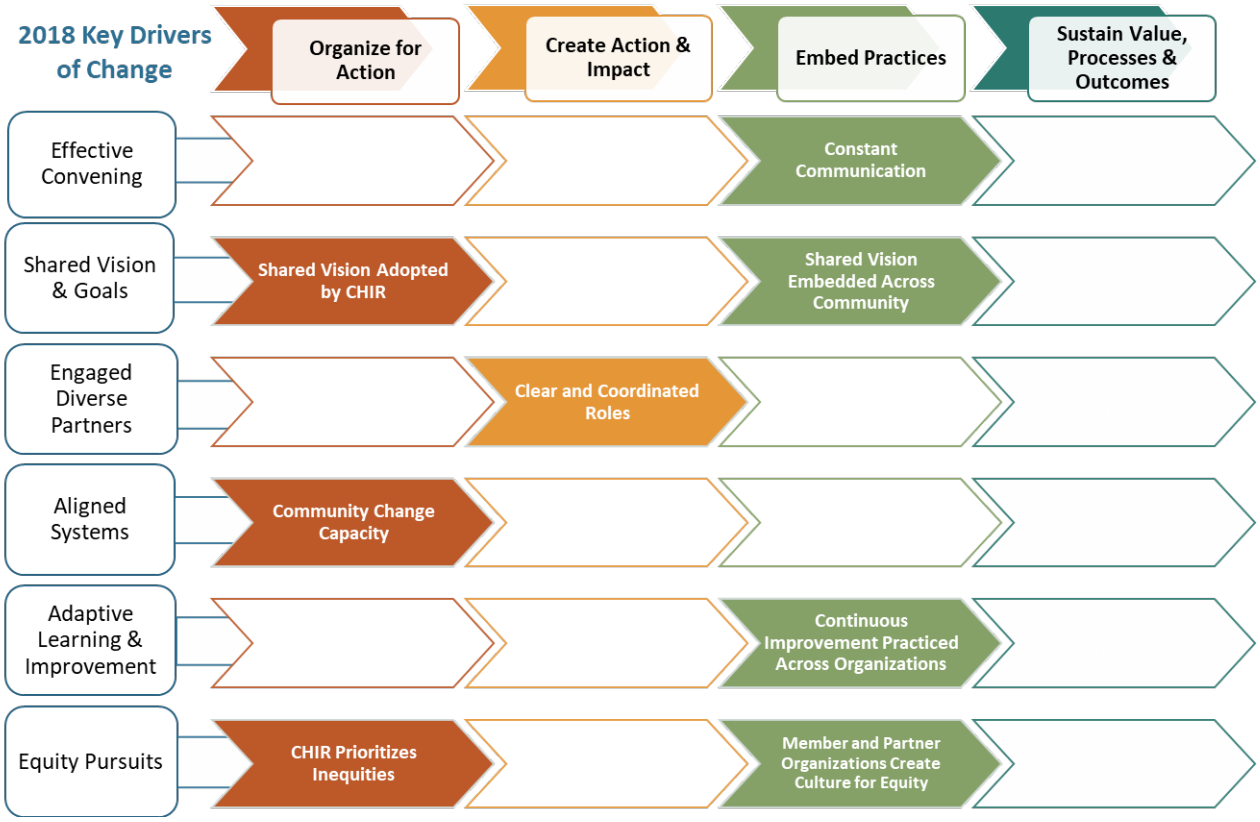
To identify the most powerful cross-sectional predictors of CHIR effectiveness in 2018, we conducted a series of stepwise regressions for each outcome variable. Because CHIRs varied significantly in their effectiveness measures and because health sector representatives differed from social service sector representatives on several scales, we controlled for CHIR (using dummy coding) and sector in all of the regression analyses conducted in in 2018. Below we describe the series of stepwise regressions used to identify the most powerful cross-sectional predictors of CHIR effectiveness in 2018:

- Step 1: To identify which constructs within the critical elements were most strongly related to the outcome variables, a separate stepwise regression including all four constructs across the developmental process was conducted for each element (e.g., we regressed "increased referrals" on the four measures of Shared Vision).
- Step 2: We conducted a combined stepwise regression for each outcome using only those constructs identified as the most significant component (s) of the critical elements in step 1.
- Step 3: We compared the findings across the second step for all six outcome variables. Any construct that emerged as a significant predictor in the second step for at least three outcomes was identified as "Key Driver of Change." We also checked to make sure no predictor variable that accounted for the most variance in the second step was excluded in this integration.

Key Drivers of Change

Eight factors emerged in 2018 as key DRIVERS OF CHANGE. These are highlighted in the figure below.

2018 Key Drivers of Change



Of particular importance in 2018 is the finding that multiple measures of CHIR effectiveness were related to core foundational organizing elements as well as the extent to which the CHIR was successfully embedding changes into local organizations. As most CHIIRs were relatively low in their embedding scores in 2018 and 2019, it seems there are significant opportunities to continue to expand these efforts moving forward.

In 2019, we used HLM to assess the extent to which growth in the multivariate set of outcomes was predicted by growth in the key drivers for change. We also added to this assessment five additional factors that appeared strong in the 2018 qualitative findings or early 2019 observation findings but were not initially identified in the stepwise regressions in 2018: Trusted & Effective Convener, Inclusive Culture, Valued CHIR, Members Champion Goals, Distributed Leadership, and Resident Empowerment. In summary, these longitudinal analyses explored the extent to which growth in following CHIR characteristics impact growth in the six CHIR Outcomes listed above:

- Effective Convening: Trusted and Effective Convener, Inclusive Culture, Effective Communication, Valued CHIR

- Shared Vision: Shared Vision Adopted, Members Champion goals Shared Vision Embedded
- Diverse Engaged Partners: Clear Coordinated Role, Distributed Leadership, Residents Empowered
- Aligned Systems: Community Change Capacity
- Adaptive Learning: Continuous Improvement Practiced Across Organizations
- Equity Pursuits: Inequities Prioritized, Organizations Create Culture for Equity

Longitudinal HLM Analysis

A multivariate, multi-level analysis was conducted to investigate the effect of a one-unit increase in CHIR characteristics on the change in outcome measures. In other words, the focus of the analysis is the relationship between (a) perceived change in CHIR characteristics and (b) perceived change in CHIR outcomes. In terms of "multivariate", we built a measurement model at level 1 to include all six (6) outcomes at once, as this is a more efficient and scientific approach than looking at each outcome separately. In terms of "multilevel", we built a four-level model: the measurement model/device (level 1) and individuals (level 2) nested within organizations (level 3) within regions (level 4). This model was built in the following way:

Level 1: (O represents six dummy variables denoting the six outcomes).

$$Outcome_{tijk} = \sum_{t=1}^{6} \pi_{tijk} O_{tijk}$$

Level 2: A = CHIR Characteristics (14 characteristics modeled separately). Also includes four key demographic variables (IC): gender (male versus female), education (bachelor's degree versus high school, and graduate degree versus high school), and primary role (leader versus others).

$$\pi_{tijk} = \beta_{t0jk} + \beta_{t1jk} A_{ijk} + \sum_{m=1}^{4} \beta_{t(m+1)jk} IC_{mijk} + \varepsilon_{tijk}$$

(t = 1, 2, 3, … 6)

Level 3: (OC = organization characteristics) of one variable: primary purpose (health versus others).

$$\beta_{t0jk} = \gamma_{t00k} + \gamma_{t01k} OC_{jk} + u_{t0jk}$$

(t = 1, 2, 3, … 6)

Level 4: (Region, no variables at this level)

$$\gamma_{t00k} = \delta_{t000} + v_{t00k}$$

(t = 1, 2, 3, … 6)

Longitudinal HLM Results

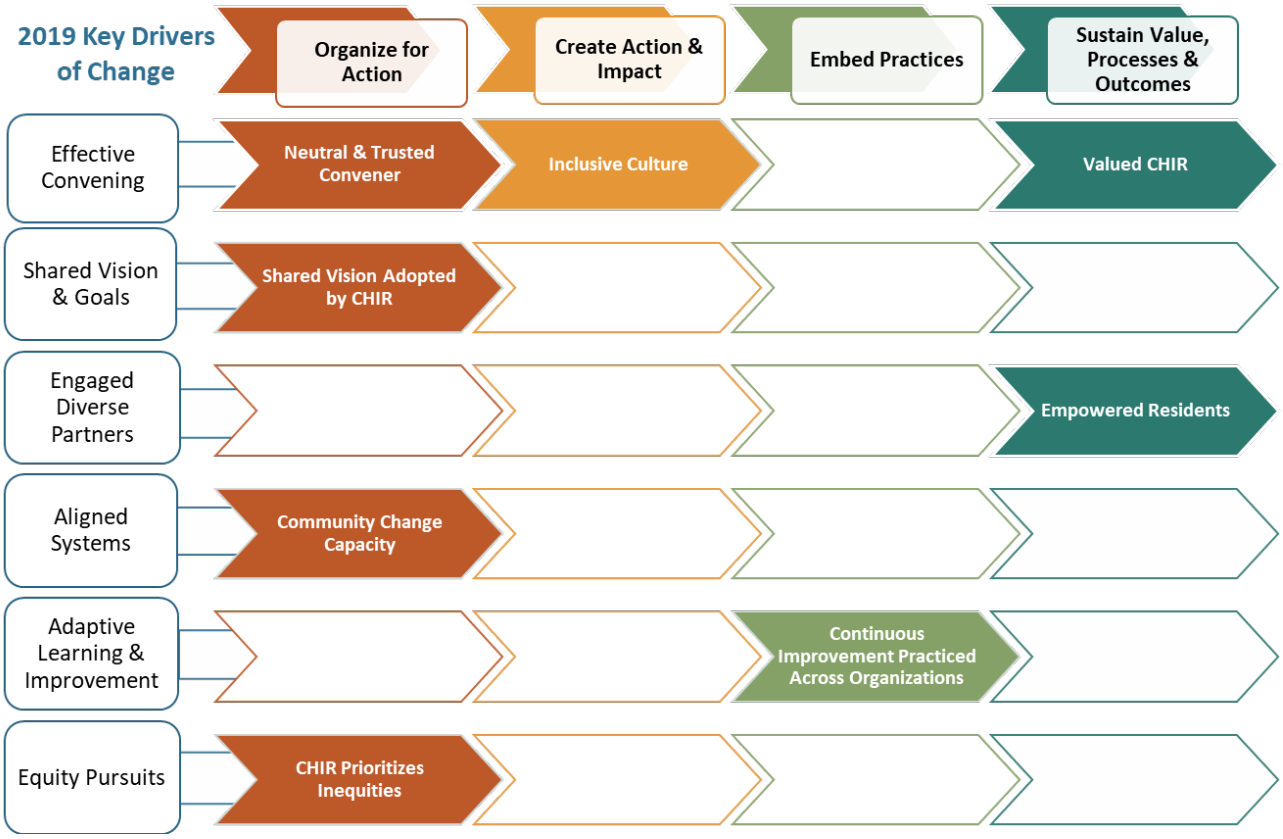
- Differential Impacts on CHIR Outcomes. Overall, the multilevel, multivariate results suggests that changes in CHIR characteristics impact CHIR outcomes differently: they have the **most effect on changes**

in organizational benefits and the **least effects on change in access to services**. When CHIR operations became more effective (e.g., better convening, stronger integration of the shared vision), these improved operations seem to have a powerful impact on the direct benefits derived by participating organizations. This finding is not surprising, as CHIR operations create the context through which organizations can meaningfully gain the resources, information and relationships needed to improve their effectiveness. The low impact on access to services is also not surprising, as larger contextual forces (at the community, state, and federal level) constrain access to local resources (e.g., availability of affordable housing). Until CHIR tackles these forces directly – through advocacy, policy change, or engagement of other sectors such as city officials) – no matter how effective CHIR operations become, it is likely that only little improvement will happen in this outcome area.

- Resident Empowerment and Continuous Improvement Emerged as "Killer Variables". In a *multivariate* environment, an independent variable simultaneously important to all dependent variables can be claimed as (truly) universally critical (i.e., a "killer" variable). No such a claim can be made if an independent variable is significant across dependent variables in multiple *univariate* analyses (i.e., one for each dependent variable). Two variables – Resident Empowerment and Continuous Improvement Practiced in Organizations – emerged as killer variables. Growth in both variables strongly predicted growth in all six outcome variables.
- Other CHIR Characteristics also emerged as Key Levers of Change. Six other CHIR Characteristics – Trusted, Effective Convener, Inclusive Environment, Valued CHIR, Shared Vision Adopted, Community Change Capacity, and CHIR Prioritizes Inequities – also emerged as strong predictors of changes in multiple outcomes. Growth in each of these factors predicted significant growth in four of the six outcome variables. Growth in all other measures of CHIR characteristics – except the two described below – predicted growth in two or three outcomes
- Limited Impact of Some CHIR Characteristics. Growth in two measures of CHIR characteristics did not have any effects on any measure of changes in outcomes: Effective communication and Culture of Equity embedded within local organizations. One explanation for these findings is the relatively low levels of changes that happened in these characteristics between 2018 and 2019

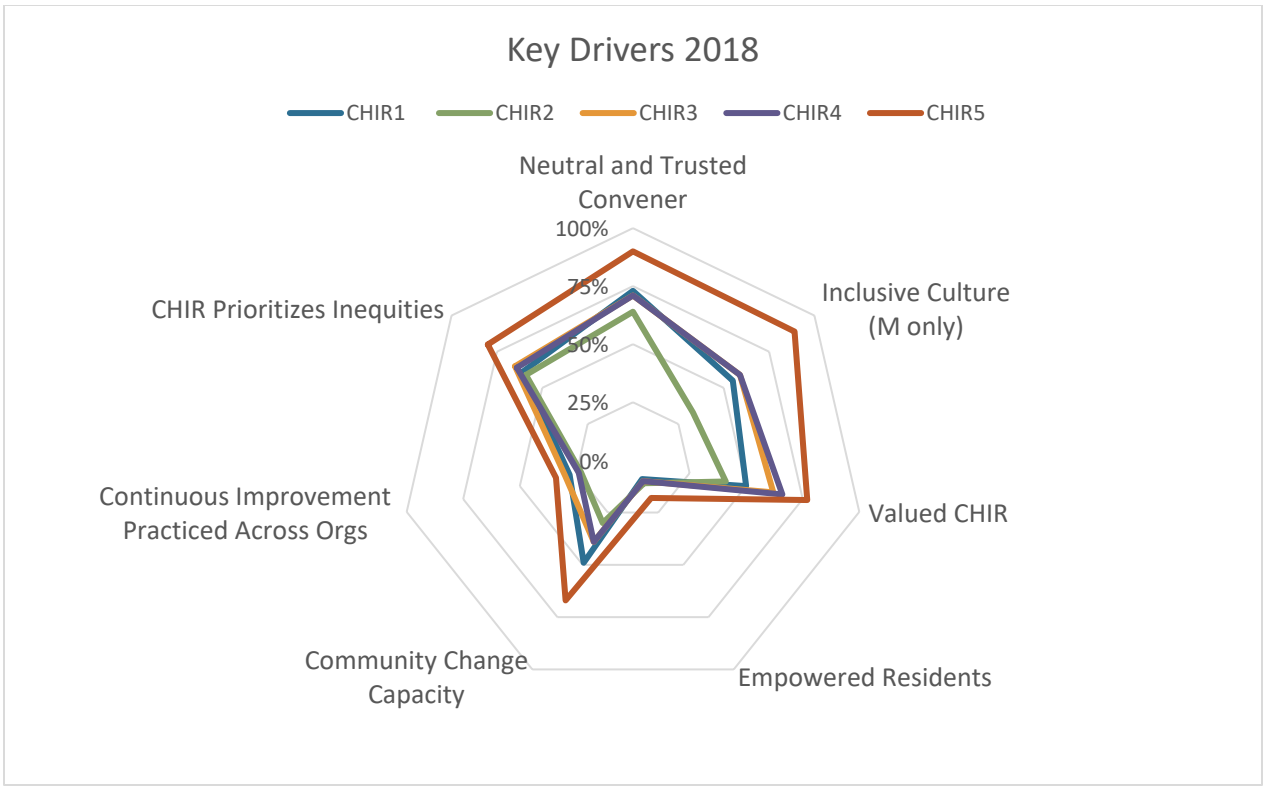
The figure below illustrates the 2019 key drivers of change identified in this HLM analysis. Note that each of these drivers impacted at least 4 of the six outcomes measured.

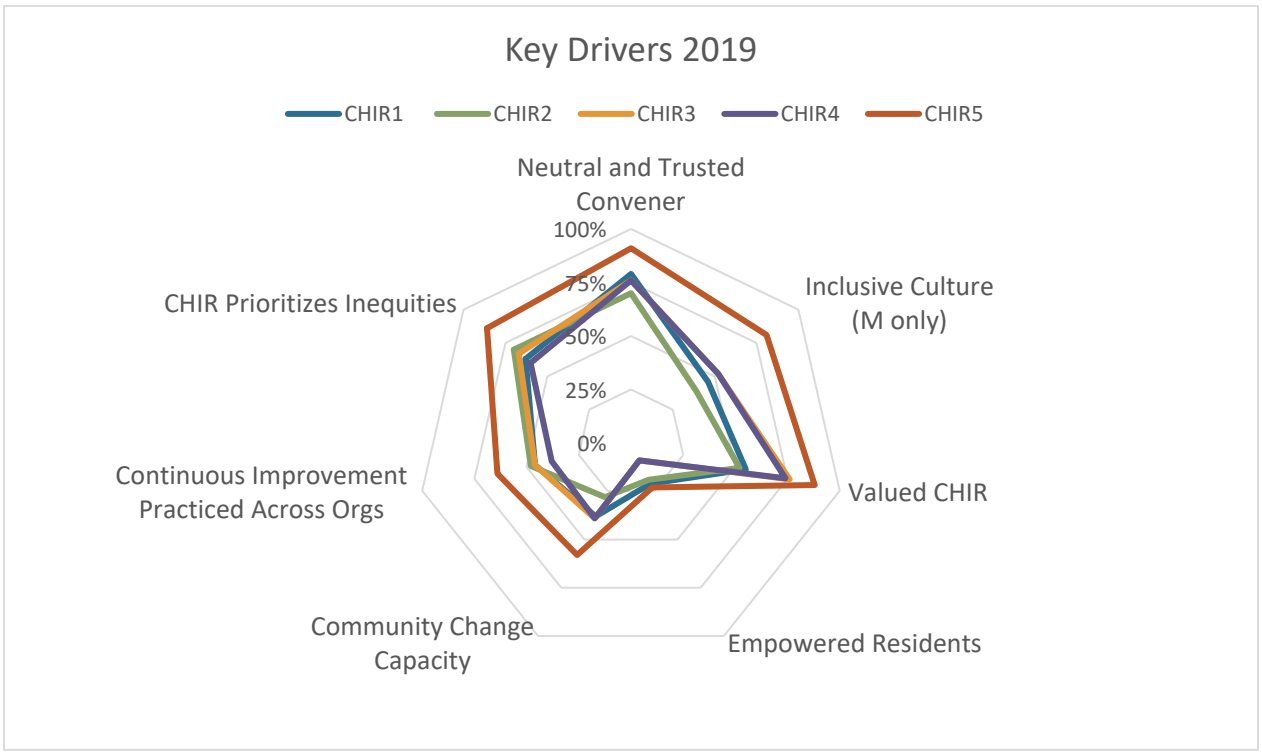
2019 Key Drivers of Change



Similarities and Differences Across CHIRs in the Key Drivers of Change

The following two figures provide radar maps of the 2018 and 2019 key drivers for each CHIR. As these graphs illustrate, while there is variability in the CHIRs in the degree to which the driver is operational within their CHIR, the patterns across the drivers are similar for all CHIRS. For example, in 2018, Empowered Residents was the weakest lever across all CHIRS while a neutral, trusted convener was the strongest. Similar patterns emerged in 2019. Overall, these radar maps provide insight into areas of strength across the CHIRs and areas for continued growth as the work moves forward. These findings are explored more in the sections below. See Appendix B for a description of the ratings for each CHIR in each driver for change area.


Key Drivers 2018
CHIR1
CHIR2
CHIR3
CHIR4
CHIR5
Neutral and Trusted Convener
100%
75%
50%
25%
0%
Inclusive Culture (M only)
Valued CHIR
Empowered Residents
Community Change Capacity
Continuous Improvement Practiced Across Orgs
CHIR Prioritizes Inequities


Key Drivers 2019
CHIR1
CHIR2
CHIR3
CHIR4
CHIR5
Neutral and Trusted Convener
100%
75%
50%
25%
0%
Inclusive Culture (M only)
Valued CHIR
Empowered Residents
Community Change Capacity
Continuous Improvement Practiced Across Orgs
CHIR Prioritizes Inequities

Effective Convening

*We all have our day jobs, and **if we don't have someone keeping us organized and on task and accountable, then the work just isn't going to get done…**So I think both of those things are instrumental.*

-Social Sector, Stakeholder

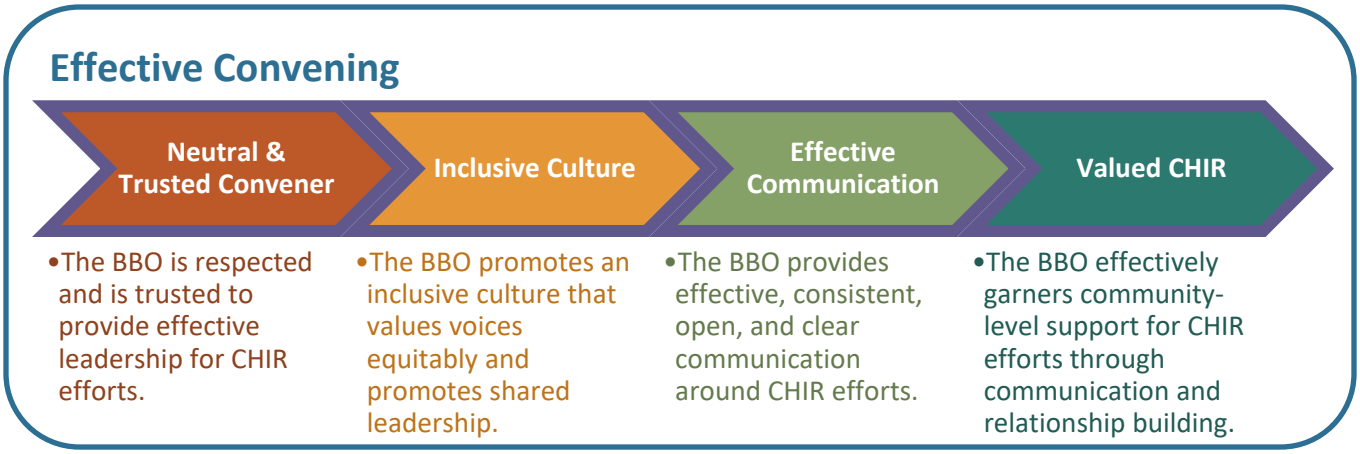
*Any question that I have, [the BBO] can answer or they can put me in contact with someone who can answer the question. I think that the work would be impossible without having a dedicated group of people who are making things happen and making sure that everything kind of stays on schedule and on target. **Honestly I can't imagine it working without them**.*

-Health Sector, Member

Effective convening includes the key backbone (BBO) functions of the CHIR and the perceptions of the backbone staff as effective, trusted conveners. Simply put, collaborative synergy and sustained health and community system transformation are more likely when collective efforts are supported by key backbone staff who set the overall direction, provide convening support, and integrate and align actions across stakeholders. (Butterfoss, 2007; Siegel, Erickson, Milstein, & Pritchard, 2018). When these supports are absent or inadequate, collaborative efforts are highly likely to fail (Kania and Kramer, 2011).

CHIR evaluation findings strongly support the importance of effective convening and a capable, trusted BBO. In 2018 and 2019 survey analysis, effective convening emerged as a key lever for change and interview informants highlighted the critical role the BBO played in facilitating the work. Without a doubt, CHIRs owe much of their early success to their backbone staff. When the backbone staff was effective and trusted, CHIRs accomplished more; when they were not, CHIRs struggled to mobilize local stakeholders and implement their CHIR strategies.

Through literature reviews as well as input from state and local CHIR stakeholders, four components of Effective Convening were identified and examined in this evaluation:



We discuss in more detail below the four Effective Convening elements that were identified as key levers for change in 2018 and 2019. Additional details on all survey findings can be found in Appendix 1. The recommendations section offers ideas for enhancing the convening capacities of the CHIRs moving forward.

Neutral & Trusted Convener

CHIR evaluation findings align with what researchers and evaluators have found in other collective impact efforts: BBO staff who are trusted and have the interpersonal and organizational skills to facilitate the collaborative process can improve coalition functioning and make collaborative synergy more likely (Butterfoss, 2007; Hargreaves, White, & Pecora, 2017).

In 2018, many informants highlighted how the backbone staff played a foundational role in convening stakeholders, promoting collaboration, supporting effective implementation, and organizing diverse actors around collective goals. Informants noted that key to their local success was the ability of the BBO to **effectively convene and facilitate cross-sector meetings, as well as to provide coordination and implementation support that moved the work forward.**

BBO staff effectively facilitated cross-sector meetings

- *[T]he main value is having the facilitator because we're a lot of strong, loyal, opinionated people around that table.* ***It's good to keep us all on track.*** -Health Sector, Member

- *[The BBO personnel]* ***inspire creative thinking*** *when it comes to different challenges that people are facing when coming up with an approach to something. They know what questions to ask to get people thinking and talking creatively about a solution to something. They are really great at facilitating open conversations and keeping people:* ***a) on track; b) looking at all of the different angles of things****.*
  -Health Sector, Member

BBO staff provided the coordination and support needed to move the work forward

- *They're there to be the guide on the side and bring conversations back* ***and make sure work is being done and action steps are taken*** *and followed through on and that kind of thing.*
  -Health Sector, Member

- *I think [the BBO] is what has made this so successful. It is having* ***one organization that's really driving things, taking the minutes, the action items, and following up*** *when things are overdue. I think by having a neutral party, it makes it much easier for organizations from 2 sides of the aisle to come together.* -Health Sector, Partner

- *The BBO staff are a constant and they know everything that's going on. They have the* ***institutional memory so they can make sure that all the right information is being disseminated.*** *They do a fair*

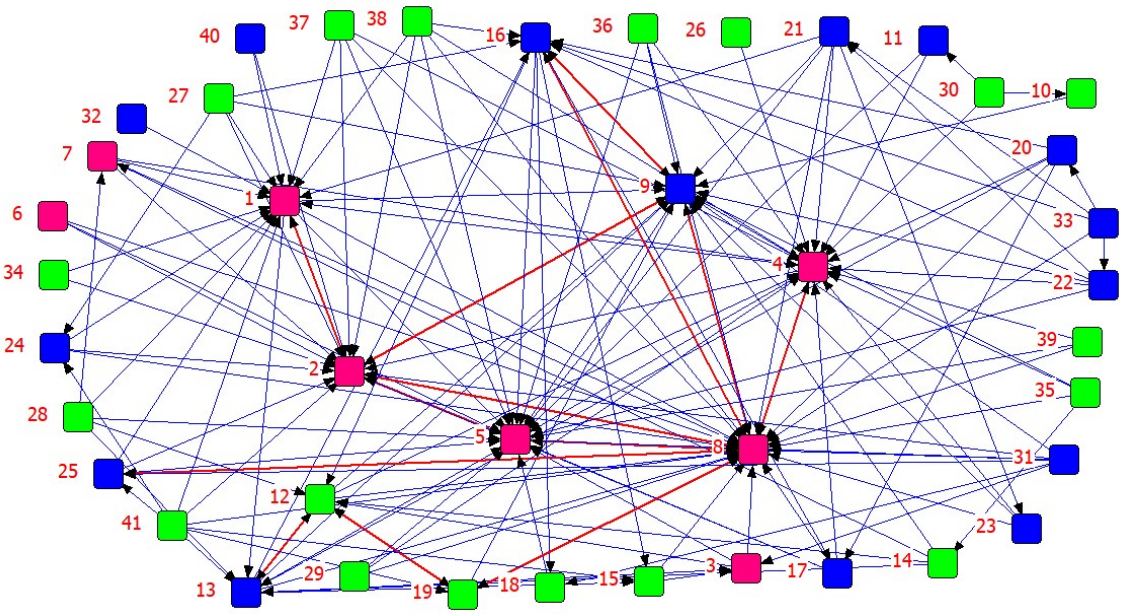
amount of data collection in the background, that's kind of invisible to us, to make sure that the everyone gets the referrals that they need… Double-checking that things are working correctly. My understanding is that is all BBO work. -Health Sector, Member

BBO Staff are Central to the CHIR Leadership Advice Network

The importance of the BBO staff in supporting CHIR work is highlighted in the advice network analysis conducted with 2018 survey data. CHIR steering committee members were asked to imagine that they were confronted with a CHIR-related problem, which they could not find a solution for themselves. They were asked to list up to 8 individuals on the steering committee they would go to for advice.

Across all CHIRs, the BBO staff were the most likely to be nominated as a source of advice. Below is one illustration of an advice network from one CHIR. The advice networks for the other CHIRs were similar: BBO staff were centrally located within each network, as they received the most nominations (indicated by a line), and thus had the highest in-degree centrality scores, followed by health sector representatives.

Figure: CHIR 3 Steering Committee Advice Network



Pink = BBO staff; Blue = Health Service Sector; Green = Social Services Sector

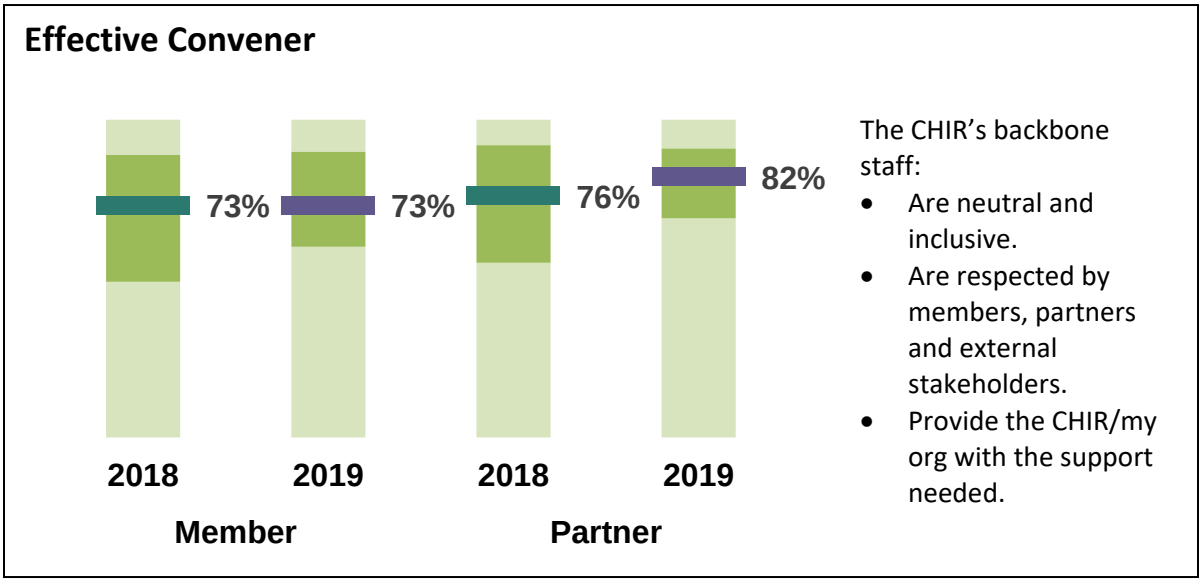
Importantly, the extent to which the BBO was integrated into the steering committee advice network was strongly associated with the overall perceived effectiveness of the BBO. More effective BBOs were perceived as a greater resource for the CHIR, as they were rated as more central to the CHIR's advice network. The table below illustrates these findings. The % scores reflect the % of CHIR members describing the BBO as an effective convener. The other scores reflect the in-degree centrality scores for each role within the CHIR. Higher in-degree

centrality scores indicate that more steering committee members nominated individuals with that role as a key advice giver.

BBO as Effective Convener	CHIR 1	CHIR 2	CHIR 3	CHIR 4	CHIR 5
% members reporting that BBO is an effective convener	68%	49%	76%	83%	89%
BBO staff	.32	.14	.33	.23	.81
Health Sector	.14	.28	.07	.07	.18
Social Services Sector	.12	.11	.02	.01	.33

The Effectiveness BBO Convening Varied Across CHIRs

As the above table illustrates, significant variation in BBO convening effectiveness emerged across the CHIRs in 2018. The implications of this variation had visible impacts on CHIR performance. The CHIR with the least effective BBO, according to member and partner survey and interview data, was the most behind in implementing its screening and referral process and struggled to effectively engage critical partners in the work. By 2019 the variation in BBO effectiveness had diminished, mostly due to concerted efforts to strengthen BBO functioning and to ensure staff with the needed capacities were placed in appropriate roles.



Improvements in BBO Effectiveness Promotes Growth in CHIR Outcomes

Analysis of the growth in CHIR outcomes and CHIR characteristics between 2018 and 2019 indicates that improvements in BBO effectiveness are strongly related to growth in CHIR outcomes. This finding highlights the importance of continued investment in growing BBO capacities.

Warning: BBOs Can Become Too Effective

While an effective, trusted BBO is critical to CHIR success, informants did highlight one cautionary note: **an effective BBO can erode the need for other partners at the table to lead actions.** In fact, some informants noted that moving forward, the BBOs may need to step back to promote more distributive leadership:

> *The BBO doesn't have their eggs in a particular basket. They're a neutral Switzerland. I think that's really critical. I think the challenge for our [very effective BBO] is that because they are the conveners, it's very difficult for them to get to the organizations around the table to take on increasing levels of responsibility or ownership in some of the work.* ***I think that they're struggling with how to move the work forward without taking on the responsibility of doing everything.*** -Health Sector, Member

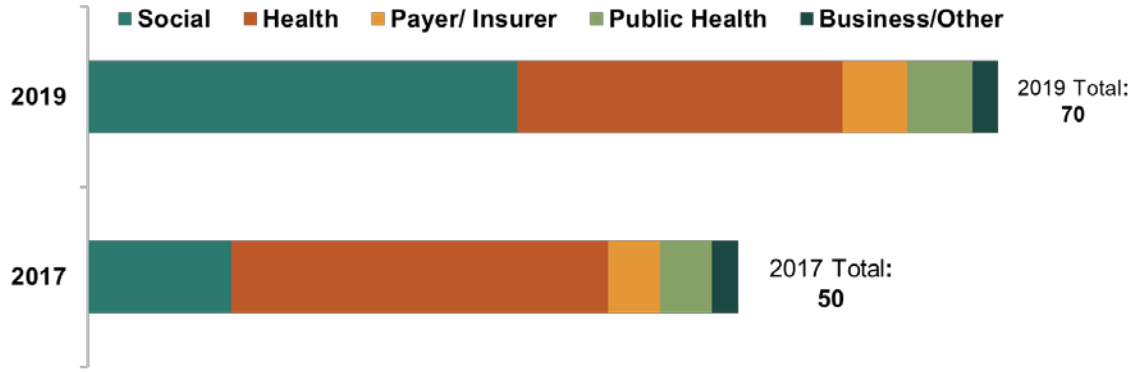
> *The backbone team can't facilitate everything. They can't do all the work…* ***I think sometimes we are allowing the backbone team to do too much of the work.*** -Health Sector, Member

Inclusive Culture

Given their cross-sector focus, CHIRs engage stakeholders who vary significantly in their perspective, role, and power-base within the community. For the CHIR to effectively benefit from this diversity, BBO staff and CHIR leadership need to create an inclusive culture where every participant believes their voice and perspective are valued, their talents are leveraged, and inclusive decision-making processes occur. When collective efforts like the CHIR are able to create an inclusive climate, they are better able to leverage commitments to the cause, generate resources, and align actions (Allen, Javdani, Lehrner, & Walden, 2012). Inclusive cultures also increase member satisfaction and participation (e.g., Metzger, Alexander, & Weiner, 2005).

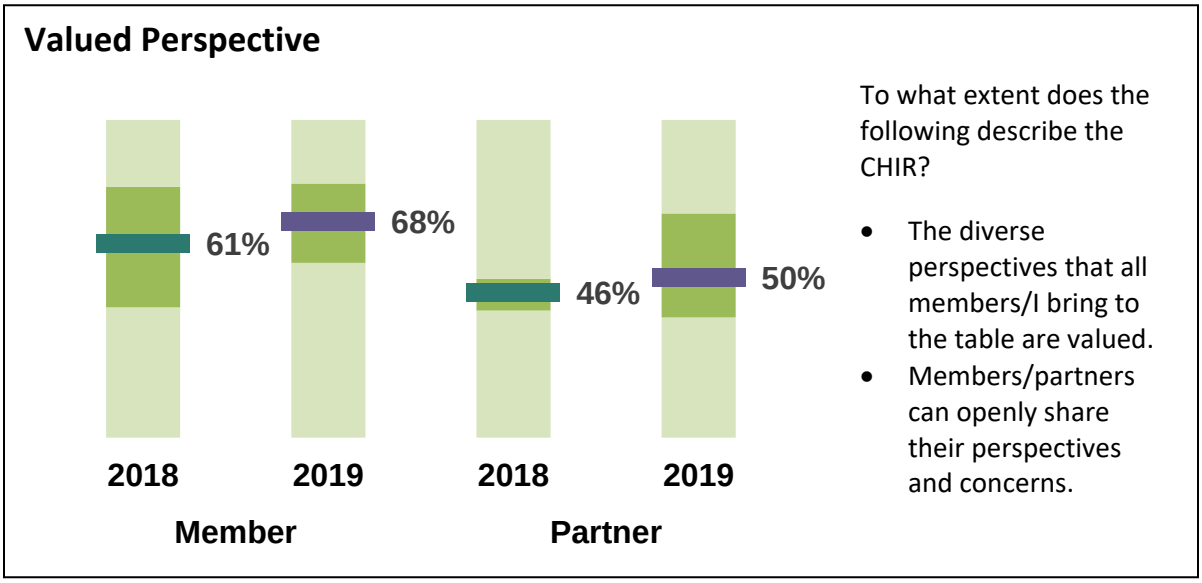
Member reports of their committee compositions and the analysis of committee membership lists indicate that in 2018 most CHIRs did not have committees or workgroups that were representative of the sector or racial diversity within their region, though most did significantly expand their representativeness by 2019. See next figure for an example.

Sample CHIR Member and Partner Representation



Significant variation across CHIRs in their ability to develop an inclusive culture

CHIRs varied considerably in their ability to develop an inclusive culture, particularly in 2018. These differences were associated with perceptions of the effectiveness of both the BBO and the CHIR, with more effective BBOs promoting more inclusive cultures and more inclusive cultures related to reports of greater CHIR effectiveness.



Members were more likely to report that their voice and perspectives were included than Partners

In both 2018 and in 2019, members were significantly more likely than partners to report that their voice and perspective mattered.

I came into the equation about a year and a half ago with little knowledge of the healthcare system, and ***there's a big learning curve there before you're able to really engage in some of the decision conversations****… I think an increased focus on sort of an orientation process would be really helpful.* -Partner, Social Sector

Health Sector Representatives were more likely to report that their voice and perspective matter

While some members/partners reported that their CHIR valued diverse perspectives, noting that they could "speak up" and that "everybody's voice is heard," significant sector differences emerged. Health sector representatives reported significantly higher levels of an inclusive culture than their social sector counterparts. The in-degree centrality scores included in the table called BBO as "Effective Convener" above also demonstrate that social service representatives were far less likely to be viewed as sources of information/advice about the CHIR than health sector representatives in all CHIRs except CHIR 5.

These differences appear to be related to both the overrepresentation of the health sector in initial committee formations and the power discrepancies across these sectors, with Health sector representatives often representing larger, more resourced institutions than most community service agency nonprofits. As some informants noted, these dynamics created a space where when certain power brokers spoke, "others listened," and exclusive health sector jargon sometimes dominated the conversations.

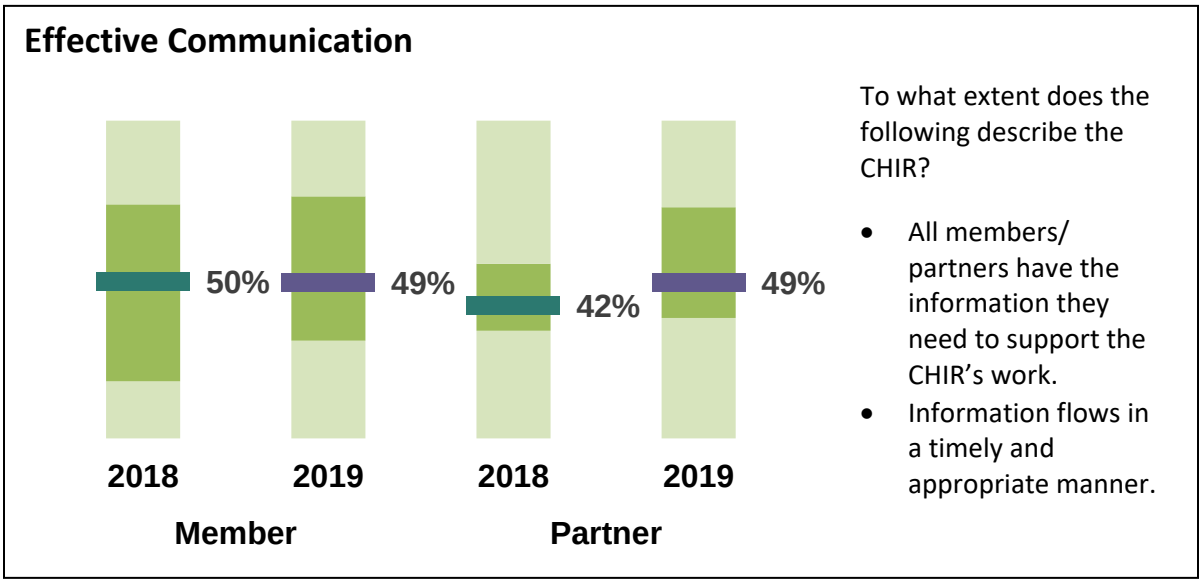
Improvements in Inclusive Culture Associated with Growth in CHIR Outcomes

Importantly, the extent to which CHIRs improved the inclusiveness of their culture was significantly related to growth in outcomes between 2018 and 2019. Since 2019 levels of inclusiveness remained relatively low for some CHIRs (for example, in one CHIR only 38% of partners reported that the CHIR had an inclusive culture in 2019), it seems important to continue to grow this area moving forward. The recommendations section at the end of this report identifies several processes that informants suggested CHIRs put into place to promote a more inclusive environment.

Effective Communication

Effectively communicating information to CHIR members, partners, and the broader community at large is critical to mobilizing aligned actions in support of CHIR efforts. Consistent and open communication builds trust, assures mutual objectives, and creates common motivation (Ostrom, 2010); open communication also supports the adoption and integration of the shared vision (Farmer, et al., 1998). In 2018, effective communication emerged as a key lever for change, as it was strongly associated with perceptions of CHIR effectiveness. Yet, effective communication was rated the lowest of all of the convening factors. Only 46% of members/partners across the CHIRs reported that they have the information they need to be informed and actively support the

CHIR's work and that information flows in a timely manner. In 2019, effective communication remained low, with only 49% of members and partners reporting that CHIR communication was effective.



Backbone staff and interview data with members and partners identified several challenges to effective communication across the CHIRs:

- Other BBO tasks and responsibilities compete with communication activities. While members and partners note that they would like to have more frequent updates between meetings, some BBOs struggle to find the time to do this communication on a regular basis.
- While organizational leaders could play an important communication role, most CHIRs have not provided these individuals with the scripts and content needed to effectively serve as communication ambassadors. In addition, many leaders struggle to determine what specific CHIR information to relay to their busy staff.
- Some CHIRs have multiple communication venues (e.g., websites, newsletters, email blasts, Basecamp). However, some members and partners remain confused as to which venue provides what information.
- The CHIR purpose and work is complex; this complexity has created communication challenges for the BBO staff. Specifically, several CHIRs still do not have an effective communication campaign in place that includes easy to use descriptions of the CHIR purpose and work. BBO staff themselves are not necessarily skilled at developing these materials.

What is certain is that the BBO staff themselves play a significant role in the communications network. Network analysis of the closeness scores derived from the advice network data provided in the 2018 survey (Freeman's closeness centrality was calculated) suggest that across all CHIRs, except CHIR 2, BBO staff are best positioned to influence the CHIR network given their position with the network to spread information.

Closeness scores are based upon a node's closeness to all other nodes with the network. The shorter the paths are to all other nodes, the higher the closeness scores. Shorter paths indicate that a node (individual) is best positioned to quickly influence the entire network.

	CHIR 1	CHIR 2	CHIR 3	CHIR 4	CHIR 5
% members reporting that BBO is an effective convener	68%	49%	76%	83%	89%
BBO staff	.50	.24	.50	.41	.85
Health Sector	.42	.41	.24	.28	.44
Social Services Sector	.42	.25	.22	.17	.57

Valued CHIR

Key to the sustainability of CHIR efforts is the extent to which the CHIR is viewed as a valuable entity/initiative by diverse leaders and staff across the region. The more the CHIR builds its credibility as an effective entity within the region, the better positioned it is to leverage resource and sustain stakeholder commitment (Calancie, Allen, Weiner, Ng., Ward, & Ammerman, 2017).

The CHIRS are creating a collaborative context for change

Some informants noted that one of the key contributions of the CHIR is that they have created a new form of collaboration within their community across cross-sector partners. This collaborative synergy is creating a new context for other change efforts:

> *The CHIR brings an infrastructure for community change. I don't know if it would've been successful if we just had gotten the homelessness folks together with the hospital and the care managers without that team to help drive the work in between and really manage it well. They're really good groups. They have really driven professionals that might've been fine. But I've sat on lots of [committees] that don't go that well… Whenever we take on projects like this, usually its people that haven't worked together before.* ***Giving them that structure: where change is expected, where it happens and everybody comes to the table ready to make those changes. [That] was really helpful, a key to success.*** -Member, Health Sector

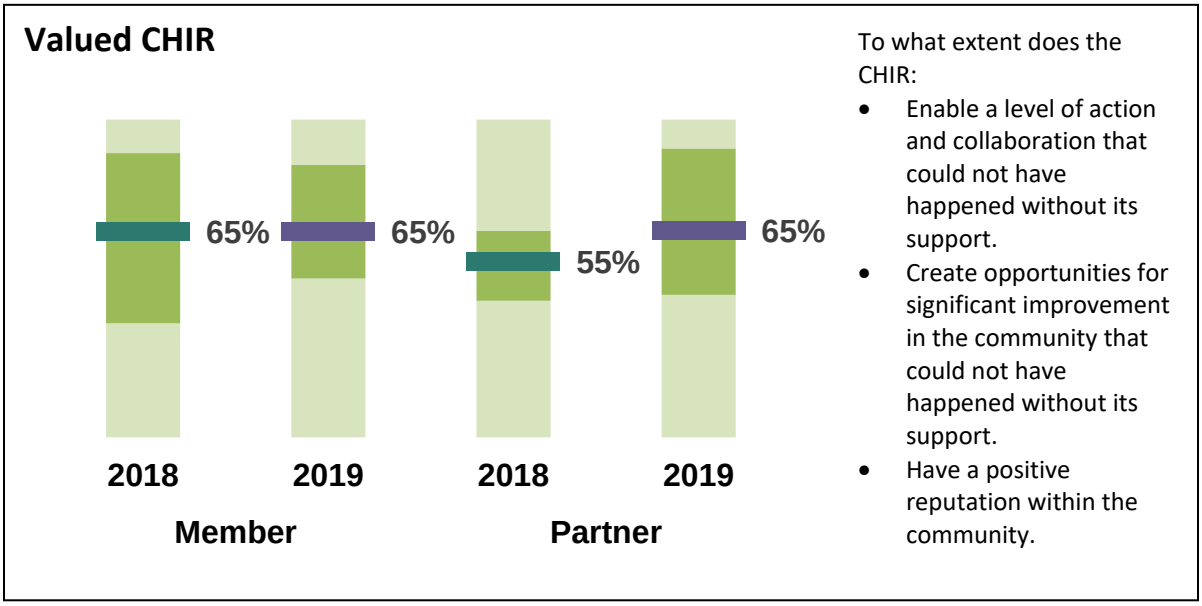
Significant variation across CHIRs in their perceived value

As the graph illustrates below, CHIRs varied significantly in their perceived value. However, two important dynamics within CHIRs are obscured by these graphs. First, is the positive transformation experienced by CHIR 2

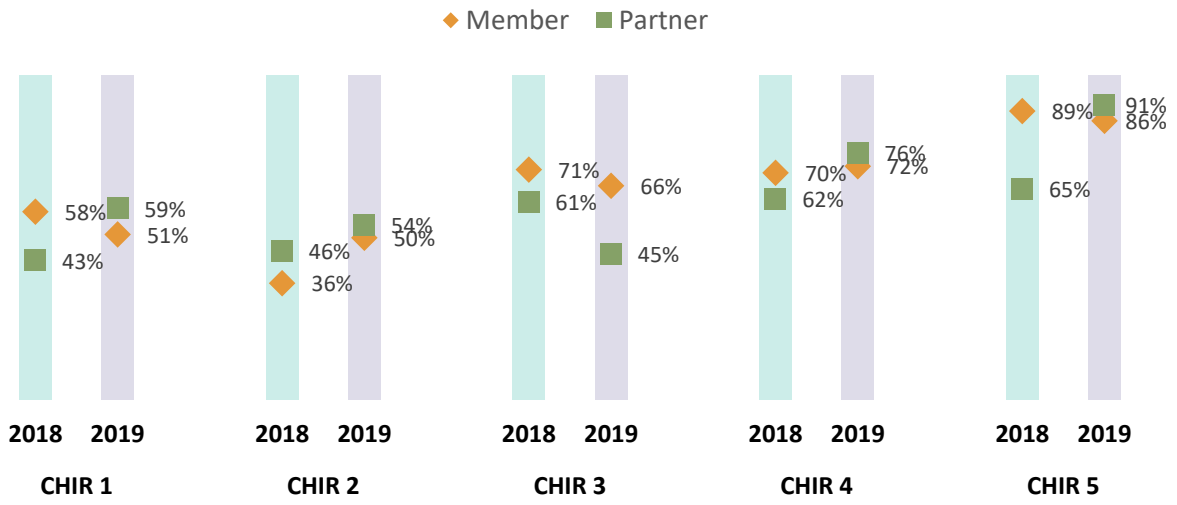
between 2018 and 2019. In 2018, CHIR 2 emerged as the CHIR with the lowest ratings, with only 36% of its members rating the CHIR as having a positive value within the community. However, by 2019, 50% of the CHIR members reported that CHIR 2 was a valued entity within the region. Many informants attributed this shift to the improvements in the backbone organization and the 100 Day Challenge and Livability Lab, which provided hundreds of diverse stakeholders significant opportunities for meaningful cross-sector engagement. These efforts are described in more detail in the Engage Diverse Stakeholders section below.

Meanwhile, CHIR 3 experienced the opposite trajectory, with both members (2018 =71%; 2019=66%) and partners (2018 =61%; 2019=45%) reporting a significant decline in CHIR value between 2018 and 2019. Informants attributed this decline to ongoing struggles the BBO experienced in moving partners to action as well as infrastructure changes announced by the BBO that made some question the viability and value of the collective effort.

Importantly, both of these case stories highlight the dynamic nature of this work and the critical role BBO effectiveness plays in collective efficacy and outcomes.



Valued CHIR: By CHIR



Differences between Members and Partners in their Perceptions of the CHIR's Value

In 2018, across the state, members were significantly more likely than partners to describe their CHIR as a valued entity. Importantly, this difference disappeared by 2019, most likely due to the increased engagement of partners in meaningful design and implementation work between 2018 and 2019.

Importantly, members and partner informants noted that while the CHIR is valued, the limited outcomes data reduces its overall perceived value:

> *We just really need that data. I understand this was a short three-year program, you had to start it from the ground up. We didn't really have too much of a baseline or anything… So I think that's going to be key.* ***Actually showing - not just through stories, but actual data on who's been affected and how many people have been affected, and what change has been made.***
>
> -Member, Health Sector

Improvements in Value of the CHIR Associated with Growth in CHIR Outcomes

Importantly, between 2018 and 2019, the extent to which the perceived value of the CHIR improved was significantly related to growth in CHIR outcomes. With 2019 levels remaining relatively low for some CHIRs (for example, in one CHIR only 45% of partners reported that the CHIR was valued), it seems important to continue to grow this area moving forward.

Shared Vision and Goals

I just feel with this CHIR there is a march, and everyone is going in the same direction, and no one is trying to piecemeal this off or that off. It's just, ***"This is the direction we're heading. How are we going to do it? Let's get it done."***

-Health Sector, Member

I am really impressed with the representatives from the different organizations readily dropping their own darts and saying, ***"As a region, how might we do this better?" [Because of our mapping sessions], we have a shared vision of where we want to go.***

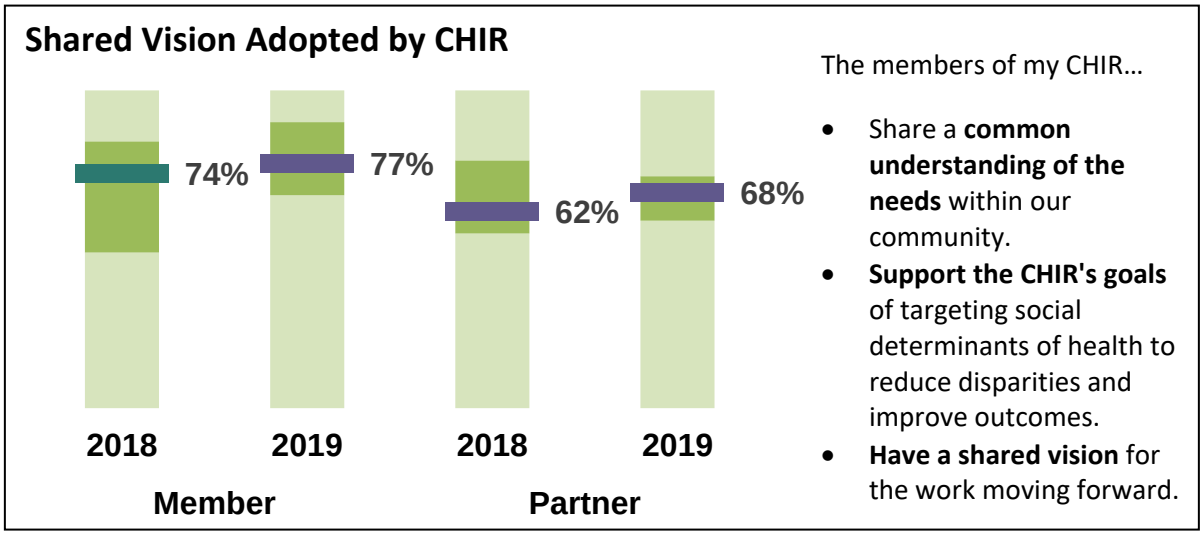
-Health Sector, Member

Effective collaborative and collective impact efforts develop and implement a shared vision that guides collective work and promotes aligned actions. A shared vision describes what success would look like, and for whom. Shared visions help align individual, organizational, and collective behavior; they serve as a guidepost for diverse stakeholders, defining how local work or priorities fit with and can contribute to bringing about this ideal reality. Across numerous studies and communities, a shared vision has been one of the strongest predictors of collaborative success (e.g., Hargreaves, et al., 2017). Importantly, the more this shared vision becomes embedded throughout the community, the greater potential for impact.

The below framework identifies the four elements of a shared vision targeted in this evaluation. Two of these elements – Shared Vision Adopted by CHIR and Shared Vision Embedded across Community – emerged as key levers in the evaluation. These two elements are discussed in more detail below. See Appendix 1 for more information about the shared vision data.

Shared Vision Adopted by CHIR

The extent to which a shared vision was adopted by the CHIR was a critical lever for change in both 2018 and 2019. The degree to which members reported that the other members of their CHIR shared a common understanding of community needs, supported the CHIRS goals, and had a shared vision for the work significantly predicted perceived levels of CHIR effectiveness in 2018. The extent to which the levels of shared vision grew between 2018 and 2019 was also related to the growth in outcomes between 2018 and 2019.



Key informant interview data supported these survey findings. Respondents noted that the CHIR has created an intentional space for local organizations to pursue common goals:

> *…I had never been involved in this kind of work, I had never been in a region of a state where all of the **different representatives were pointing in the same space and saying, "Here's where we want to go."** I thought that was super cool.* -Health Sector, Member

Warning: Even though the CHIRs are promoting a belief in the possibility of change, a daunting task lies ahead

Critical to the common vision is the belief in the possibility of change. Informants noted that leaders and staff across the region are believing that change is possible through the collective effort:

> *I think what drives us is that everyone who is involved with this [the SIM Project], and there are a good number of people, really feel and believe that working together we are going to be able to make a difference.* -Health Sector, Member

However, some members and partners voice concern about the daunting tasks embedded within the CHIR vision: shifting the community conditions that give rise to local inequities such as poverty and a lack of affordable housing. It is particularly worth noting that reported readiness levels dropped for partners between 2018 and 2019. For example, in 2018, 62% of partners reported they believed they could improve the SDOH conditions within their community; in 2019 only 41% of partners reported this belief. Meanwhile, members' readiness levels remained relatively stable for this item at 55%. Moving forward, the CHIRs may want to pay attention to how to grow local readiness and capacity to tackle the SDOHs at the community levels, such as communicating small wins and seeking training and TA to increase skills related to implementing effective change strategies.

Shared Vision Embedded Across Community

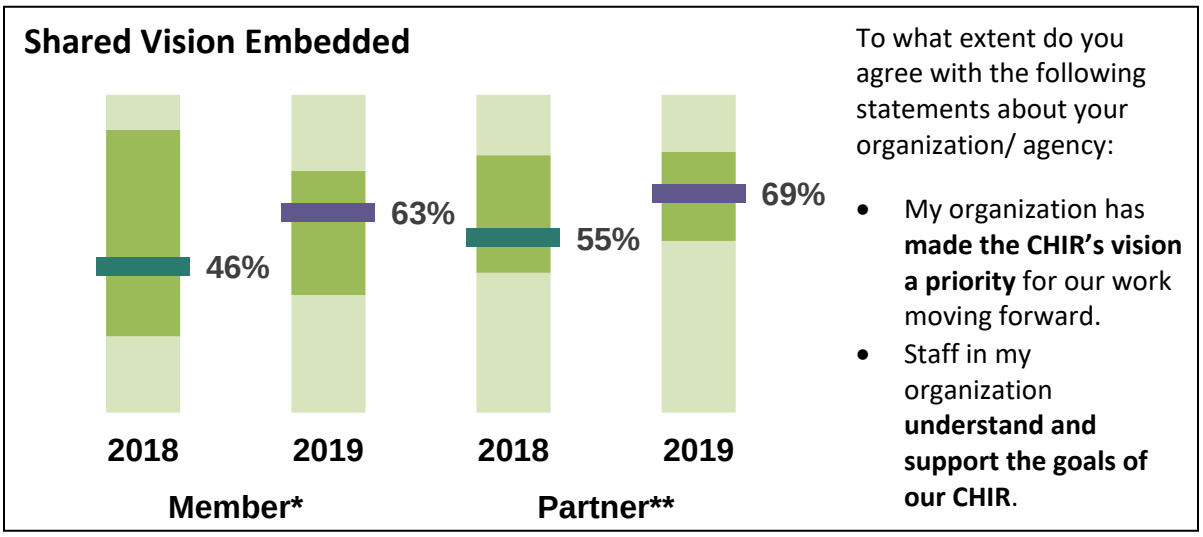
Shared visions within the collective space are only powerful tools for collective action if they actually guide the work within local organizations. In 2018, the degree to which partners and members reported that the CHIR's vision was a priority for their organization and that staff within their organization understood and supported the CHIR's goals emerged as a key lever for change. The more the shared vision was embedded within local organizations, the greater the reports of CHIR effectiveness. However, overall levels of the adoption of the CHIR's vision into local organizations were relatively low in 2018, with only 46% of CHIR members reporting they had integrated the vision into their own organization (as compared to 55% of partners). Importantly, health-focused organizational representatives were significantly more likely to report integrating the vision into their organization than service sector representatives in 2018. Some informants noted that this integration is challenging, in part, due to the complexity of the work and the capacity of local organizations:

> *I don't necessarily see how the [CHIR] work is being integrated into the mission and vision of other agencies, and then being accountable to it... Most often, it's not happening.* ***For some agencies, they just don't have the manpower to integrate some of the big ticket or big picture items****.* -Health Sector

CHIRs experienced significant increases in the integration of the CHIR's vision into local work

By 2019, both members (63%) and partners (68%) described significantly more integration of the CHIR's vision into their own organization, with three of the five CHIRs experiencing statistically significant increases in this factor. The differences between health and social sector organizations found in 2018 disappeared by 2019, suggesting that both sectors were now engaged in integrating the vision into their organizations. BBO staff reported they placed an increased focus on promoting the adoption of the CHIR's vision into local organizations, which may explain this increase. As one leader explained:

> *It was **important to really educate our staff** about what was happening and what it was, what **our connection was to the process**, and **why you should use it**.* -Social Sector, Partner



Misalignments between the PCMH-SIM and CHIR efforts impeded vision adoption and integration

It is important to note that the misalignment at the state level between the PCMH SIM efforts and the CHIR SIM efforts created challenges at the local level around uniting stakeholders around a shared vision. Informants in 2018 noted that different messages and outcomes were communicated by both efforts at the state levels and these misalignments created significant challenges in developing common ground and coordinating shared work. As one Health Sector leader noted – who was engaged in both SIM elements:

> *There's the PCMH SIM project at the State, and then there's the CHIR part of the project, and even how they're measuring us is different. **They don't talk to each other often.** So, often we're asking to have somebody from the PCMH side and the SIM side… or the CHIR side talk to each other because it's imperative that we work together, and when what we're being measured against doesn't align, it's very challenging to get us moving forward.* -Health Sector, Member

Engaged Diverse Partners

I just think about the people in the room, and the real expertise that they have *in terms of how physician offices work, how community health departments and hospitals work, how health departments work, and what resources each of those partners can collectively bring to bear.* ***There's a lot of strength in our CHIR.***

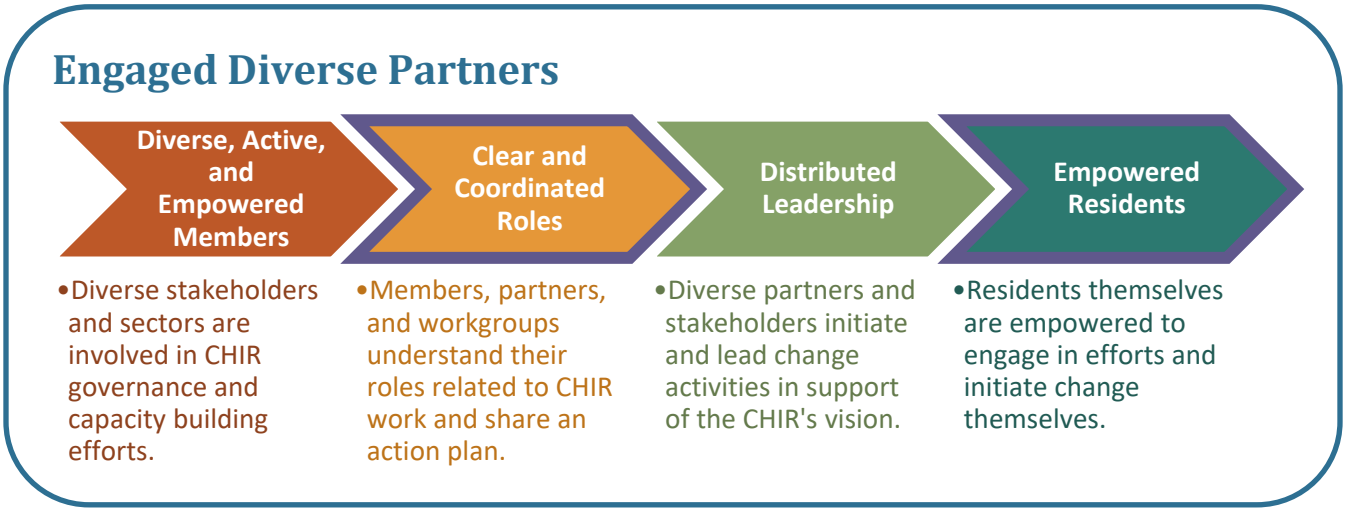
-Social Sector, Member

I was really personally motivated by who was around *…locally on a county level, and then seeing who else was there on a regional level, knowing that it was important and there was buy-in from higher up at the State.*

-Social Sector, Partner

In a cross-sector collective impact effort, the effective engagement of diverse partners is critical to success. Diverse sectors and stakeholders hold unique perspectives on the community system, its problems and possible solutions. Diverse stakeholders also hold different resources, leveraging power and influence in different spheres. To effectively leverage these differences, effective change efforts engage diverse stakeholders– including constituents – in understanding, designing, implementing, learning and decision-making processes. Overall, effective change efforts work to promote shared leadership within the collective effort while supporting stakeholders to become empowered change agents within their own sphere of influence.

Four elements within Engaged and Diverse Partners were targeted in the CHIR evaluation. **Two of these elements – Clear and Coordinated Roles and Empowered Residents – emerged as key levers of change.** These elements are discussed below. See Appendix 1 for more findings related to engaged and diverse partners.



As mentioned above, the CHIRs did not initially draw an inclusive boundary around CHIR membership. Analysis of CHIR membership in 2017 and 2018 highlighted the dominance of health sector representatives in CHIR committees. In the 2018 survey, only 24% of CHIR members described their

CHIR as having diverse representatives at the table. Interview data highlighted this concern, as informants identified the absence of particular groups around the table, including private business, elected officials, city/county leadership, residents experiencing the problem, racially diverse leaders, and the implementers of CHIR strategies. By 2019, most CHIRs had expanded the engagement of more diverse sectors, though involvement of residents, businesses, elected officials, and racially diverse leaders was still lacking. The lack of authentic resident engagement in both years was concerning to many informants:

> *One of the biggest gaps is having **residents at the table regularly**. So we might get input around a particular project but we are not having residents part of either the Steering Committee or the work groups or even the action teams that are working on different social determinants. **There needs to be opportunities to involve folks on a more regular basis.*** -Social Sector, Member

> *I think ensuring that the **populations and communities that you're trying to reach through the work are represented** and have a voice at the table and an ability to provide ongoing feedback on what's working and not working…I don't feel we have quite enough.* -Health Sector, Member

In addition, while CHIRs engaged many leaders in their committees and workgroups, sometimes not having the right leaders with real decision-making authority stalled the work:

> *The CHIR does and should **feel good about the variety of people that come around when asked to provide their input.** There's some pride in the grassroots feel, that really community-driven feel good at getting resident engagement data… Sometimes there's a disconnect, though, between that and those that are in a position to actually make decisions. Sometimes there's a bridge there that has not been figured out yet.* - Social Sector, Member

Important Note: Faith-based organizations are interested in becoming more integral to the Referral Network

> *I would love for the picture to be that across Muskegon County, **people who have needs come to know that they can go to very specific churches and places** because those churches are equipped to sit at a piece of computer equipment with a telephone, with HIPAA permission to make direct linkages to real help. From what I've been told, then the follow-up loop begins and the accountability loop begins… instead of what it is now. Now, I can offer to take you down the street to [another organization], I can offer you this form to fill out, or I can help you call 2-1-1. I mean those are my options right now, and I'm not satisfied with that. **We really could broaden the capacity of all of the faith organizations in Muskegon County** to be much more helpful to people than we currently can be.* -Social Sector, Partner

> ***There's a lot of people who will go to a church for help, but sometimes the churches don't know where to send them.** They'll pray with them, which is a good thing and sometimes they're just wanting prayer, but as far as like getting them connected with other services. . . I think it would be helpful for the churches to be able to screen and refer – so they can connect people to services. We have over 300 churches in Muskegon County.* -Social Sector, Partner

Clear and Coordinated Roles

The effective engagement of diverse partners requires clarity around the roles and responsibilities different partners can take on to support the collective work (Calancie, et al., 2017). Unfortunately, it is not uncommon for collaborative efforts to struggle to define the purpose and actions of diverse actors (Siegle, 2018). CHIR evaluation findings indicate that some of the CHIRs struggled to provide clarity around roles and responsibilities related to CHIR efforts. For several of these CHIRs, the lack of clarity meant that some critical stakeholders were not as engaged in the work as needed and CHIRs struggled to get individuals other than BBO staff to lead CHIR efforts. Overall, these challenges interfered with CHIR effectiveness.

For example, in 2018, only 28% of the members in CHIR 2 felt that their CHIR had a plan that provided clear direction for all members and that they and their fellow members understood their roles and responsibilities. Informants across several CHIRs described the need for more role clarity:

> *[In meetings] there's a lot of different topics that are presented and sometimes the health plans are sitting back asking each other,* ***"What do you think they mean by that?"*** *Sometimes it's not clear what role [the BBO/SIM Leadership] want the health plans to play versus the hublet role, and there is some overlap. The best practice would be to give* ***clear expectations for all parties that are at the table.*** *Knowing what is the expectation and what the role is for each entity at each meeting would be helpful. It would ease the line of communication as well for less conflict on the calls. Not that there's conflict but, just to have a better guidance.*
>
> -Health Sector, Member

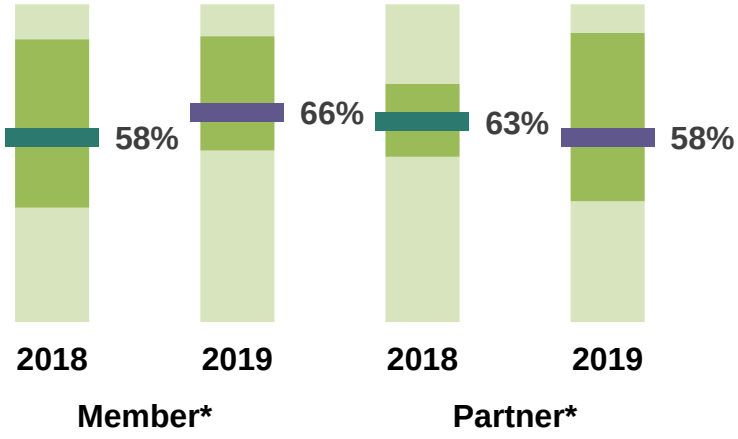
> *Something that we're probably still* ***working on*** *with our CHIR is* ***being very clear about individual roles and responsibilities, the ownership piece****. That's where a lot of times people get kind of caught up in. So however you can spell that out and make it very clear so that everybody understands either where they fit or where their agency fits. How the operation is running is important, because otherwise I think it's hard for them to really buy into it completely without clearly seeing where they fit.*
>
> -Partner, Health Sector

Overall, longitudinal survey analysis suggests that significantly more role clarity emerged for both members and partners between 2018 and 2019. For one CHIR, the use of the 100-Day Challenge process developed by Michigan State University created the structure, process, and role clarity needed to effectively engage over 150 stakeholders in 18 action teams. As one participant noted:

> *I was just very surprised in a good way about* ***how much action and communication there was after our first meeting.*** *I usually find that it's like pulling teeth to get people to do those things that they were doing, but a couple of the votes were like, bang, bang, bang. They made their invitations. They followed up on the things they needed to do….Like people really conversing and trying to make some decisions so some things happen in between meetings.* ***I was very heartened by that because I feel like that doesn't happen a lot.***
>
> -Social Sector, Partner

Of course, it is important to highlight the significant success experienced in CHIR 5 related to role clarity. Even starting in 2018, 84% of members noted that their CHIR provided a clear action plan and that members understood their roles and responsibilities. Informants from this CHIR highlighted the numerous ways the BBO staff created clarity, including using meeting agendas and planning processes to succinctly define the work and the role for each member of the CHIR. For CHIR 5, this was another factor that significantly facilitated their goal accomplishment.

Clear and Coordinated Roles



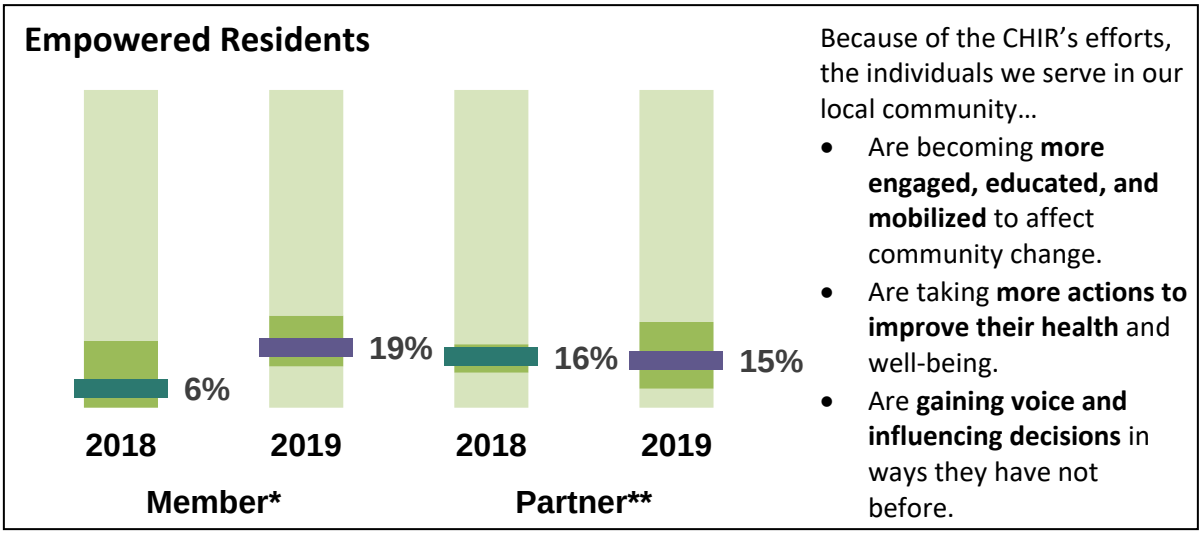
As a CHIR member/partner, I…

Understand how I can **support the CHIR's vision and goals** of addressing social determinants of health and reducing health disparities in my day-to-day work.

Empowered Residents

In many ways, an important contributing element and outcome of the CHIR's work is the development of a more empowered resident base. More empowered residents can, and should, emerge from CHIR efforts as residents become better equipped to take actions to improve their own lives. In addition, more empowered constituents should strengthen CHIR outcomes, as they have the agency to hold local organizations and the collective effort accountable to local needs and concerns (Taylor, 2008).

In 2018, none of the CHIRs had made significant headway in promoting empowered residents. Few members and partners reported that, as a result of the CHIRs efforts, residents are becoming more capable at promoting community change, taking more actions to improve their health and well-being, and are gaining voice and influencing decisions in ways they have not before. Longitudinal survey data suggests that significantly more progress was made by 2019 and this progress was even noted by stakeholders not involved in CHIR efforts. **This change was critical, as growth in empowered residents was significantly related to growth in all six CHIR outcomes between 2018 and 2019.**



Certainly, one factor impeding the empowerment of local residents is a lack of inclusion at local decision-making tables, including the CHIRs'. While many CHIRs have discussed the desire to engage residents in these ways, there is also the acknowledgment that such pursuits will significantly challenge the status quo:

> *We're all really good at organizing meetings with our colleagues and agencies and people that we do programming with. Maybe it is a little bit* ***outside of the comfort zone to figure out how we bring in community members and include them in this conversation****. Maybe it keeps getting pushed back or pushed aside because nobody really wanted to tackle it… We have some work that's really focused on it, and we have the right person in the role to lead that, somebody that's really good at that. So hopefully that can start to change and maybe develop some best practices for how to get them engaged and involved going forward.*
>
> -Partner, Health Sector

> *I would really like to hear some discussion around* ***tiered decision-making*** *and* ***community involvement****… I was a meeting of another team a couple of days ago… I was a little disappointed because a lot of people couldn't come because of time. But when a suggestion was made that* ***if we wanted to include the people that are really affected by this issue, we might have to look at not making it super inconvenient****. What if we met at 5:30 so you could just get some other people? Some of the folks, their organizations were most key to being there, were like, "If we meet then, I'm out. I'm done. I'm not coming." …****Your organization would completely opt out if you had to - 4 times a year - send one person to a meeting that started at 5:30? That is incredible to me, and it made me a little depressed****.*
>
> *-Social Sector, Partner*

> *[In the] work I do on other initiatives in the community, I see how much we either ignore or tokenize or community members. There's no way we can ever achieve any kind of equity if we have the same people who have power, perceived power, making all the decisions. They're very well-meaning and they do make some really good decisions sometimes, but* ***you don't find out what works for people if you don't invite them to the table****. And it's not just asking them their problems.* ***Shared decision making is really hard****.*
>
> -Health Sector, Partner

Two areas of strength related to empowered residents involve the Resilience Zone work in Muskegon and the Community Living Room in Jackson.

The Resilience Zone in Muskegon

This Resilience Zone work embraces a community organizing approach, working to strengthen neighborhood ties and promote resident voice and capacity to active desired changes in Muskegon Heights. To date, the zone has sponsored door-to-door conversations, a Photovoice Project, and has launched four neighborhood associations.

> *I know that's been huge because people are **feeling like they have a voice again, and I know that that has been a really big issue for people** . . . [that neighborhood] is now being able to have a voice.*
>
> –Partner, Social Sector

> *The work in the resilience zone is one of the bright spots in the City of Muskegon Heights right now. It's an example of **bringing residents together** and **seeing them help one another**. . . This is the first time in over two decades that there's no house or home that owes taxes in that neighborhood. So that was really big. The resident engagement has been great. . . The two neighborhood associations within the zone actually partnered up with each other and assisted each other on things. That's really a plus there. So we've got three neighborhood association's right next to each other, and four total in Muskegon Heights. **Kind of like when you throw that rock in the water, and that ripple effect happens**. **That's kind of like the energy in the city of Muskegon Heights now.*** -Partner, Health Sector

The Community Living Room in Jackson

The community living room in Jackson represents the creation of a neighborhood place that provides social support, neighborhood ties, and access to diverse resources.

> *We see on **average between 20 and 30 people a day** in the Community Living Room. I mean it's pretty busy down there. There are times when I walk by and it's like, "Whoa!"* -Social Sector, Member

> *The majority of the work that is done by the Community Paramedics in the Community Living Room is education. There are a lot of gaps in the knowledge for patients about their disease processes and how it's best to manage it. **The paramedics are able to speak at a level that the community there understands, they don't feel intimidated, they're not afraid to ask questions**. They're seen as trusted individuals. People are very comfortable coming up and talking to them.* -Health Sector, Partner

> *[The CLR] is making a difference in peoples' housing stability, making sure that they're connected to those resources that they can maintain the housing that they have, that they're connected to the medical community that they really need. **It's taking care of those basic needs so that they can become self-sufficient and maintain on their own.** I think that has made a large difference in a lot of people who are coming into The Living Room. They have somebody to access right away to deal with those resources that they need, the issues that they have at hand, get their needs met, and then build that self-*

sufficiency. -Social Sector, Partner

In Jackson, the buses are very limited as far as where they go, the times, and then it costs money. This Community Living Room has partnered with the Jackson Housing Commission, and ***Jackson Housing Commission has allowed us to use their van for transportation.*** *We take the residents to the different free stores. They have a free store in Concord where they're able to get free stuff. We take them to St. Vincent's. Every 3 months, they're allowed to get clothing and sheets and stuff like that. We transport them to the different food pantries and to and from grocery stores. A lot of times, low income . . . And I stress low income . .* ***. I shouldn't have to stress it, but I'm going to stress it, because they have a hard time paying for car insurance, keeping up with plates and so on.*** -Social Sector, Partner

*People that are using the Community Living room are starting to get motivated from each other, not only in just the job aspect but they are mingling and they're starting to like different people and becoming friendly. They're also taking care of their hygiene better. Some people are dealing with a lot of their mental issues, their mental problems by talking about things that make them upset right away, and now they're socializing. There wasn't a type of setting that can help them socialize and help them deal those issues****. In this type of setting now, we're able to realize the different mental problems people are having… Now they're able to socialize and deal with loneliness issues****…* -Social Sector, Partner

Aligned Systems

My concern is that the more people that we identify and we know that they know that they have needs, that ***there's no place for them to get their needs met*** *because there's a lack of funding for a variety of things. That's my concern.*

-Health Sector, Member

If the CHIR could do nothing else but help us because we know what the gaps in services are here. The CHIR could help us find ways to fund a lot of these gaps in services to get people healthy, that would be great. If the CHIR could work with the schools to get kids better educated, that would be great because the health system here is the largest employer in the community. At some point, they're going to need educated people as all of us retire.

-Health Sector, Member

A central aim of the CHIRs is to build a more effective and aligned community system. This includes having the capacity at individual, organizational, community and state system levels to effectively support the CHIR's efforts. It also includes ensuring local organizations initiate needed policy/practice/procedure changes aligned with the CHIR goals and that needed community system improvements aligned with these goals start to emerge. From a sustainability perspective, it is critical to see local funders and payers align their resources in support of CHIR goals. The critical elements of the aligned systems work are described in the figure below.

Community change capacity emerged as a critical lever for change in both 2018 and 2019. It is described on the following page. Findings related to the other components can be found in Appendix A.

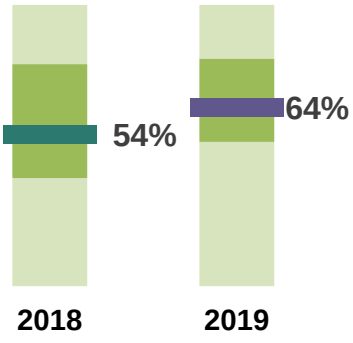
Community Change Capacity

Individual Level Capacity

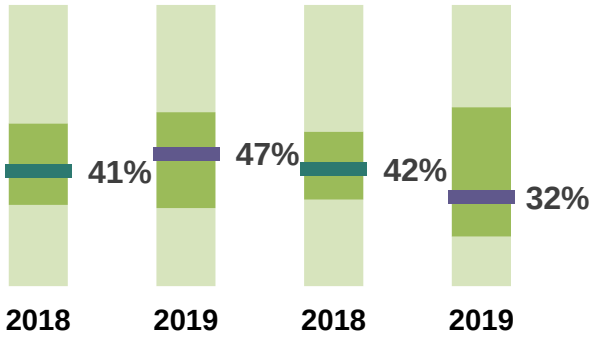
CHIR effectiveness requires local level cross-sector professionals who have the knowledge and skills to design and effectively implement the work. Because the CHIR work challenges the status quo, it likely requires local professionals to develop some new capacities to ensure success.

In 2018, CHIR members reported varied levels of skills related to some core capacities, with knowledge related to how to address local inequities (30%) and how to shift community conditions (41%) rated the lowest. While reported capacities increased in 2019, these shifts were not significant.

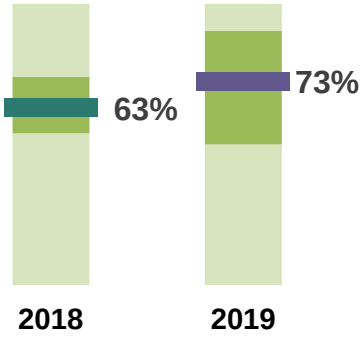
Know how to improve the connections between health care and community service agencies.



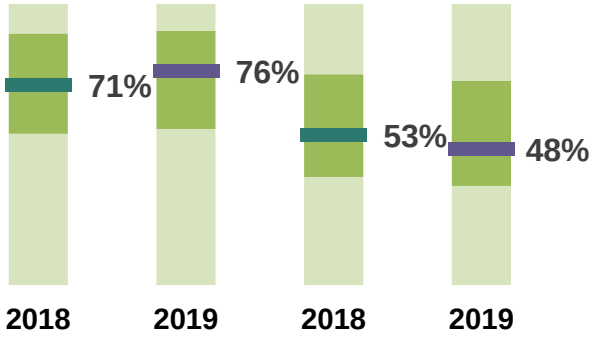
Know how to shift policy, environment, and community systems conditions to address social determinants of health.

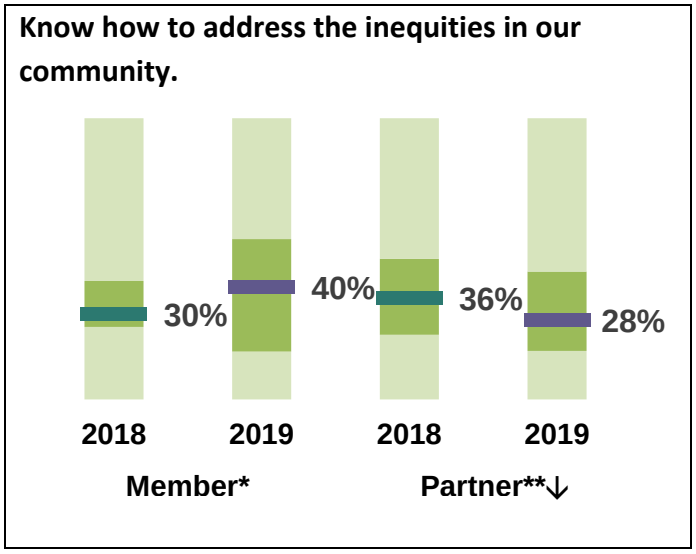


Am aware of the gaps in local services that need to be addressed.



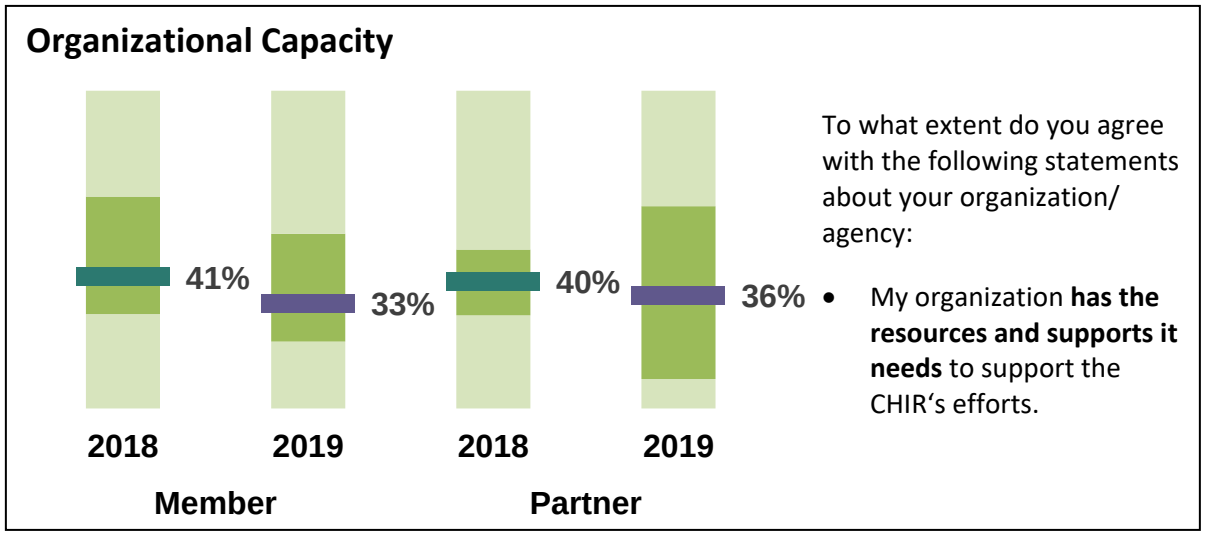
Know how to use data to improve decision-making and actions.





ORGANIZATIONAL LEVEL CAPACITY CHALLENGES

For most organizations, engagement with or support of CHIR activities requires time on top of current workloads. For many organizations, this investment can create a significant burden. In fact, most organizations in 2018 reported that their organization did not have the resources and support they need to support the CHIRs efforts; in 2019, even fewer organizations reported they had the capacities to support the work.



Interview informants further elaborated on this concern, identifying several challenges local organizations faced in supporting CHIR efforts:

Local Organizations Lack Sufficient Technology to Support CHIR Efforts

> *We still have counties that don't have good Wi-Fi or good internet at the location in which they're distributing or working out of.* ***We have agencies that are just getting their first or second computer****.*
>
> -Social Sector, Partner

Local Organizations Lack Sufficient Staffing Capacities to Support CHIR Efforts

- **Health Providers struggle to accommodate the needed screenings within time limited health care visits**

  > *Every time we lay something new on top of the work load of our staff, it involves a lot of training and a lot of discussion to make sure everybody really understands what is going on. So we're still trying to figure out exactly which staff will be using the hub, asking the social determinant questions. We know it's good that we ask them, it's good to connect people up, but we are also trying to figure out how to do the substance use and mental health screening at a deeper level than we've done in the past…We could screen for ½ hour out of every visit and get nothing else done with our patients. That's the challenge that we have. In looking at the social determinant screenings and whatnot, we all fully support it, it's great to do, but* ***realistically in a medical setting, there is a limit to how much of that can be done.***
  >
  > -Health Sector, Member

- **The level of need and CHIR expectations exceeds the staffing capacities of many local nonprofits**

  > *We are expanding as we go because the key to the referral is not just writing a piece of paper and faxing it, but getting a response. That requires that staff get the hardware, the software, and the training to use those things. Sometimes staffing in community organizations is rather fluid or thin, so if we train one person and that person moves on, then there's a backlog… Then, if there is a capacity issue, how many referrals can they handle? …* ***We have to mindful of those needs and we're trying to figure out a way to get resources to support those organizations, because what good is a computer if you have no IT person?***
  >
  > -Social Sector, Member

  > *Are there ever enough people to provide all the services that everybody needs? The nonprofits aren't big enough. Probably the hub isn't big enough. I don't know that for sure. I don't know if CHAP and Genesee Health Plan and Genesee Health system is big enough from their standpoint, but the nonprofits are never big enough…* ***Everybody is at capacity****. The need is really great in our community.* ***For what we're trying to do it's just always a capacity issue****.*
  >
  > -Social Sector, Stakeholder

  > *For some agencies,* ***they just don't have the manpower to integrate some of the big ticket or the big picture items****. If we're outlining… these core objectives that we want to reach,* ***[we need to] find an agency that can take on each of those core objectives based on their capacity.*** *So you don't have one agency trying to do it all.*
  >
  > -Health Sector, Member

- **Participation in CHIR meetings and activities competes with other organizational responsibilities.**

  *There's a lot of staffing time involved and even just overall, with SIM, and travels to all these meetings. These types of meetings are always best if you're there… [**For meetings] attendance is variable. We all struggle with balancing this into our regular workload.**.. Folks tend to pay attention to the agendas and attend when they really have more skin in the game. I think there's this struggle with making sure that people appropriately **have enough skin in the game to keep them engaged, while sort of balancing their other responsibilities.*** -Funder, Member

COMMUNITY LEVEL CAPACITY CHALLENGES

Members and Partners Highlight the Lack of Adequate Community Resources to Address the Level of Need

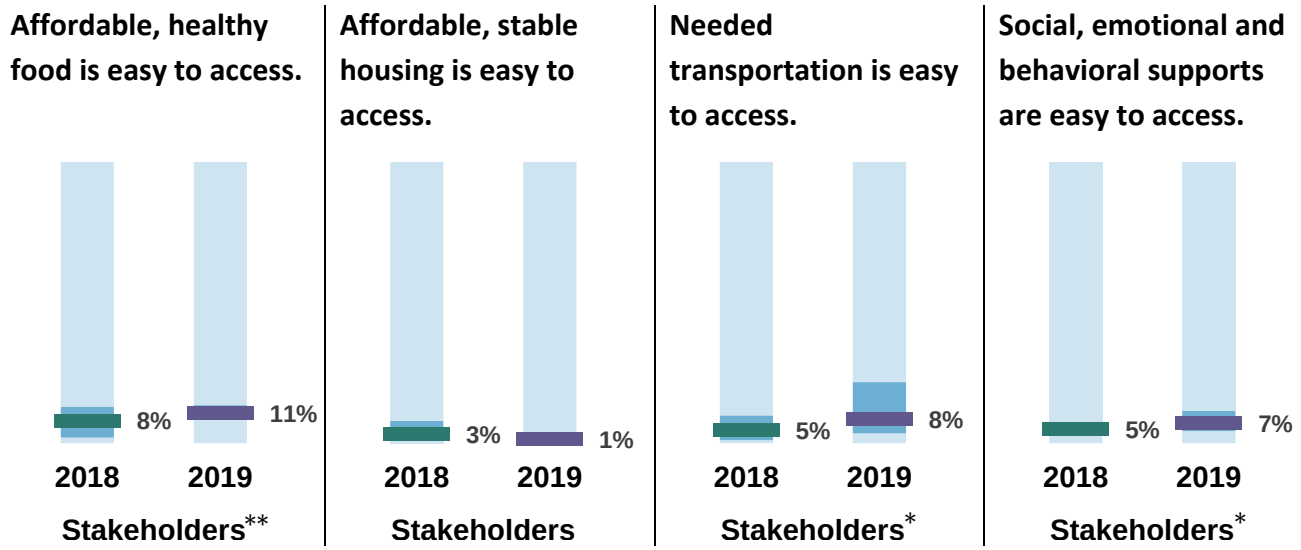
Informants across all CHIRs noted that the region lacked the resources needed to effectively implement and achieve SIM goals. Some informants made the distinction between individual and community level social determinants of health. While the new screening and referral processes appear to be well positioned to identify individual level needs and referrals to appropriate SDOH resources and services, the community itself does not have sufficient supports and resources to meet the level of need:

> *It's great to just refer all these people to the hublet that is the housing entity, **but if there's no housing stock in the community then you have a dead end**….* -Funder, Member

> *It's been a challenge to really meet peoples' needs because **our community is starved of appropriate resources.** We don't have adequate resources for people.* -Social Sector, Partner

> *I think we're going to get to a point where there is a lack of resources. We're going to run up against it. If somebody is fortunate to come in with an SDOH that needs access to a service and that agency is at the beginning of their fiscal year, they're more likely to get served. **My concern is that the more people that we identify - that there's no place for them to get their needs met because there's a lack of funding for a variety of things.*** -Health Sector, Member

The graphs below further illustrate these challenges. Across the CHIRs, stakeholders (individuals not yet engaged with the CHIR but critical to the work) were surveyed in 2018 and 2019 and asked to describe local community conditions. As the graphs illustrate below, across the CHIRs stakeholders reported that there is not easy access to critical SDOH resources.



Interview informants provided more details about the lack of resources:

- **Insufficient Affordable Housing**

  *The **housing availability is extremely low** or unavailable which is just unfortunate and horrible, at least as far as affordable, accessible housing. That's a huge gap right now, and it's not available.*

  -Social Sector, Stakeholder

  *So we have people, for example, that come in to Jackson Housing from homelessness. They may have went to the shelter a year ago, signed up for housing. **Their name gets called a year later**.*

  -Social Sector, Partner

  *…A client can make $700, and the cheapest rent in the county is $690. What are you going to tell them to do? There's rooming with people, but even then that's taking up around $400 or $500 of their $700/month. It's hard to tell someone, "Well, be homeless for a year. Then you can get on Section 8." **Finding some way to kind of bridge the gap of the people who are just barely scraping by…It's really in their health self-interest to have permanent housing**.* -Health Sector, Partner

- **Inadequate transportation options for both urban and rural residents**

  *Transportation is a huge need. **Some of our programs offer transportation to folks, but the transportation is limited and expensive, especially if you're a wheelchair user**. Housing is also huge, especially if it needs to be accessible or for people who are getting older. There's very limited resources around here for housing* -Social Sector, Member

  *We have clients who are on things like methadone where you have to go in and get pretty much every day. They're not getting the doses at home yet. **So getting to and from the Methadone Clinic every morning is a very hard thing for some clients.** More or less, what we've been told by most of the*

health plans is like this is a no-go. "You cannot get rides every single day." So maybe making some sort of an exception or working towards like, "We'll do it for a month, and then we'll do 5/month for the next one." And then slowly helping that client toward more self-sufficiency. -Health Sector, Partner

There's just so much out here that I think Livingston doesn't have. Livingston has the Dial-A-Ride service, but they don't have like as much public transportation… I literally had to walk somebody to the hospital once because we couldn't just Dial-A-Ride right then and there to get to the hospital. It wasn't really worth calling an ambulance. ***Transportation is a huge difference between there and Washtenaw. There might be a lot of people in Livingston we're not even hitting because it's more rural.*** *They might not be as aware of what's available to them because they're not in a bigger city.* -Social Sector, Stakeholder

There is a ***lack of any public transportation*** *in our rural areas.* -Social Sector, Stakeholder

- **Inadequate access to dental care**

People are losing teeth left and right because there isn't any dental care*. The dental clinic is hard to get into. XX Clinic - every so often they'll have, "Come. We're open for taking people."* ***But they often times just do extractions.*** *I know several people that have lost teeth just because they don't have any dental care. And that has other cascading effects. If you have rotting teeth and your health suffers, then your affordability suffers because you smiled at your interview and you're missing teeth, and that doesn't look so good.* -Social Sector, Stakeholder

- **Connecting with specialists in a timely way can be a challenge**

Although honestly, like this woman with the nephrology issue, her one ask was, ***could I please get into the specialist earlier*** *because her appointment was going to be in a long time and it was pain that was driving her to the ER and even knowing that the Complex Care staff could not get her an earlier appointment.* ***So there's a limit even though I made a specific reque****st, there's a limit to what they can do.* -Health Sector, Partner

CHIR Members, Partners and Stakeholders agree that to effectively address the local needs, CHIRs will need to improve local community system conditions

…there's so many limitations to a lot of the resources that we need to have healthy communities in some of the more isolated areas. ***So I'd really like to see some community-wide changes for access to healthcare, access to, you know, those social determinants again, the healthy food and healthy lifestyle, and affordable housing is a huge one****. I would like to see some real changes come to the community from those things.* -Health Sector, Member

Some of the barriers are overwhelming the system. ***The system is not equipped to handle them… Mental health is the one that is the biggest issue because there's just no housing****… So often there's the person… They've burned up their family. They can't go back home, and they don't have a place to go. So now you're talking about somebody that's chronically homeless and yet you've got to have them hang on to their meds and continue to take their meds to be able to function, and it's tough.* -Health Sector, Partner

To really see change in our community and to see individuals get their health and social needs met, I think it's just ***taking a step back and being really honest and reflective to or where we really are as a community and committing to changing our day-to-day practices.*** *I think focusing on the alignment of these various efforts and committees and coalitions, is really important. I think focusing on how much more diverse inclusive workforce and leadership and putting in strategies to support that, to recruit that, to retain that, is really important. I think having a more systemic approach. I mean it's really a lot of things from the ABLe Change or System of Care model.* ***I think it's really that looking at our systems rather than creating new programs or chasing the next new shiny object****.* -Social Sector, Partner

[To meet resident needs] I think that needs to be more than a program. ***It needs to be more than a CHIR. It's gonna be a generational change with the economy, with education, with health****. These things take a very long time to fix, and people don't want to hear that. You don't raise the graduation rate in 4 years. You raise it in 20 because it starts with having kids eat healthier and be ready for kindergarten and reading when they're 7…It's a really long time because we don't want to just keep programs on people. We need to have a community that is self-sufficient. …****To meet peoples' needs, we not only need to continue to build that safety net and "empower" people, but building the rest of the net*** *so that we have stronger families and people can get good jobs in companies that keep wanting to bring jobs here. It's a really long haul.* -Health Sector, Partner

On the other hand, the resources made available by the CHIRs has helped to expand local capacities and improve system efficiencies.

- **Access to the HUB and CHIR's CCL Work is making a 'day and night' difference for clinics**

  One of the big benefits with being connected to the CHIR is definitely the access to utilizing the hub for the social determinants of health surveys. ***The clinical linkages from the CCL workgroup has been a huge resource for our clinic****. It has been an* ***almost day and night difference between our clinic and the other clinics that are trying to help patients out with those social determinants****… In some of our clinics, they're screening patients for social determinants. One County had to create their own hub out of an RN, and I think they have a community health worker, and they had to find all these resources on their own and reach out to all of these different partners. Whereas in my County where many of our patients fall within the CHIR, we have the hub access already set up.* ***I already have connections with all of these other community clinical resources because of my involvement with the CHIR****. So really it's getting patients set up with resources or if I have questions about how things are working or even just talking to other people in the CHIR and how they're doing it and what's working for them has been a huge help for our clinic.*

  -Health Sector, Member

- **The CHIR has strengthened and expanded the screening and referral process**

  There has been some really big successes I've seen come out of the CHIR. ***One success is that we have done a ton of social determinants of health screenings and that's been integrated into multiple health systems.*** *One of the Health Centers is doing social determinants and ACEs (Adverse Childhood Experiences)*

and pairing those two. So I think that has been really great. -Health Sector, Partner

I believe that our CHIR has been working with as many doctors' offices as they can to get them to screen patients like "what kinds of needs do you have", and I think it's starting to happen. I actually think it was a ***requirement by [hospital organization] that any doctor affiliated with them do a social determinants of health screening****.* -Social Sector, Member

- **The Online Referral Platform in some CHIRs is a "game changer", increasing system efficiencies and transforming care coordination**

The SIM Project presented a good framework for [the referrals tool], because when people refer, a lot of times the question that we hear from those who are getting the referrals is, "I have all this random stuff coming to me on fax or phone calls or a variety of different methods." Things get lost…. On the sending side, their thoughts are, "We send it out on a fax, and then it goes into a black hole."…What we tried to do with the referral tool is create a platform that can be used by the physical, behavioral, and social environments in healthcare that makes sure ***that everything that needs to be sent is sent first time, it's legible, and then both sides are kept in sync all the time as to what the status is, and when the loop is closed****… The person who received the referral can close the loop, mark it complete… Everybody knows exactly what's going on…and we get out of the phone-fax chaos.* -Health Sector, Member

[The electronic screening tool] is appealing to everybody... Everybody has all these different ways of doing things, and ***an electronic tool changes the game****. It's* ***simple, easy to navigate, and it does not require the agencies to spend tens of thousands of dollars to have some fancy referral system****. If you have the tool and you can bring people together, people will see its value…* -Funder, Member

Community coordination is awesome. Coordination has been probably the most helpful part for me. MiCare Connect has been great, being able to send messages directly to people from other organizations such as complex care or Jewish family services. ***Having that one stop shop consent form that really gets everyone all together and you don't have to sign different papers just to speak to other people****. And being able to put faces to names like the monthly care coordination meetings…You know who you're talking to on the phone.* -Health Sector, Partner

- **The focus on outreach and the use of community health workers is connecting the disconnected to services**

The hospital asked me [CHW] to reach out to her because they had trouble reaching her by phone and I tried reaching her by phone a couple times and I just decided I'm going to go out to her home to see if I can get a hold of her. They had the house number wrong so when I realized that I was like, I'm out of options and as I was leaving the house that we had the address to, I noticed hers was the next one just down the street from the way I came. So I just swung inside, didn't expect to get her, knocked on the door and there she was. So we got connected that day; I told her about SIM; I confirmed that she still wanted to be a part of the program and then she did in fact remember what it was. She informed me that she hadn't been able to be reached because her phone doesn't work at her home and I think that's just an issue with all phones because my phone doesn't work in her home either and mine usually works everywhere. So I've been

working on getting her a new phone and trying to follow up with the agency that does that and they haven't gotten back with me yet. ***That's how I got connected with her and then from there we've been slowly making more contacts, she's been feeling more confident and opening up and talking.***

-Health Sector, Partner

- **Access to CHWs increases the ability to meet residents' complex needs**

  Residents may say one thing in the beginning but as you get to know them, other stuff comes up. It's not that they didn't want X in the beginning, they need that as well but oh yeah, I need this too…I think that's also the fact that some people that we talk to, they really have one issue and that's a big issue and then like I'm thinking of somebody who had a major kidney disease issue, but the rest of her life was pretty stable. ***So the kinds of cases that the CHWs get pulled in tend to be the ones where there are multiple social determinants going on****.*

  -Health Sector, Partner

- **Partners and Stakeholders outside of the main health and social service sectors would like to be more connected to the CHIR's screening and referral efforts**

  My organization would benefit by having access to the screening tool to those resources for people that I serve *…Everything from getting their GED, to helping with parenting, to medical needs, to needing to find a food pantry . . . You know, all of those things.*

  -Social Sector, Partner

Adaptive Learning and Improvement

I think it's making a difference insofar as organizations are coming together to problem solve in real time about challenges and barriers that individuals in our communities are facing, and the ability to be engaged in their health and wellness in a way that didn't previously exist. I think that is having a real impact.

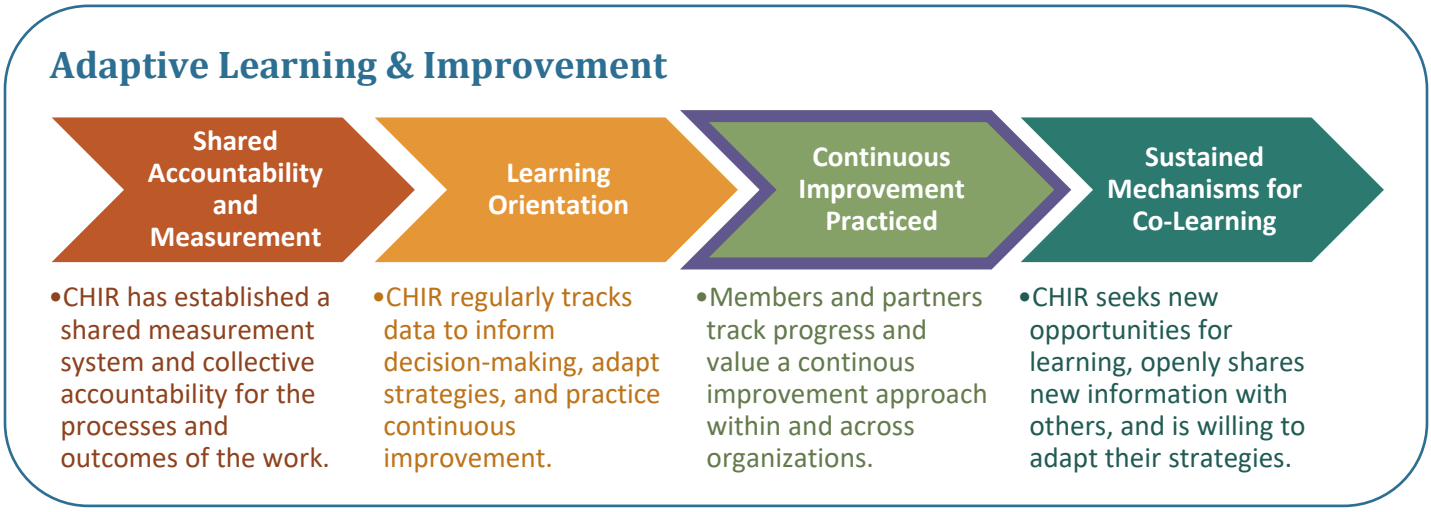
-Health Sector, Member

We can now take that screening data and say, "What services in our region do we need to invest in," and I think that's the biggest takeaway from this project overall and would be what I would support us continuing the CHIR work to do is collect that greater data, do the data analytic, and be able to develop programs that fill the gaps that are identified.

-Health Sector, Member

[Besides the SIM Initiative] we have limited other opportunities to have shared accountability and discussions about what's working and what's not working. -Health Sector, Member

Establishing a shared vision and creating an aligned system are vital foundational aspects of collaborative systems change initiatives. These goals must become integrated into overall learning environment that includes explicit outcomes that partners use for promoting accountability and tracking progress (Latham, 2014) and feedback processes that promote continuous learning and adaptation (Hargreaves et al., 2017). These feedback loops are an integral aspect of complex systems change initiatives and are particularly important for efforts that target multiple ecological levels like the CHIR (Hargreaves, 2014; Hargreaves et al., 2017). In short, shared measurement systems and a continuous improvement orientation allow collaborative systems change efforts to translate vision and goals into effective action (Latham, 2014). The figure below illustrates the four key components of an adapting learning system that are targeted in the CHIR evaluation.



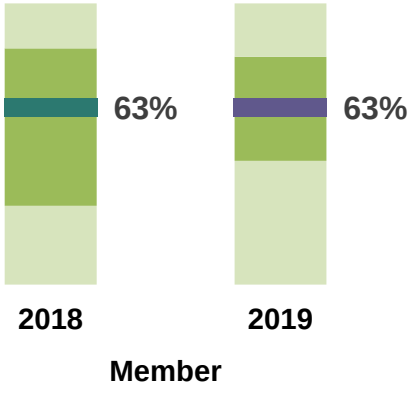
While all four adaptive learning components were significantly related to CHIR effectiveness in 2018 and 2019, **evaluation findings identified Continuous Improvement Practiced inside local organizations as a key lever for change in both years**. In 2018, Continuous Improvement Practiced inside local organizations was one of the most powerful predictors of reported CHIR effectiveness. In 2019, growth in continuous improvement within local organizations was significantly related to growth in all six CHIR outcomes. We provide more details on this key lever below. Additional data regarding the remaining components of adaptive learning can be found in Appendix 1.

It is first important to note that data and learning have been integral components of CHIR processes since their inception. Initial planning and design decisions were data driven; screening, referral data and ED utilization data have provided ongoing opportunities for continuous improvement and have informed new strategy selection.

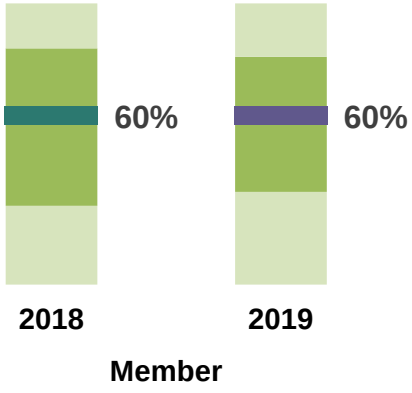
While CHIRs have varied in their depth of data access and use, all have sought to integrate data driven decision-making and learning processes into their operations.

As the graph illustrates below, CHIRs varied significantly in the extent to which they used data to inform actions and adapted strategies in response to these insights. This variation is related, in part, to the BBO capacity to support data use.

Regularly use data to determine its direction and priorities.



Adapt strategies and tactics in the face of new information.



Informants emphasized in their interviews in 2018 and 2019 the important role data and learning played in their CHIR efforts:

> *I feel like we're a pretty well-oiled machine now with the monthly reports that we're developing. Now, that group has morphed into, "How do we take a look at the SDoH screens that we have completed?" and, "How do we determine if [the CCL] is being successful? What are our rates of reaching these patients and meeting their needs?"* ***Our focus is more on the data and the objective outcomes of referring patients.***
>
> -Health Sector, Member

We started with preconceived notions about what's important and how many issues exist out in the community. ***But until you actually pull the data together and look at it for real - what are people struggling with - you don't really know for sure****. I think the value of the activity is it's not loose supposition or assumptions.* ***It's real data now with real people saying, "These are the issues that we're dealing with,"*** *and then that's going to have implications downstream to "do we have enough resources in the community to actually serve those needs or do we need to re-align?" The biggest outcome is that it makes the data real and we actually know rather than just guessing.*

-Social Sector, Member

We can now take that data and say, "What services in our region do we need to invest in?" That's the biggest takeaway from this project overall and would be what I would support us continuing the CHIR work… ***To collect that greater data, do the data analytic, and be able to develop programs that fill the gaps that are identified.***

-Health Sector, Member

…One action team was working on the Healthy Food initiative and they actually went to the food pantries and the fresh food initiative and asked people questions about their strategy or about what barriers they were facing and those kinds of things to understand the problem more effectively. ***I think that has to be part of our work all of the time, not just one time a year, or when we're working on a strategy, I think we have to continually go back.***

-Funder, Member

Informants also noted that the CHIR has created access to cross-sector data in ways that never existed before.

*The data is being used in so many ways that I'm not even sure how to describe it. I mean it's being looked at to see where resources might be needed****… The community will be able to look at how social service agencies are responding to referrals, whether they're responding quickly, slowly, productively, you know, this kind of thing.*** *So there's just a ton of data and it's being looked at and analyzed constantly. Health insurance companies, social service agencies, representatives from CMH, representatives from both health systems and from IHA and a large local health clinic all now attend SIM meetings. This leads to cross pollination of people who don't necessarily talk to each other day to day and now meet monthly talk about challenges facing vulnerable patients and ways challenges can be overcome.*

-Member, Health Sector

*They presented on all the data at the 100-Day Challenge****… The fact that they were able to show how many people are affected with this, how many people do this… People in the community were like, "This is something we can get behind because the data is there and we can see it.****" One of the 100-Day Challenges is illiteracy in the county that my boss is leading, and we had a lot of people come up to us after and be like, "I didn't realize how embedded in the community illiteracy was," even though we're always presenting on it and we're always talking about it. People were more likely to believe it when it came from the CHIR who are not education-focused.*

-Member, Social Sector

Partners see opportunities for an improved approach to data access, data collection and analysis going forward:

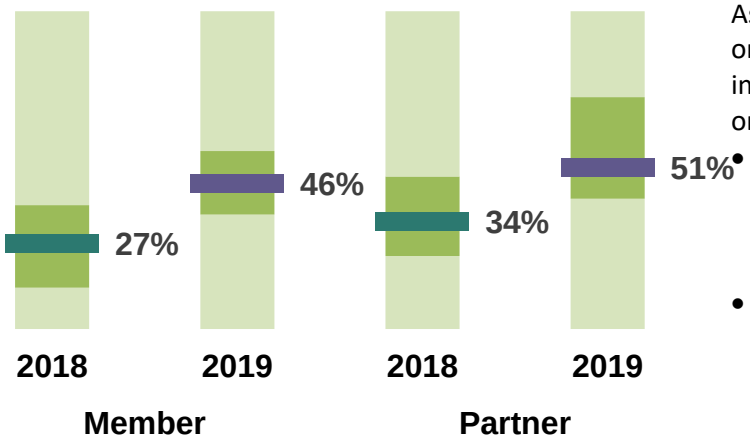
> *I feel like we didn't spend enough time in the first year to decide how we were going to dissect and collect data that just didn't exist.* ***We could've done a much better job in tracking it than we did. I think another year shouldn't be wasted if we're going to continue****. I wish we would've done some things different. I feel like we have the opportunity to improve that now.* -Health Sector, Partner

> *More data would be great. I think more sharing would be excellent. I've had some questions about being able to get more* ***aggregate data*** *and then being able to use that to gain an understanding and also* ***use that information on an aggregate basis for looking for new programs and new ways to work together****. For example, the number of people served? What are the outcomes of those people? What percentage moved into housing? What percentage saw improvement in their health outcomes over a set period of time? And then, savings on the system on a per client basis would be amazing. If you could say, "Well, the clients that are served in this program reduced their health costs by X percent, the people that are utilizing this model versus those communities that are not."* -Social Sector, Member

Continuous Improvement Practiced

A critical step in the development of an adaptive learning culture is the integration of the collective's learning focus within local partner and member organizations. If the learning orientation remains only with the collective, the ability of the work to truly transform local practices and behavior is constrained. Evaluation data from 2018 and 2019 suggests that while the CHIRs have started to grow a learning orientation across the community, it has had less of an impact on the extent to which local organizations are practices a continuous improvement orientation. As the graph below illustrates, 2018 continuous improvement levels were low, with 3 of the CHIRs having less than 25% of their members reporting that they have strengthened their use of data and learning processes as a result of the CHIR. While these numbers grew in 2019, this increase was not significant.

Continuous Improvement Practiced Across Organizations



As a result of my organization/agency's involvement in the CHIR, my organization/agency is:

- Creating a work climate that has a stronger focus on learning and continuous improvement.
- Gathering more real-time feedback from the individuals we serve to improve our efforts.

Key informants described some of the following ways they are using data differently inside their own organizations*:*

> *We just had an experience of changing a process in our organization, and we didn't just listen to folks and change a process.* ***We went back and made sure that what we heard was right and what we were trying to implement was right, and it wasn't. We had to adjust again, and then we implemented it*** *and we learned a lot of stuff and we're changing it again. We went back to them and said, "Hey, we're thinking about making these changes. What do you think?"* -Funder, Member

> *So our ED utilization is dropping, and it's not accidental that it's dropping****. It's dropping because of the continuous quality improvement projects that we put in place*** *to insure that the good ideas that we can come up with are actually being created and implemented and communicated.* - Member, Health Sector

Equity Pursuits

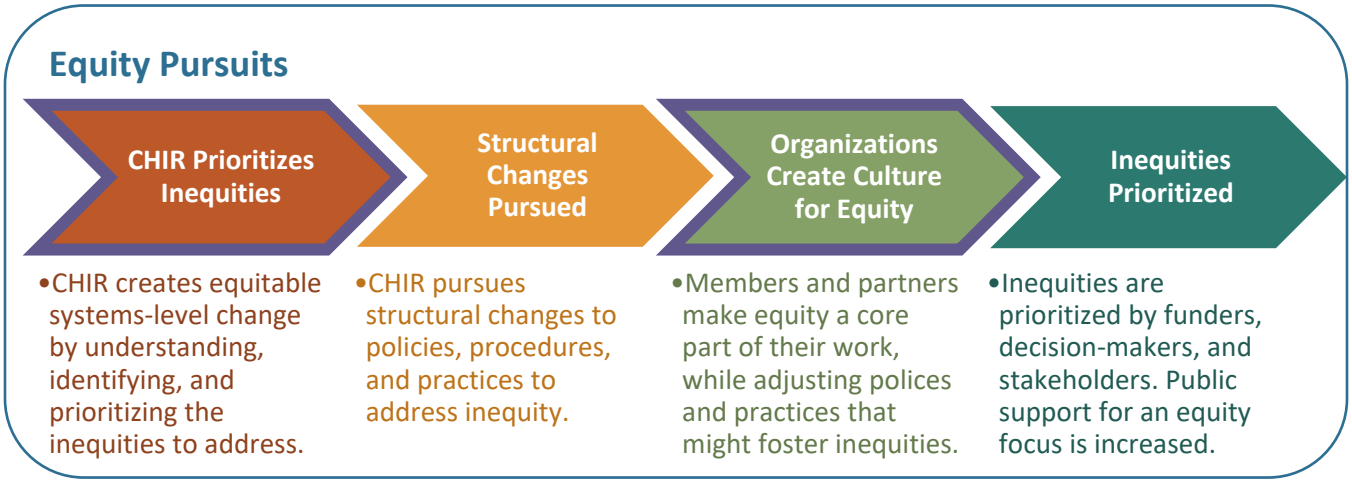
If we're going to say, we're going to be equitable and all people are going to have a fair shot at what they need, we have to say it out loud. It has to be intentional. Are we looking at this through an equity lens? You really can change minds when you help people to understand how inequities impact the whole community. If we can make this thing better, we're better as a whole for it.

-Health Sector, Member

No matter what it is that we're doing, it's to reduce the inequities in our County.

-Social Sector, Partner

Collective impact efforts that aim to improve health outcomes and reduce health disparities require the pursuit of equity. An equity orientation involves an identification of the form and function of disadvantage within a community, the pursuit of strategies to create more equitable conditions, and the prioritization of equity across diverse organizations and funders. Importantly, the pursuit of equity involves more than pursuit of improved access to needed resources and supports (i.e., the social determinants of health); it also involves identifying how local policies and practices may privilege some groups over others and the extent to which voice and power is distributed across the community. The below figure illustrates how equity is measured in this evaluation.



In the 2018 evaluation, CHIR Prioritizes Inequities and Organizations Create a Culture for Equity were identified as key levers for change: both strongly predicted perceived CHIR effectiveness. In 2019, CHIR Prioritizes Inequities again emerged as a key lever; growth in this element strongly predicted growth in CHIR outcomes. We discuss these key levers below. See Appendix 1 for more information.

CHIR Prioritizes Inequities

In 2018, the prioritization of inequity had some mixed responses across the CHIR.

- **For some CHIRs, a focus on reducing local inequities was core to their work:**

There's work teams in that space that I know are talking about the equity piece and at the steering committee we've talked about those pieces quite a few times. ***That issue is a historical priority for our collaborative so they've done lots of community assessments on what's available, where the barriers are, what the challenges are, and the inequities around them.*** -Health Sector, Member

When we talked about having a value of equity, it led to discussions around equity in all policies, health policies, and how would we talk about what that means when we develop a strategy. ***Equity is really the foundational work and guiding those action teams to do the work.*** -Funder, Member

We really tried to dive into what does equity mean in our community? When we look at our coordinating councils, do we really have equity in terms of representation on these councils? And we can all pat ourselves on the back because, "Well, we tried really hard, but we didn't succeed," but that's not enough. ***So we didn't achieve the kind of equity in terms of diversity and opinion that we wanted to. How are we going to tackle that?*** -Social Sector, Stakeholder

- **For some other CHIRs the term "inequity" seemed less directly relevant to their work. Some were worried that a focus on inequity would distract them from their core work of reducing ED utilization; others did not initially see inequity as anything other than a focus on SDOHs:**

Because equity is a big buzz word now, we formed a little subcommittee to say, "Is this something we want to do?" ***We decided it wasn't. Which is not to say social equity was not important.***
-Health Sector, Member

Oftentimes when we talk about ***wellness****…* ***I don't think equity is really considered.***
-Health Sector, Partner

From an implementation standpoint, this meant that several CHIRs did not spend sufficient time identifying and understanding process and outcome disparities within their communities in 2018.

I don't think we are trying to specifically reduce inequities in the CHIR. I don't know that it's [equity] something that we really talked about. Like looking at and making sure that we are doing that. For example, with the hub, I'm not sure. ***I don't know that we really talked about inequity or things like that****.* -Social Sector, Partner

We don't talk a lot about equity and ***I wish we did****.* -Social Sector, Stakeholder

While 2018 survey results suggest that members described their CHIRs as prioritizing inequity (see figure below), these results seemed to inflate what was actually occurring on the ground. This is not surprising, as many informants conflated a focus on SDOHs as the same as a focus on reducing local inequities. While these are certainly related pursuits, national best practices would suggest that a focus on SDOHs is insufficient for reducing local inequities, as inequities emerge from multiple sources of injustice, only one of which is distributive causes (Foster-Fishman, Watson, et al., 2019).

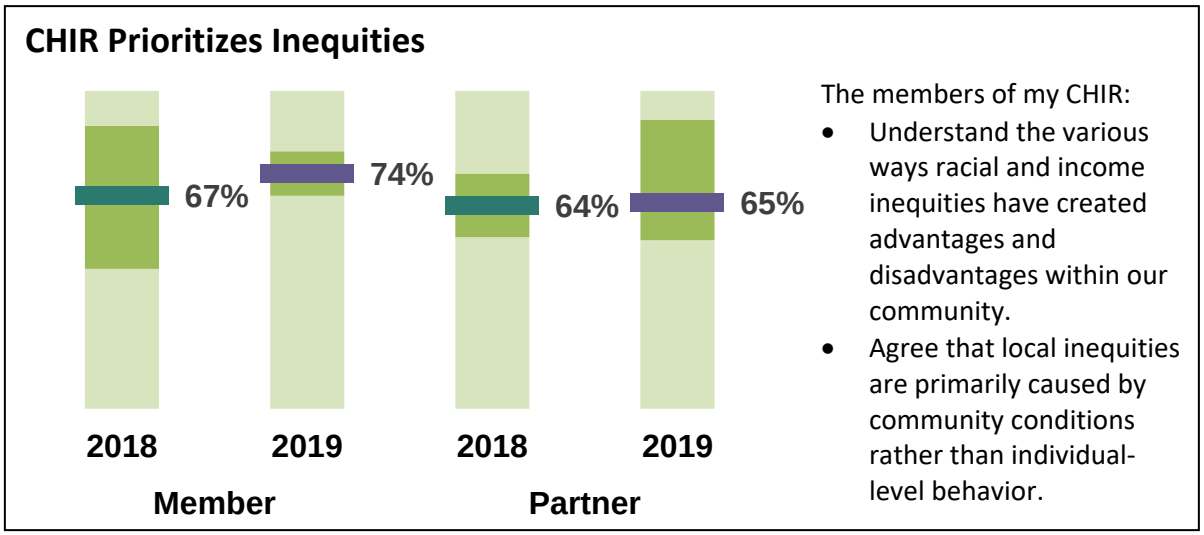
Overall, this suggests that investments in promoting a greater understanding of inequities, including the causes and consequences, is essential to growing local commitment to this cause. As informants noted:

> *You can't really be healthy unless you have the supports for housing and food, employment and education. You can't really be successful in your education if you don't have health. You know, we knew all those things were connected, but now we're really actually thinking about it differently. I mean ABLE Change work really helped* ***embed that equity and this idea of, embedding it in all policies and all conversations has really shifted our whole community****.* -Funder, Member

> ***Being able to navigate conversations around inequity in a safe place is important****. When we look at inequity and inequality in the context of this work, the lens is different based on your personal experience.* ***I don't think the CHIR has successfully navigated that conversation or provided an educational format or platform to have those conversations because they're tough, because you have to ask why.*** -Funder, Member

> *And it's hard work because you're talking about the work that we're doing and equity, you're crossing political lines sometimes****. You're challenging peoples' beliefs, and that can be exhausting, especially when you come up against someone, an individual or a group, who just completely doesn't understand the work that you want to do****. But you really need to get that person's buy-in. That can be exhausting and just make you want to throw your hands up and go, "Okay, well this is way too much work for all of this."* -Health Sector, Member

Increasing local access to disaggregated data is also essential for understanding local inequities and identifying places of disadvantage and disadvantaged populations.



By 2019, more CHIRs had a heightened emphasis on equity:

- **The explicit examination of local data – disaggregated whenever possible – as part of the CHNA and other outcome prioritization processes – helped to increase awareness of and commitment to local inequities.** One informant described what it was like to be part of the 100 Day Challenge event, where about 300 stakeholders explored cross-sector disaggregated data:

> *When **you can see the social injustice** and **you can see the inequity** and you can **see the need because it's part of your everyday wo**rk, to know that there is a network forming through the CHIR and people are concerned about doing the very best we can with everyone's resources and time - it was just refreshing. I continue to be excited about it and would love to continue to be involved.*
>
> -Health Sector, Partner

- **Additional training in equity also heightened local capacity around this issue**

> ***How we addressed SDOHs back in the day compared to today is almost comical.** We were all about putting a band-aid on something. Now, we've learned to really get to the root cause…Through the whole work of the SIM Project we've been growing and just trying to feel our way through.*
>
> -Health Sector, Member

> *I tend to be a pretty early adopter and pretty optimistic and I have hope around this ABLe Change model. I'm like, "That would be amazing if we can literally lean into that as a community and utilize that to help us to reach more equitable health outcomes and to streamline our various initiatives and things that we have going on." And so I think that's kind of yet to be determined. **But I could see that bringing a lot of value but it's just interesting because some of the core components of that model around engaging residents meaningfully and having a systems approach versus a program***

approach *and some of those things it just seems like in the rollout of all the CHIR activities that that's not how it's been rolled out.* ***So I'm just hoping as a community that we can use the expertise and that model to help us to do that in a more consistent way****.* -Health Sector, Partner

By 2019, more members and partners agreed that significant changes in how work is done are needed to support a more equitable approach to change.

- **CHIR members were recognizing that resident engagement in CHIR design, action and decision-making processes was essential to effectively pursuing more equitable outcomes**

I just think it takes a big mindset shift and we have to commit to as a community and utilize some of our training and resources and actually change the way we function on a day-to-day basis. ***We have to start changing what decision making tables look like, what planning tables look like, and get creative in terms of engaging people differently.*** *We have to be* ***willing to listen*** *because it seems like there's a lot of "feel good" meetings where we're celebrating successes and then when it comes down to the hard feedback about what's really happening in our systems - people don't always want to face that or to hear that or to share that.* ***We have to really listen to those voices of people who we don't create space to hear and then really listen and really try to do things differently.*** *And I think that's the hardest part but I think that's what's going to actually help us to change.* -Health Sector, Partner

[Addressing inequities] always comes up when we talk about community engagement, "Are we genuinely being equitable in what we provide?" ***We understand that the most vulnerable populations need more and they're still in need****… As a community, as a CHIR, we are definitely trying to get to that place. Without the community in the conversation, even the best of intentions to be equitable in everything that we create, is good enough.* ***We have to have those people there, because otherwise we don't entirely know what that looks like.*** *We could be saying we want to create equity in housing, and really it's food that's people problems or it's safe walking spaces that's the problem. It's not housing at all. So until we hear from those real voices…* -Health Sector, Member

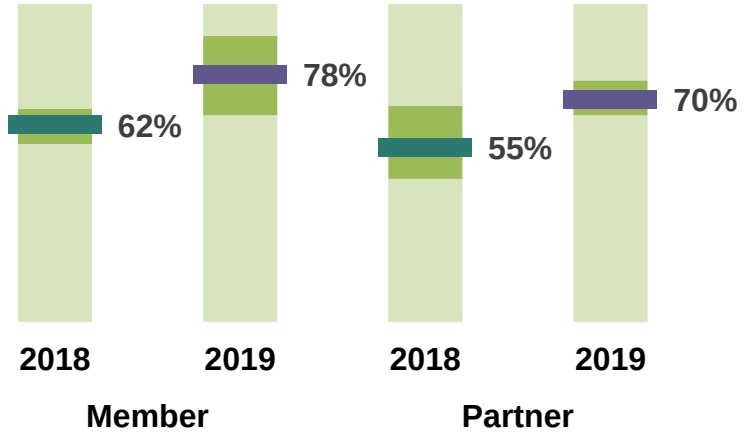
Member and Partner Organizations Create Culture for Equity

Embedding an equity focus into cross-sector organizations is essential to promoting more equitable outcomes. This includes having local organizations make equity a priority, aligning resources to tackle inequities, and considering how internal policies and practices might promote inequity. In 2018, the extent to which local organizations were creating an internal culture for equity was a strong predictor of CHIR effectiveness. While more members reported that their organization had this culture for equity as a result of CHIR efforts in 2019 (78%) than in 2018 (62%), this increase was not statistically significant**.**

Member and Partner Organizations Create Culture for Equity (Revised)

The members of my CHIR:

- Understand the various ways racial and income inequities have created advantages and



- **Some local leaders noted how they are integrating the CHIR's focus on health equity and reducing inequity into their own organization**

  *I just did a **health equity training for our customer service and medical management staff**, and that's an important part of what we're doing. I was able to bring back a few things… To be able to bring that back into our own corporation and make sure that we are truly looking at our members as a whole person and not just, 'we don't cover that one.' What do they need? Dig deeper - that's always been my matter, dig deeper. What they tell you first is not really the problem. Those are the kinds of things that we've brought back into the organization.* -Member, Health Sector

Cross-CHIR Summary of Progress Made on Key Change Levers over Time

The below table summarizes the key longitudinal findings related to the 2018 and 2019 key change levers identified in the CHIR evaluation. Paired t-tests were computed separately for members and partners as survey findings suggested they held unique perspectives on system functioning and CHIR performance. Analyses were also conducted separately for each CHIR. As this table illustrates, across the state, **CHIR members and partners reported significant growth in the levers related to integrating the shared vision into their local organization and efforts to engage diverse partners, through more clear, coordinated roles and resident empowerment.**

When looking at the data specific to each CHIR, the table below also highlights how CHIRs varied in their growth in these critical levers between 2018 and 2019. The small sample sizes across all CHIRs potentially reduced the power to detect differences, particularly the small effects we would expect during an early implementation phase.

Change in Key Drivers of Change Over Time

	Respondents from All CHIRs		CHIR 1		CHIR 2		CHIR 3		CHIR 4		CHIR 5	
	M N=96	P N=83	M N=23	P N=19	M N=10	P N=23	M N=24	P N=23	M N=20	P N=11	M N=19	P N=7
Effective Convening												
Neutral, Trusted Convener										↓		
Inclusive Culture		↑										
Effective Communication					↑							
Valued CHIR												
Shared Vision and Goals												
Shared Vision Adopted by CHIR												
Shared Vision Embedded Across Community	↑	↑	↑		↑		↑					
Engaged and Diverse Partners												
Clear and Coordinated Roles	↑	↑			↑							
Empowered Residents	↑	↑	↑		↑	↑	↑				↑	↑
Aligned Systems												
Community Change Capacity												
Adaptive Learning & Improvement												
Continuous Improvement Practiced Across Organizations												
Equity Pursuits												
CHIR Prioritizes Inequities												
Organizations Create Culture for Equity			↑									

↑ indicates statistically significant improvement between 2018 and 2019 (P≤.05)

↓ indicates statistically significant decline between 2018 and 2019 (P≤.05)

↑ indicates marginally statistically significant improvement between 2018 and 2019 (P≤.10)

WHAT LESSONS ARE WE LEARNING FROM THIS EFFORT?

Evaluation evidence from the early implementation phase of the Michigan Community Health Innovation Regions suggests that regional cross-sector partnerships can create the context for addressing the social determinants of health. Provided the financial resources and flexibility to develop innovative solutions to address local needs and improve SDOH screening and referral processes, CHIRs were positioned to leverage cross-sector interests and talents. Critical to these efforts was the presence of an effective backbone organization coupled with engaged diverse leaders who committed to the shared vision and goals for transformative change. The evaluation findings also highlight the importance of intentional partnership building efforts and the integration of the transformative goals into local organizations: CHIRs were more effective when partners knew their role within the collective space, were aware of CHIRs activities, and worked to embed changes into their organization's practices. The CHIR Transformative Change Framework developed for and used within this evaluation provides a roadmap for current and future CHIRs as they work to strengthen local partnerships and transform community conditions and residents' lives.

Lessons Learned and Recommendations

Below are some lessons learned and recommendations related to strengthening CHIR efforts across the State. Most recommendations were provided by CHIR interviewees. The recommendations are first organized around the six critical elements in the CHIR Framework for Transformative Change. Following this section, some recommendations are offered for MDHHS to consider moving forward.

EFFECTIVE CONVENING

Lessons Learned and Recommendations for Promoting A More Inclusive CHIR Culture:

1. Identify opportunities to create a more inclusive meeting environment for members/partners:
    a. Use less sector-specific language and jargon.
    b. Provide ample opportunities for members/partners to ask questions and share ideas anonymously, in small-groups, or during round robins to increase active participation.
    c. Provide sufficient time at meetings for members/partners to meaningfully engage in discussion and decision-making.
2. Identify opportunities to create a more inclusive meeting environment for residents:
    a. Consider factors like where/when meetings are held, and whether childcare is provided.
3. Provide an orientation and/or onboarding for all new CHIR members/partners to help them feel confident engaging in discussions and decision-making.
4. Support BBOs in promoting shared responsibility and ownership among CHIR members/partners and in moving communities to action.
5. Actively work to mitigate power dynamics and competition across stakeholders, agencies, and sectors:
    a. Consider alternative granting/funding structures for the CHIR that could mitigate power dynamics across agencies/sectors.
6. Consider opportunities for establishing BBOs as more neutral entities, including BBOs that are not primarily aligned with one system and/or agency.

Recommendations for enhancing communication efforts:

1. Communicate innovative SIM vision/approach throughout the community:
    a. Create a simplified SIM Project message for the broader community.
    b. Identify and clearly communicate incentives for participation and possible roles for key partners within CHIR efforts.
    c. Conduct outreach across sectors as well as with residents.
    d. Leverage "insiders" where possible to embed the message within community organizations.
    e. Support members/partners in delivering in the SIM Project message throughout the community by providing communication tools like speaking points, scripts, and one-pagers.
2. Enhance communication between meetings to keep members/partners informed and engaged.
3. Consider creating and maintaining resources on the SIM/CHIR website that provide information on project objectives, work to date, and organizational roles/responsibilities.
4. Communicate SIM Project outcomes, successes, and value across communities to make a powerful case for change.

ENGAGED DIVERSE PARTNERS

Recommendations for engaging diverse, active, and empowered stakeholders:

1. Actively recruit diverse partners that represent the region/populations served:
    a. Include leaders as well as front-line staff and residents to ensure that multiple perspectives are included.
    b. Identify ways to incorporate resident voice and meaningfully engage residents in decision-making and leadership. Leverage insights and learning from other efforts like the Resilience Zone and CHNA development.
    c. Determine how to meaningfully engage health plans within CHIR initiatives and sustainability planning.
    d. Help communities to collaboratively engage local policymakers.
2. Clearly define and communicate member/partner roles and responsibilities:
    a. Provide clear expectations and examples that will help members/partners understand how they can support the CHIR's vision in their day-to-day work.
    b. Identify opportunities for stakeholders to play a role in leading collective efforts.
    c. Determine member/partner roles, responsibilities, and objectives that will foster member/partner ownership of the CHIR work.
3. Design structures for coordination and reporting that foster member/partner accountability for CHIR outcomes.
4. Leverage trusted community leaders and cultivate new leaders to move the work forward.

ALIGNED SYSTEMS

Recommendations for enhancing local capacity:

1. Support opportunities for community-level training and capacity building:

    a. Help members/partners to develop skills that will help them to work effectively with vulnerable residents, including children and families.
    b. Consider providing members/partners with training around essential systems, programs, and resources across sectors.
2. Mitigate against regional differences in access to resources and funding:
    a. Where possible, help communities to access and share resources required to build organizational capacity, help organizations move to action, and address resident needs.
3. Identify opportunities to develop organizational capacity to integrate/implement CHIR initiatives as well as needed supports and resources:
    a. Consider opportunities to provide staffing support or resources to facilitate agency engagement.
4. Provide state support where possible to help CHIRs transition through staff turn-over and shifts in leadership.
5. Address broad community barriers at the state level where possible:
    a. Lead the implementation of best practices at the state level around key areas like the development of affordable housing, provision of transportation, access to dental care, or the reduction of stigma.
6. Invest now in the development of cross-sector partnerships and trust.
7. Help communities to collaboratively engage local policymakers.
8. Consider opportunities for improving meeting structure to increase the effectiveness/efficiency of meetings and facilitate action:
    a. Be intentional about the number of people involved in meetings and clarifying meeting agenda/purpose.

Recommendations for promoting more cross-sector alignment:

1. Identify existing community programs, services, and resources to align efforts and avoid duplication. Consider mapping community resources and community initiatives.
2. Determine opportunities to align, improve, and expand screening/referral processes:
    a. Identify opportunities to integrate screening and referral systems.
    b. Improve screening/referral processes to ensure that useful and actionable information is captured and shared appropriately.
    c. Consider expanding the use of screening/referral tools beyond the primary community health and social service organizations.
    d. Explore tools, like a visual decision-tree, that can be used to clearly explain the screening/referral process and available resources to staff members as well as patients/clients.
    e. Recognize that screening and referral processes are more about workflow and less about technology. Work with cross-sector stakeholders to map out key referral workflow processes to identify ways to improve the referral process.
    f. Identify and address any barriers that the screening/referral process may create or exacerbate for specific populations.
3. Align initiatives, goals, targets, and measures at all levels, including the state level wherever possible.
4. Provide state-level support to help communities to align databases and data-sharing systems.
5. Help CHIRs to create accountability mechanisms that support the mission and vision.

6. Support members/partners in learning how to shift policies and address inequities in the community.
7. Help social service organizations to create a more responsive system by providing clients with resources and services where residents are at.

Recommendations for sustaining CHIR efforts:

1. Identify new funding models to sustain and expand CHIR efforts:
    a. Demonstrate and communicate CHIR value to secure new payment models.
2. Drive a broad sustainability plan at the state level:
    a. Determine a long-term, sustainable funding model.
    b. Create state-level policies, contracts, codes, and bills that will allow health plans to provide sustainable funding for CHIR work.
3. Fund remaining gaps at the state level and support continued, long-term systems improvement efforts.

ADAPTIVE LEARNING AND IMPROVEMENT

Recommendations for growing a learning orientation:

1. Develop a clear set of process and outcome metrics to guide local evaluation activities. Develop ways to hold local organizations accountable to these metrics.
2. Continue to identify opportunities to improve data collection, analysis, and sharing to guide community action:
    a. Consider how to improve the use of aggregated/disaggregated data as well as data from residents.
    b. Explore opportunities to build feedback loops and facilitate data-sharing across systems, sectors, and agencies.
3. Consider providing training on continuous improvement, data analysis, and PDSA cycles so that all members/partners feel comfortable with data and prepared to engage in improvement efforts.
4. Pilot CHIR initiatives to provide opportunities for feedback and continuous improvement as efforts are scaled across the community.
5. Create opportunities for cross-CHIR learning and identification of best practices.

EQUITY PURSUITS

Recommendations for supporting equity efforts:

1. Continue to build local capacity and understanding around equity and local disparities:
    a. Identify opportunities to engage diverse partners, including residents, in direct conversations about equity in the SIM Project work.
    b. Create a core group of "equity ambassadors" who could diffuse equity goals across the community. Select individuals who have relationships with groups/individuals who are currently less supportive of equity goals/efforts.
    c. Work to embed an equity lens at multiple levels across government entities and other organizations.
    d. Promote the use of equity assessment tools to identify the various ways local communities promote inequity.

Recommendations for MDHHS

Initial 2018 feedback about the role of MDHHS in supporting the CHIR was generally not positive. While CHIR BBO staff and members appreciated the funding for these efforts, they also reported that many of the processes implemented by the state significantly impeded their efforts. Some of the key obstacles or challenges shared by the CHIRS in 2018 are listed below:

- **Guidance was missing during initial, critical months**. A lack of initial state-level staff who were knowledgeable about community change efforts like the CHIR meant that staff initially struggled to provide communities with needed guidance.
- **Communication messages about the work and state/federal expectations changed frequently during the initial design phase.** These created great tensions for the BBO staff, as they would build some expectations with local partners, only to have to change the work when expectations shifted. Several

CHIRs noted that significant social capital was used to maintain relationships with key partners during this fluctuating time.
    - **Recommendation:** Create an implementation plan at the state level before launching a similar community change effort. This plan may have prevented many of these significant course adjustments.
- **The lack of alignment across screening tools, including between MIBridges and the screening tools, created confusion and challenges around data aggregation at the state level.**
    - **Recommendation:** It would have been beneficial to have the state develop one screening tool that was then vetted by all CHIRs or to have created a state level advisory group (with reps from all CHIRS) that co-designed one tool. Communities spent considerable time in development.
- **The lack of a shared technology platform interfered with data gathering and data integration**.
    - **Recommendation:** It would have been beneficial to have the state, with input from all of the CHIRs, select one technology platform for all of the CHIRs. The CHIRs reported they spent considerable time vetting possible platforms when time might have been better spent elsewhere.
- **The lack of alignment between the PCMH SIM initiative and the CHIR work at the state level created multiple problems at the local level**. Metrics, roll out processes and timelines, communications and expectations varied across these two efforts.
    - **Recommendation**: Integrate, as much as possible, the strategic work and communications for aligned initiatives coming from the state.
- **Current state-level policies and practices interfered with CHIR goals**. Several CHIRs identified multiple MDHHS rules and processes that impeded access to services and cross-sector collaboration.
    - **Recommendation**: Convene an advisory group of CHIR representations to identify existing policies that could be adjusted to facilitate local change efforts.

In 2019, CHIR informants noted their gratitude for the changes made at the state level to support the work. The state CHIR team was described as a valuable resource and support to local efforts. While CHIRs would like more cross-CHIR learning opportunities, they appreciated the current opportunities state level staff created for these processes.

Moving forward, key informants noted that MDHHS should:

1. Continue to explore ways to reduce grant application and reporting burdens and, where possible, fund innovative community efforts.
2. Determine a state-wide CHIR model/service approach based on pilot data and community feedback:
    a. Provide referral technology for new CHIRs.
3. Leverage CHIR experience for learning and coaching throughout the expansion of CHIR efforts.

Next Steps

CHIR informants also highlighted some important next steps for the work moving forward:

SHARED VISION & GOALS	
Determine shared measures and metrics	• Determine a community infrastructure for shared metrics that utilizes real-time data to drive community action. • Include outcomes in metrics as well as key process measures to track implementation effectiveness and equity pursuits.
ENGAGED DIVERSE PARTNERS	
Foster community connections and integrate new stakeholder	• Continue to meaningfully engage new cross-sector partners, particularly business leaders and community officials. • Identify new ways to meaningfully integrate resident voice.
ALIGNED SYTEMS	
Support continued community alignment	• Identify and implement initiatives that will align services, resources, funding, and data collection efforts across the community.
Sustain and expand CHIR efforts	• Create a sustainability/work plan to maintain critical aspects of the work moving forward, including: group/action team meetings, SDOH screenings, CCL efforts, case management services, and backbone support. • Identify sustainable funding models and mechanisms. • Determine and communicate the value of the CHIR to key stakeholders and potential new partners. • Expand and/or replicate CHIR efforts, though be careful to not overtax existing CHIRS with these expansion responsibilities. • Address remaining community gaps.
ADAPTIVE LEARNING & IMPROVEMENT	
Engage in continuous improvement	• Continue to collect data as well as track and evaluate outcomes to drive improvements. • Identify strategies to improve CHIR infrastructure including: meeting structure, referral platforms, and data collection procedures. • Integrate learning questions and processes into every meeting.
Provide training and education opportunities	• Provide additional opportunities to train and educate community partners around processes, services, and resources available in the community.

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Appendix A: Member and Partner Survey Data

About the Survey

Each phase of the transformative change process was measured using a set of individual items, which made up a scale. For each phase, you'll find the overall scale score in a colored band, followed by the individual items making up the scale:

Items below a scale name that appear in *italics* are not part of the scale. This is typically because they were not asked of both members and partners in both years.

Throughout the survey, respondents were asked to select from 6 possible responses:

1. Not at All
2. A Little
3. Somewhat
4. Mostly
5. **Quite a Bit**
6. **A Great Deal**

The percentages reported represent the respondents selecting **"quite a bit"** or **"a great deal"** for each item.

- **For individual items**, the percentages represent the respondents selecting "quite a bit" or "a great deal" for that item.
- **For scales** (a group of individual items measuring a critical element/phase), the percentage reflects the number of people whose average scores for **the entire scale** reflect "quite a bit" or "a great deal". **This is not the same as averaging the scores for individual items together.**
- The survey was designed so that Members and Partners got different sets of questions based on their role within their organization and within the CHIRs. For example, **only** Member-specific questions focused on knowledge of the CHIR's internal operations.

CHIR Survey Detailed Findings

The data presented in this portion of the report includes the survey items used to measure the critical elements and phases of the transformative change process. Throughout the report, the colors in the transformative change process visual (above) are used to indicate what phase in the process is being reported:

Effective Convening

- This scale is the mean of sub-scales:
  - Effective Convener
  - Effective Leadership
- This scale is the mean of sub-scales:
  - Values Diverse Perspectives
  - Voice is Valued
- No sub-scales
- No sub-scales

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Neutral and Trusted Convener								
Effective Convener	**73%**	**49-89%**	**73%**	**60-90%**	**76%**	**55-92%**	**82%**	**69-91%**
Trusted BBO								
The CHIR's backbone staff:								
Are neutral and inclusive.	64%	46-79%	71%	61-81%	78%	63-95%	83%	76-88%
Are respected by members, partners and external stakeholders.	72%	51-89%	72%	67-81%	78%	63-95%	76%	41-92%
Members: Provide the CHIR with the support needed to effectively maintain CHIR operations and activities. Partners: Provide the support needed for me or my organization to engage in activities related to the CHIR	74%	51-95%	79%	56-95%	68%	50-85%	69%	32-91%
Effective BBO	**75%**	**49-95%**	**74%**	**44-88%**	**79%**	**66-90%**	**58%**	**18-91%**
The CHIR's backbone staff:								
Effectively promote the vision and goals of the CHIR.	75%	49-95%	74%	44-88%	79%	66-90%	58%	18-91%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Keep the CHIR focused on and progressing towards its goals.	*70%*	*38-84%*	*74%*	*50-90%*			*80%*	*71-91%*
Coordinate efforts across workgroups, committees, and strategy and action teams.	*71%*	*46-87%*	*74%*	*56-86%*			*64%*	*30-91%*
Inclusive Culture	**50%**	**26-89%**	**55%**	**44-81%**			**47%**	**26-71%**
Values Diverse Perspectives	**61%**	**38-74%**	**68%**	**55-80%**	**46%**	**40-50%**	**50%**	**38-71%**
To what extent does the following describe the CHIR?								
The diverse perspectives that all members/I bring to the table are valued.	65%	44-84%	73%	59-84%	53%	45-59%	63%	52-76%
Members/partners can openly share their perspectives and concerns [with the CHIR].	68%	56-79%	73%	59-81%	58%	49-70%	52%	38-65%
Power is shared among members in ways that support the community's best interests.	*53%*	*40-74%*	*57%*	*44-76%*				
Competition, politics, and power differentials are handled effectively.	*50%*	*36-68%*	*54%*	*38-76%*				
To what extent does CHIR:								
Tap into the skills, resources, and networks that members bring to the table.	*59%*	*36-79%*	*60%*	*44-90%*			*59%*	*41-82%*
Voice is Valued	**35%**	**13-68%**	**44%**	**31-81%**			**35%**	**18-47%**
As a CHIR member, I…								
Have a significant say in decision-making in the CHIR.	43%	21-79%	47%	39-76%			28%	16-45%
Feel that my talents and expertise are well-used in the CHIR's work.	49%	33-84%	51%	33-86%			46%	30-64%
Effective Communication	**50%**	**18-74%**	**49%**	**31-76%**	**42%**	**40-50%**	**49%**	**38-73%**
To what extent does the following describe the CHIR?								
All members/partners have the information they need to be informed and active/support the CHIR's work.	54%	23-68%	56%	44-76%	50%	42-62%	57%	45-76%
Information flows [for members: across different workgroups, committees, and strategy and/or action teams] in a timely and appropriate manner.	56%	28-84%	53%	33-81%	48%	33-75%	55%	38-91%
CHIR communicates effectively with the community about its vision and progress toward goals. (Partners only)			*45%*	*22-76%*	*42%*	*35-50%*	*43%*	*29-64%*
Community Values CHIR	**65%**	**36-89%**	**65%**	**50-86%**	**55%**	**43-65%**	**65%**	**45-91%**
To what extent does CHIR:								

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Enable a level of action and collaboration that could not have happened without its support.	67%	36-89%	65%	50-86%	55%	43-66%	63%	41-91%
Create opportunities for significant improvement in the community that could not have happened without its support.	64%	38-84%	65%	56-86%	55%	41-65%	60%	41-76%
Have a positive reputation within the community.	63%	26-84%	55%	39-81%	57%	50-62%	61%	41-91%
Participation is Worthwhile (not part of Community Values CHIR scale)			69%	56-86%			63%	44-91%
To what extent do you agree with the following statements? I…								
Believe that participating in the CHIR is a worthwhile investment.	63%	45-89%	62%	50-81%			63%	43-82%
Believe that the benefits of the CHIR exceed the cost of the collaborative process.			74%	61-86%			71%	54-91%

Shared Vision and Goals

- This scale is the mean of sub-scales:
  - Common Vision
  - Readiness for Change
  - Local Orgs Support Change Efforts
- No sub-scales
- No sub-scales
- No sub-scales

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Shared Vision Adopted by CHIR	**81%**	**84-100%**	**83%**	**74-89%**			**68%**	**59-73%**
Common Vision	**74%**	**49-84%**	**77%**	**67-90%**			**73%**	**64-82%**
The members of my CHIR…								
Share a common understanding of the needs within our community.	69%	46-84%	76%	61-90%			74%	59-82%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Support the CHIR's goals of targeting social determinants of health to reduce disparities and improve outcomes.	81%	56-95%	80%	67-90%			74%	59-82%
Have a shared vision for the work moving forward.	64%	38-84%	58%	48-80%			55%	35-73%
Readiness For Change	**77%**	**68-85%**	**80%**	**67-92%**	**61%**	**49-69%**	**71%**	**59-91%**
As a CHIR member, I…								
Believe that participating in the CHIR is a worthwhile investment.	63%	45-89%	62%	50-81%			63%	43-82%
To what extent do you agree with the following statements? I…								
Believe we can improve the clinical-community linkages process so more individuals get their needs met.	48%	38-68%	47%	22-67%	51%	41-60%	46%	28-91%
Believe we can improve the conditions within our community to create better health outcomes for the most disadvantaged individuals.	55%	41-79%	55%	41-81%	55%	48-77%	41%	26-73%
Local Organizations Support Change Efforts	**84%**	**61-94%**	**88%**	**76-94%**	**64%**	**62-80%**	**72%**	**59-84%**
To what extent do you agree with the following statements about your organization/agency:								
Changing how my organization works with the most vulnerable individuals will make my organization more effective.	84%	61-94%	88%	76-94%	64%	59-75%	72%	59-84%
My organization can better accomplish its goals by collaborating with health organizations, community organizations/agencies, and employers.	73%	62-89%	94%	84-100%	84%	76-92%	86%	81%-94%
My organization is dedicated to making the changes it needs to address social determinants of health in our community.	*86%*	*75-94%*	*89%*	*82-100%*			*80%*	*74-91%*
Members/Partners Champion CHIR Goals	**51%**	**36-79%**	**52%**	**44-76%**	**54%**	**44-65%**	**47%**	**32-82%**
As a CHIR member/partner, I…								
Initiate conversations with local organizations to connect them to the CHIR's efforts.	48%	38-68%	47%	22-67%	51%	41-60%	46%	28-91%
Speak to work colleagues about what they can do to support the CHIR's efforts.	55%	41-79%	55%	41-81%	62%	48-77%	41%	26-73%
Talk to family, friends, and neighbors about the importance of focusing on social determinants of health.	55%	38-68%	57%	50-71%	58%	50-73%	58%	46-73%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Communicate my concerns about health disparities or social determinants of health to local community leaders, elected officials and/or political candidates.	43%	36-52%	53%	50-71%			48%	29-73%
Shared Vision Embedded Across Community	**46%**	**24-89%**	**63%**	**37-76%**	**55%**	**44-81%**	**69%**	**54-82%**
To what extent do you agree with the following statements about your organization/agency:								
My organization has made the CHIR's vision [for partners: of promoting social determinants of health] a priority for our work moving forward.	54%	35-83%	73%	53-88%	59%	45-77%	75%	57-88%
Staff in my organization understand and support the CHIR's goals of addressing social determinants of health, improving population health, and reducing health disparities.	49%	35-89%	72%	42-94%	59%	40-81%	73%	56-82%
Public Will for SDOH Focus	**15%**	**6-37%**	**30%**	**15-43%**			**21%**	**6-36%**
Because of the CHIR's efforts:								
The general public is becoming more aware of the importance of improving community conditions to enhance health outcomes.	20%	10 -47%	34%	19-47%			23%	6-36%
The general public is becoming more supportive of local efforts to improve community conditions and reduce health disparities.	23%	10-33%	29%	15-40%			25%	9-45%

Engaged Diverse Partners

- This scale is the mean of sub-scales:
  - Active Members
  - Representative Infrastructure
  - Collective Efficacy
- No sub-scales
- No sub-scales
- No sub-scales

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Diverse, Active, and Empowered Members								
Active Members			55%	33-95%			42%	22-73%
As a CHIR member, I…								
I regularly participate in CHIR-based efforts such as attending meetings, participating in workshops/training and/or implementing strategies.			71%	59-95%			52%	27-91%
I take time out of my regular workweek to support CHIR activities.			49%	38-67%			40%	24-73%
Representative Infrastructure	35%	16-68%	37%	17-71%				
Sector Representation	**58%**	**36-79%**	**58%**	**44-71%**				
To what extent does CHIR:								
Have on its committees members who can influence diverse stakeholders and command the respect of a broad range of local leaders.	63%	41-79%	61%	46-71%				
Have on its committees representatives from the multiple sectors needed to effectively do the work.	62%	46-79%	62%	49-76%				
Diverse Representation	**18%**	**7-42%**	**24%**	**14-38%**				
To what extent does CHIR:								
Have on its committees individuals who fully represent the diversity in	31%	9-63%	40%	21-71%				

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
our region in terms of race, ethnicity, and gender.								
Have on its committee's sufficient representation from the individuals we serve.	18%	7-37%	26%	13-43%				
Collective Efficacy	**51%**	**28-68%**	**62%**	**49-76%**			**58%**	**55-62%**
The members of my CHIR…								
Have a deep trust in each other to work together when it counts.	55%	36-68%	56%	44-68%			56%	50-62%
Believe that by working together, we can make a difference in our community.	63%	41-95%	80%	69-92%			76%	69-82%
Willingly offer their resources to support CHIR efforts.	51%	38-68%						
Coordinate their efforts with each other to better leverage resources and outcomes.	82%	64-91%						
Clear and Coordinated Roles	**58%**	**28-84%**	**66%**	**54-90%**	**63%**	**52-75%**	**58%**	**38-91%**
As a CHIR member/partner, I…								
Understand how I can support the CHIR's vision and goals [for partners: the goals of addressing social determinants of health and reducing health disparities] in my day-to-day work.	58%	36-89%	66%	54-90%	63%	52-75%	58%	38-91%
To what extent does CHIR:								
Have an action plan that provides clear direction to all CHIR members about their roles and responsibilities.	*45%*	*18-79%*	*44%*	*23-71%*			*50%*	*30-73%*
The members of my CHIR…								
Understand their roles and responsibilities regarding the work they need to do to support the CHIR's efforts.	*51%*	*36-63%*	*56%*	*31-76%*			*52%*	*42-64%*
Distributed Leadership	**47%**	**29-74%**	**62%**	**50-81%**	**71%**	**69-75%**	**63%**	**43-82%**
To what extent do you agree with the following statements? I…								
Member: Actively lead changes in my organization or community that support the CHIR's vision/goals. Partner: Am willing to initiate changes in my organization or community to improve our efforts	63%	45-89%	62%	50-81%	71%	69-75%	63%	43-82%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
to address social determinants of health.								
Willingly take on leadership roles as they arise.	*48%*	*29-68%*	*48%*	*23-76%*			*36%*	*24-47%*
Empowered Residents	**6%**	**0-21%**	**19%**	**13-29%**	**16%**	**11-20%**	**15%**	**6-27%**
Because of the CHIR's efforts, the individuals we serve/provide services to in our local community…								
Are becoming more engaged, educated, and mobilized to affect community change.	7%	0-21%	20%	15-26%	15%	11-22%	19%	9-36%
Are taking more actions to improve their health and well-being.	7%	3-21%	22%	13-32%	16%	14-19%		11-27%
Are gaining voice and influencing decisions in ways they have not before.	5%	0-16%	22%	13-32%	18%	14-23%	16%	0-36%

Aligned Systems

Community Change Capacity
- This scale is the mean of sub-scales:
  - Ready for Systems Change
  - Sufficient Resources and Supports to Engage in CHIR Efforts

Leveraging Community Change
- No sub-scales

Aligned Policies, Practices and Conditions
- This scale is the mean of sub-scales:
  - Improved Referrals
  - Stronger Partnerships
  - Greater Cultural Competency

Sustained Funding
- No sub-scales

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Community Change Capacity	**40%**	**27-72%**	**43%**	**22-62%**	**47%**	**19-50%**	**34%**	**18-55%**
Ready for Systems Change	**49%**	**36-66%**	**50%**	**28-62%**	**43%**	**31-60%**	**31%**	**12-73%**
To what extent do you agree with the following statements? I…								
Know how to use data to improve decision-making and actions.	71%	54-89%	76%	56-90%	53%	38-75%	48%	35-73%
Know how to address the inequities in our community.	30%	26-42%	40%	17-57%	36%	23-50%	28%	17-45%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Know how to improve the connections between health care and community service agencies.	*54%*	*38-79%*	*64%*	*51-81%*			*49%*	*32-73%*
Know how to shift policy, environment, and community systems conditions to address social determinants of health.	*41%*	*29-58%*	*47%*	*28-62%*	*42%*	*31-55%*	*32%*	*18-64%*
Am aware of the gaps in local services that need to be addressed.	*63%*	*54-74%*	*73%*	*50-90%*			*58%*	*48-73%*
Sufficient Resources and Supports to Engage in CHIR Efforts	**46%**	**28-63%**	**43%**	**28-62%**			**45%**	**29-73%**
To what extent do you agree with the following statements about your organization/agency:								
My organization has the resources and supports it needs to support the CHIR's efforts.	41%	30-67%	33%	21-55%	40%	29-50%	36%	9-64%
To what extent does CHIR:								
Have available the resources, services, and supports needed within the community to accomplish its goals.	*46%*	*28-63%*	*43%*	*28-62%*			*45%*	*29-73%*
CHIR Supports Innovation (not part of Resources Scale)								
To what extent does CHIR:								
Value innovation and finding new ways of solving local problems.			68%	51-90%			66%	48-91%
Create collaborative spaces where cross-sector individuals can be creative and innovate together.			69%	50-90%			69%	55-91%
Leveraging Community Change								
Is your organization changing any of its policies, procedures or practices as a result of your involvement in the CHIR? (% of org CEO/ED and Lead Program Director/Manager responding "Yes")	59%	44-86%	63%	33-87%	56%	52-61%	56%	45-67%
Aligned Policies, Practices and Conditions	**31%**	**18-58%**	**48%**	**31-61%**	**28%**	**22-35%**	**34%**	**25-55%**
Individual Impacts: Greater Focus on SDOH (not part of Aligned Policies, Practices and Conditions scale)	**54%**	**28-79%**	**68%**	**56-81%**	**58%**	**51-65%**	**62%**	**48-91%**
Because of my involvement in the CHIR…								
I am shifting how I think about health and what is needed to improve health outcomes.	42%	26-58%	65%	59-76%	53%	46-61%	61%	45-82%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
I am integrating a stronger focus on social determinants of health in the work I do.	59%	38-74%	79%	64-95%	58%	49-65%	70%	48-100%
I have become more dedicated to reducing inequities in my community.	66%	49-84%	69%	54-81%	65%	57-75%	68%	53-100%
Greater Organizational Effectiveness (not part of Aligned Policies, Practices and Conditions scale)	**33%**	**16-67%**	**52%**	**36-78%**	**38%**	**30-50%**	**51%**	**29-82%**
As a result of my organization/agency's involvement in the CHIR, my organization/agency is:								
Gaining useful knowledge about services, programs, or people in the community.	50%	27-78%	58%	36-72%	54%	48-58%	61%	36-73%
Experiencing increased levels of respect and credibility from other agencies and organizations.	37%	19-72%	53%	43-67%	42%	34-50%	57%	39-91%
Experiencing increased responsiveness from other organizations and agencies to our questions, concerns, referrals, and requests.	29%	10-67%	52%	43-67%	42%	33-65%	48%	29-73%
Gaining access to more or different types of resources.	29%	19-50%	47%	21-59%	40%	30-58%	51%	25-73%
Gaining opportunities to have a greater impact than we could achieve on our own.	46%	24-78%	60%	49-78%	47%	40-58%	57%	32-82%
Having greater success at achieving our mission and goals.	38%	19-78%	51%	36-61%	34%	20-41%	45%	18-73%
Stronger Community Systems	**31%**	**18-58%**	**48%**	**31-61%**	**28%**	**22-35%**	**34%**	**25-55%**
Improved Referrals	**28%**	**15-47%**	**44%**	**23-61%**	**28%**	**15-38%**	**33%**	**18-64%**
Because of the [CHIR AKA]'s efforts:								
Health care providers and community service organization/agency staff are getting better at referring individuals to needed services.	39%	23-68%	62%	35-74%	35%	20-46%	48%	29-82%
It is getting easier to refer individuals to needed services.	30%	13-47%	44%	27-61%	29%	17-46%	35%	21-64%
Stronger Partnerships	**44%**	**29-74%**	52%	42-70%	**29%**	**21-40%**	**36%**	**29-44%**
Because of the [CHIR AKA]'s efforts:								
Health care providers and community service organization/agency staff are more likely to coordinate service and treatment plans with each other.	33%	15-63%	53%	31-74%	27%	19-42%	35%	29-47%
Health care and community service systems are becoming more aligned and integrated with each other.	42%	26-74%	47%	38-53%	24%	17-31%	33%	24-55%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Partnerships between community organizations and agencies are strengthening and expanding.	55%	38-79%	58%	47-65%	35%	22-50%	42%	29-64%
Greater Cultural Competency	**25%**	**15-42%**	**47%**	**38-57%**			**27%**	**18-45%**
Because of the [CHIR AKA]'s efforts:								
Health care providers and community service organization/agency staff are treating the most disadvantaged individuals with more respect, dignity, and compassion.	36%	26-58%	56%	47-67%			34%	24-45%
Local health care and community service organizations/agencies are becoming more culturally competent/responsive.	35%	23-68%	47%	35-53%			37%	12-64%
There is greater trust between providers and vulnerable or disadvantaged individuals.	18%	10-26%	34%	19-48%			21%	14-33%
Access is Improving (not part of Aligned Policies, Practices and Conditions scale)	**11%**	**2-26%**	**13%**	**4-24%**	**5%**	**0-17%**	**17%**	**6-36%**
Because of the CHIR's efforts:								
Access to health care is improving.	39%	23-68%	29%	8-43%	16%	12-20%	28%	15-45%
Access to healthy food is improving.	33%	15-63%	28%	4-48%	15%	8-20%	30%	18-55%
Opportunities for economic stability, including livable wage jobs, are improving.	36%	26-58%	17%	4-30%	12%	7-20%	19%	6-36%
Access to more affordable housing is improving.	35%	23-68%	9%	4-18%	6%	0-15%	12%	3-27%
Access to needed transportation is improving.	42%	26-74%	15%	4-38%	8%	0-15%	18%	7-45%
Access to social, emotional, and behavioral supports is improving.	55%	38-79%	33%	22-48%	10%	4-15%	23%	6-55%
Residents Needs are Met (not part of Aligned Policies, Practices and Conditions scale)	**9%**	**2-26%**	**17%**	**12-29%**	**11%**	**5-19%**	**15%**	**6-36%**
The individuals we serve/provide services to in our local community…								
Are becoming more aware of the services and supports available in our community.	18%	8-37%	29%	17-41%	24%	15-30%	27%	12-55%
Are now more likely to get their health needs met.	14%	4-32%	29%	22-48%	20%	12-31%	27%	18-55%
Are now more likely to get their social needs met.	18%	8-32%	31%	13-48%	19%	12-37%	25%	15-45%
Are getting the answers they need to make informed decisions about appropriate services.	21%	8-47%	35%	26-48%	20%	12-27%	31%	12-64%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Are now more likely to have greater housing stability.	8%	3-21%	14%	7-26%	7%	0-15%	10%	3-18%
Are reducing their use of emergency department services.	9%	0-26%	22%	8-43%	10%	5-15%	19%	9-55%
Are getting healthier.	7%	2-21%	18%	8-24%	9%	5-19%	18%	3-45%
Are becoming more self-sufficient.	6%	2-16%	16%	7-24%	10%	5-19%	11%	0-36%
Sustained Funding	**14%**	**6-32%**	**25%**	**12-33%**			**22%**	**12-31%**
Because of the CHIR's efforts:								
New resources are being contributed to health improvement efforts from private and public funders.	19%	8-37%	36%	22-47%			38%	25-64%
County and city government officials are working to align resource allocations to promote health and reduce inequities.	12%	6-16%	21%	8-33%			23%	18-38%
Health plans are aligning their resources to support a greater focus on social determinants of health.	28%	16-58%	39%	27-52%			26%	9-49%
Hospital systems are addressing broader community health needs by shifting investments away from traditional clinical care and toward community conditions.	23%	10-42%	24%	15-30%			22%	12-29%

Adaptive Learning and Improvement

- No sub-scales
- No sub-scales
- No sub-scales
- No sub-scales

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
Shared Accountability and Measurement	**62%**	**46-84%**	**59%**	**38-72%**			**59%**	**52-73%**
The members of my CHIR…								
Feel accountable for results (e.g. achieving outcomes, achieving policy	62%	44-79%	58%	36-76%			59%	52-70%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
changes, and improving community conditions).								
Hold each other accountable for taking action and creating needed change.	48%	26-68%	41%	28-60%			48%	35-64%
Share an ongoing commitment to creating a system responsive to resident needs.	73%	54-89%	77%	72-84%			70%	58-82%
Learning Orientation	**58%**	**23-84%**	**53%**	**28-81%**			**46%**	**29-73%**
To what extent does CHIR:								
Regularly use data to determine its direction and priorities.	63%	28-84%	63%	44-81%			57%	45-82%
Adapt strategies and tactics in the face of new information.	60%	28-84%	60%	33-81%			55%	41-82%
Have common metrics and data collection tools that can be used across organizations to track progress on your outcomes.			54%	22-84%			50%	35-82%
Have systems in place to integrate data and track progress across settings			54%	28-81%			51%	30-100%
Continuous Improvement Practiced	**27%**	**13-39%**	**46%**	**36-56%**	**34%**	**23-48%**	**51%**	**41-73%**
As a result of my organization/agency's involvement in the CHIR, my organization/agency is:								
Creating a work climate that has a stronger focus on learning and continuous improvement.	37%	27-53%	46%	36-56%	45%	33-55%	51%	41-73%
Gathering more real-time feedback from the individuals we serve to improve our efforts.	33%	22-46%	42%	34-50%	38%	27-48%	40%	33-55%
More regularly using data to track our progress and improve our efforts.	41%	29-65%	49%	34-57%			53%	32-91%
Sustained Mechanisms for Co-Learning and Continuous Improvement			**39%**	**22-58%**			**32%**	**18-55%**
Because of the CHIR's efforts...								
There are cross-sector efforts to promote data sharing and continuous improvement efforts within the community			54%	40-73%			31%	18-45%
Local funders are asking grantees to put a greater emphasis on using data for continuous improvement			39%	30-54%			33%	24-55%

Equity Pursuits

- No sub-scales
- No sub-scales
- No sub-scales
- No sub-scales

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
CHIR Prioritizes Inequities	**67%**	**44-89%**	**74%**	**67-81%**	**64%**	**54-74%**	**65%**	**53-91%**
To what extent does the following describe the CHIR?								
The pursuit of equity is a core part of the CHIR's work.	67%	44-89%	74%	67-81%	64%	54-74%	65%	53-91%
The members of my CHIR…								
Understand the various ways racial and income inequities have created advantages and disadvantages within our community.	*61%*	*53-74%*	*64%*	*54-76%*			*65%*	*55-82%*
Agree that local inequities are primarily caused by community conditions rather than individual-level behavior.	*62%*	*51-79%*	*63%*	*54-71%*			*61%*	*52-82%*
Structural Changes Pursued by CHIR			**47%**	**34-71%**			**45%**	**34-73%**
Reducing differences in access to needed services experienced by different groups within your community (e.g., creating greater access for residents within low-income neighborhoods, etc.).			49%	39-76%			48%	38-73%
Ensuring interactions with health care providers and community agency staff are the same for everyone, regardless of income, race, ethnicity, age, gender, sexuality, language, immigration status, or disability.			55%	38-76%			52%	38-73%
Ensuring the most vulnerable populations have the knowledge and skills to take advantage of resources and supports in the community.			49%	41-67%			46%	31-73%
Creating more opportunities for the most disadvantaged residents to have voice and influence.			38%	24-52%			35%	29-44%
Establishing institutional commitments to advancing health equity, including integrating a focus on health equity into community wide policies and practices			45%	33-57%			46%	24-82%

	Members				Partners			
	2018		2019		2018		2019	
	Avg	Range	Avg	Range	Avg	Range	Avg	Range
(e.g., adopting a Health in All Policies approach).								
Member and Partner Organizations Create Culture for Equity	**62%**	**56-67%**	**78%**	**65-90%**	**55%**	**45-68%**	**70%**	**65-76%**
To what extent do you agree with the following statements about your organization/agency:								
My organization is making the pursuit of equity a core part of its work.	68%	52-86%	80%	69-88%	69%	52-81%	76%	70-82%
My organization is considering how inequities might emerge from our policies and practices and adjusting them accordingly.	65%	55-89%	79%	66-90%	55%	46-62%	70%	65-76%
To what extent do you agree with the following statements about your organization/agency:								
Staff in my organization understand the various ways racial and income inequities have created advantages and disadvantages within our community.			*72%*	*50-82%*	*57%*	*44-65%*	*63%*	*47-74%*
Staff in my organization agree that local inequities are primarily caused by community conditions rather than individual-level behavior.			*65%*	*47-80%*	*44%*	*34-54%*	*62%*	*57-71%*
Public Support for Equity	**17%**	**8-26%**	**35%**	**22-48%**			**27%**	**12-64%**
Because of the CHIR's efforts:								
There is greater public will to shift local resources, policies, and budgets in support of more equitable outcomes.	11%	7-16%	28%	19-38%			25%	12-55%
The community has increased its commitment to promoting equity and reducing inequities.	33%	13-58%	48%	32-60%			36%	12-73%

Appendix B: Key Drivers of Change by CHIR

	CHIR 1				CHIR 2				CHIR 3				CHIR 4				CHIR 5			
	Members		Partners		Members		Partners		Members		Partners		Members		Partners		Members		Partners	
	2018 N=31	2019 N=39	2018 N=63	2019 N=37	2018 N=39	2019 N=18	2018 N=54	2019 N=50	2018 N=45	2019 N=29	2018 N=59	2019 N=29	2018 N=46	2019 N=25	2018 N=26	2019 N=17	2018 N=19	2019 N=21	2018 N=20	2019 N=11
Effective Convening																				
Neutral and Trusted Convener (Effective Convener)	68%	69%	63%	86%	49%	61%	80%	80%	76%	79%	74%	69%	83%	88%	60%	82%	89%	86%	90%	91%
Inclusive Culture	55%	44%	n/a	35%	33%	50%	n/a	26%	51%	45%	n/a	38%	59%	56%	n/a	71%	89%	81%	n/a	64%
Effective Communication	55%	31%	40%	43%	18%	33%	44%	38%	44%	41%	44%	38%	57%	64%	50%	53%	74%	76%	50%	73%
Valued CHIR	58%	51%	43%	59%	36%	50%	46%	54%	71%	66%	61%	45%	70%	72%	62%	76%	89%	86%	65%	91%
Shared Vision and Goals																				
Vision Adopted by CHIR	65%	74%	n/a	59%	73%	82%	n/a	72%	84%	85%	n/a	68%	84%	89%	n/a	71%	100%	85%	n/a	73%
Vision Embedded Across Community	35%	53%	57%	71%	24%	76%	44%	58%	39%	73%	45%	54%	43%	37%	81%	82%	89%	75%	50%	82%
Engaged and Diverse Partners																				
Clear and Coordinated Roles	52%	54%	63%	49%	36%	61%	52%	38%	49%	66%	56%	41%	63%	60%	69%	71%	89%	90%	75%	91%
Empowered Residents	6%	29%	11%	12%	3%	20%	20%	18%	2%	15%	14%	11%	0%	13%	19%	6%	21%	19%	15%	27%
Aligned Systems																				
Community Change Capacity	35%	38%	38%	38%	32%	22%	28%	34%	27%	31%	29%	24%	32%	60%	19%	18%	72%	62%	50%	55%
Adaptive Learning & Improvement																				
Continuous Improvement Practiced	13%	40%	43%	50%	22%	50%	24%	50%	36%	50%	48%	43%	24%	36%	23%	41%	39%	56%	30%	73%
Equity Pursuits																				
CHIR Prioritizes Inequities	68%	67%	54%	59%	44%	78%	74%	62%	67%	76%	63%	59%	70%	68%	58%	53%	89%	91%	70%	91%
Organizations Create Culture for Equity	63%	66%	68%	76%	56%	82%	45%	67%	65%	65%	48%	68%	59%	84%	55%	65%	67%	73%	57%	73%

Appendix C: Organizations Pursuing Changes

Initiating Changes In Policies, Resources, And Local Community Conditions

- These questions were answered only by those in the CEO/Top Executive or Program Director/Manager role who said their **organizations ARE making changes**. (59% of 156 Member and Partner Organizations in 2018 and 50% of 114 in 2019).
- Multiple responses from one organization were combined so each organization is reflected only once.
- *Scale % (in colored bands) reflects respondents selecting **yes for any individual item in the scale.***

Note: these items are averaged at the organization level, NOT the CHIR level. Unique orgs combines member and partner responses, removing any duplication of organizations across these groups.

In which of the following areas is your organization initiating or making policy/procedure/practice changes as a result of your involvement with the CHIR?	2018 Unique Orgs (n=92)	2019 Unique Orgs (n=67)
Aligned Resources and Coordinated Support	**89%**	**96%**
Aligning data and record keeping systems with other organizations.	48%	48%
Sharing data about services and outcomes with other organizations.	58%	72%
Collaborating with organizations representing other sectors and populations.	68%	81%
Meeting Residents Needs	**88%**	**88%**
Seeking and responding to resident needs and concerns.	65%	46%
Increasing efforts to inform individuals about available services/supports.	55%	87%
Reaching out and connecting to individuals most impacted by health inequities.	77%	37%
Building Staff Capacity	**73%**	**75%**
Developing staff skills to advance equity.	55%	52%
Building a more diverse staff.	52%	42%
Expanding job roles and adding staff.	38%	46%
Assessment Practices	**75%**	**76%**
Adopting new assessment and referral practices to increase service coordination (e.g. using new social determinants of health screening tool).	65%	60%
Coordinating needs assessment efforts with others in the community.	50%	58%
Data Collection	**73%**	**73%**
Collecting more or different types of data to inform continuous improvement.	68%	69%
Monitoring progress on reducing inequities.	39%	31%
Accessible Services	**84%**	**82%**
Expanding services and programs to address gaps.	65%	61%
Shifting how, where, and when services are offered to make them more accessible.	48%	45%
Working to improve quality of care/services.	63%	55%
Community Conditions	**67%**	**58%**
Expanding efforts to improve community social, health, and living conditions.	67%	58%

Appendix D: Baseline Community Conditions

The items below were asked of Partners and Stakeholders **unfamiliar with the CHIR's work** and can be used to understand the current conditions in the community from the perspective of those individuals.

[S] Survey items answered by stakeholders (2018 n=202; 2019 n=216)
[P, S] Survey items answered by partners and stakeholders (2018 n=424; 2019 n=365)

Current Capacity: Individuals	2018 CHIR Average	2018 CHIR Range	2019 CHIR Average	2019 CHIR Range
Individual Capacity for Change[S]	**54%**	**42-60%**	**51%**	**33-67%**
I…				
Currently integrate a strong focus on the social determinants of health in the work I do.	55%	42-60%	51%	33-67%
Am aware of the services provided by other agencies/organizations in my community.	70%	60-86%	70%	60-92%
Am aware of the challenges the most vulnerable individuals experience in accessing needed supports and services within our community.	80%	67-100%	75%	71-79%
Know how to shift policy, environment, and community systems conditions to address social determinants of health.	84%	75-89%	86%	76-82%
Know how to use data to improve decision-making and actions.	56%	36-70%	49%	33-64%
Know how to address the inequities in our community.	81%	72-86%	74%	65-83%

Current Conditions: Organizations	2018 CHIR Average	2018 CHIR Range	2019 CHIR Average	2019 CHIR Range
Organizations Ready to Support SDoH Focus[S]	**49%**	**43-57%**	**53%**	**36-75%**
To what extent do you agree with these statements about your org/agency?				
Working to address social determinants of health benefits my organization.	62%	53-74%	72%	62-83%
My organization is interested in becoming more active in efforts to improve social determinants of health and reduce health disparities.	50%	43-65%	59%	43-83%
Organizational Effectiveness[S]	**46%**	**29-58%**	**53%**	**36-75%**

To what extent do you agree with these statements about your org/agency?

Current Conditions: Organizations	2018 CHIR Average	2018 CHIR Range	2019 CHIR Average	2019 CHIR Range
Local organizations respect my organization and the work it does.	68%	64-71%	65%	53-83%
Local organizations are responsive to our questions, concerns, referrals, and requests.	45%	42-50%	48%	29-67%
Staff within my organization are aware of the services and programs within our community and how to refer to them.	37%	28-46%	40%	29-47%
Continuous Improvement Practices	**39%**	**14-40%**	**53%**	**42-67%**
To what extent do you agree with these statements about your org/agency?				
My organization uses real-time feedback from the individuals we serve.[s]	39%	14-40%	53%	42-67%
My organization uses data to track our progress and improve our efforts.[p,s]	*58%*	*49-64%*	--	--
Mechanisms for Co-Learning and Improvement[s]	**33%**	**14-43%**	**38%**	**21-50%**
To what extent do you agree with these statements about your org/agency?				
My organization is aligning its resources to support continuous improvement and data-sharing efforts within our community.	33%	14-43%	38%	21-50%

Current Conditions: Community Systems	2018 CHIR Average	2018 CHIR Range	2019 CHIR Average	2019 CHIR Range
Referrals[p,s]	**21%**	**14-33%**	**20%**	**10-26%**
To what extent do the following statements describe your community?				
It is easy to refer individuals to needed services.	21%	14-33%	20%	10-26%
Strong Partnerships[p,s]	**13%**	**8-19%**	**18%**	**8-26%**
To what extent do the following statements describe your community?				
Health care providers and community service agency/organization staff coordinate service and treatment plans with each other.	15%	7-26%	19%	12-30%
Health care and community service systems are aligned and integrated with each other.	13%	6-23%	16%	8-22%
There are strong and effective cross-sector partnerships.	22%	15-33%	26%	19-39%
Cultural Competency[p,s]	**13%**	**4-24%**	**9%**	**6-15%**
To what extent do the following statements describe your community?				

Current Conditions: Community Systems	2018 CHIR Average	2018 CHIR Range	2019 CHIR Average	2019 CHIR Range
Health care providers and community service agency/organization staff treat the most disadvantaged individuals with respect, dignity, and compassion.	37%	28-44%	36%	28-48%
Vulnerable or disadvantaged individuals trust health care and service delivery providers.	10%	3-20%	8%	4-15%
Access to Services[p,s]	**3%**	**1-8%**	**2%**	**0-4%**
To what extent do the following statements describe your community?				
Affordable, healthy food is easy to access.	8%	2-13%	11%	9-14%
Affordable, stable housing is easy to access.	3%	1-8%	1%	0-4%
Needed transportation is easy to access.	5%	1-10%	8%	4-22%
Social, emotional and behavioral supports are easy to access.	5%	3-7%	7%	4-12%
Non-emergency health services are easy to access.	*13%*	*7-22%*	--	--
Conditions Support Self Sufficiency[p,s]	**8%**	**4-12%**	**8%**	**7-9%**
To what extent do the following statements describe your community?				
The community has the conditions needed to promote self-sufficiency.	8%	4-12%	8%	7-9%

Current Conditions: Public Will	2018 CHIR Average	2018 CHIR Range	2019 CHIR Average	2019 CHIR Range
Community Support for SDoH Focus[p,s]	**20%**	**6-33%**	**19%**	**13-35%**
To what extent do the following statements describe your community?				
The general public is supportive of local efforts to improve community conditions and reduce health disparities.	20%	6-33%	19%	13-35%
Community Support for Equity[p,s]	**13%**	**6-26%**	**18%**	**8-30%**
To what extent do the following statements describe your community?				
There is public will to shift local resources, policies, and budgets in support of more equitable outcomes.	13%	6-26%	18%	8-30%

Current Conditions: Resident Needs are Met	2018 CHIR Average	2018 CHIR Range	2019 CHIR Average	2019 CHIR Range
Residents Needs Are Met[s]	**4%**	**0-12%**	**6%**	**0-12%**
The individuals who need and/or receive services in the local community…				
Are aware of the health and social services and supports available to them.	5%	0-14%	6%	0-12%
Get the answers they need to make informed decisions about appropriate services.	5%	0-12%	7%	1-12%
Have the opportunities and resources they need to become more self-sufficient.	4%	0-8%	7%	1-18%
Residents Are Empowered[s]	**1%**	**0-2%**	**3%**	**0-7%**
The individuals who need and/or receive services in the local community…				
Are engaged, educated, and mobilized to affect community change.	1%	0-2%	3%	0-7%
Take actions to improve their health and well-being.	1%	0-2%	4%	0-7%
Have voice and influence within our community.	3%	0-6%	3%	0-7%

MICHIGAN STATE INNOVATION MODEL CLINICAL COMMUNITY LINKAGES REPORT

All Community Health Innovation Regions

SIM MDHHS State Innovation Model

MPHI®

January 2020

Support

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About

Michigan Public Health Institute (MPHI) is a Michigan-based and nationally engaged non-profit public health institute that is dedicated to a vision of building a world where tomorrow is healthier than today. MPHI's mission is to advance population health through innovation and collaboration.

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Community Health Innovation Region
Clinical Community Linkages – Final Report*

Produced: January 2020

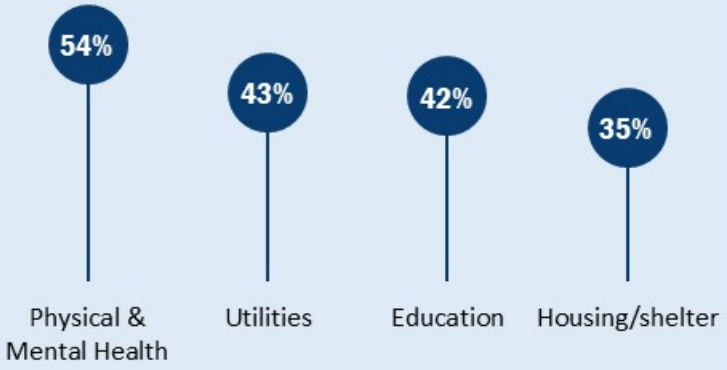
CCL Data Overview

The **5** CHIRs have optimized their data documentation and reporting systems at different time periods. Therefore, the best 12 months in which each CHIR has the most complete data on needs and linkages were selected for the final CCL report, including a total of 10,832 clients with a social need:

Genesee:	12/2017 - 12/2018	(n=1,635)
Jackson:	7/2018 - 6/2019	(n=939)
L/Washtenaw:	7/2018 - 6/2019	(n=210)
Muskegon:	7/2018 - 6/2019	(n=7,410)
Northern:	7/2018 - 6/2019	(n= 638)

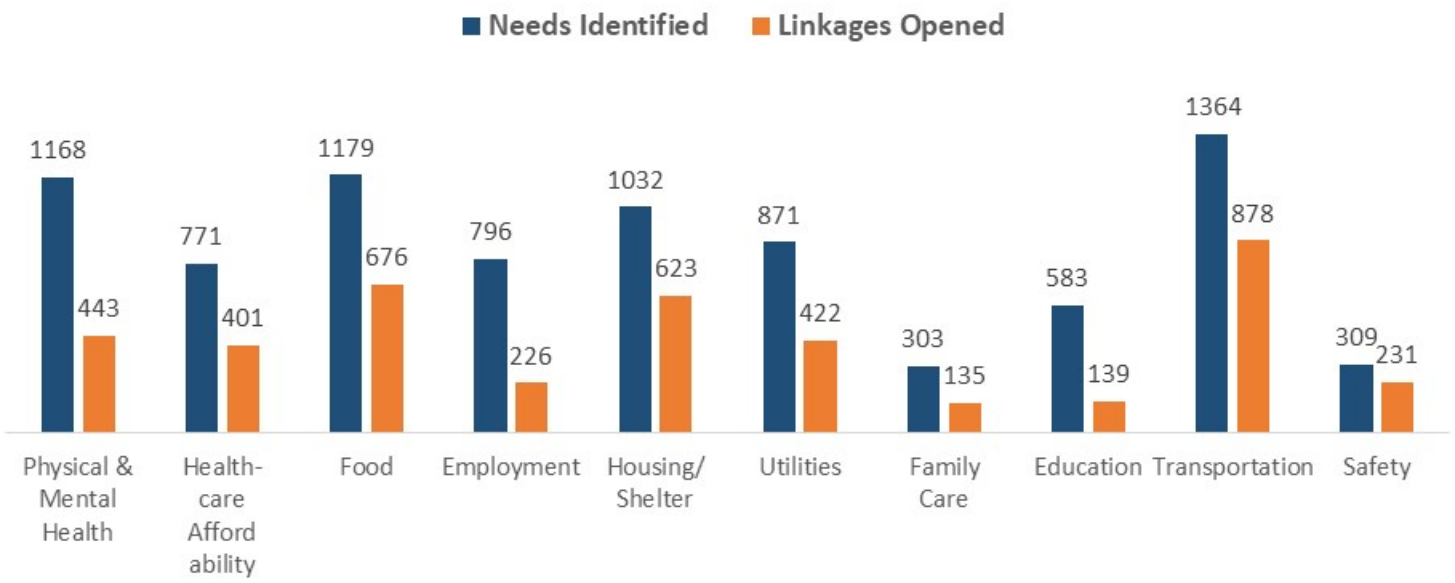
Top Social Needs Across All 5 CHIRs

(n=10,832 with at least 1 need)



Needs Identified & Linkages Opened Across 4 CHIRs** with Linkage Data

(N=3,422 individuals with at least one need; 2,576 with linkage data)

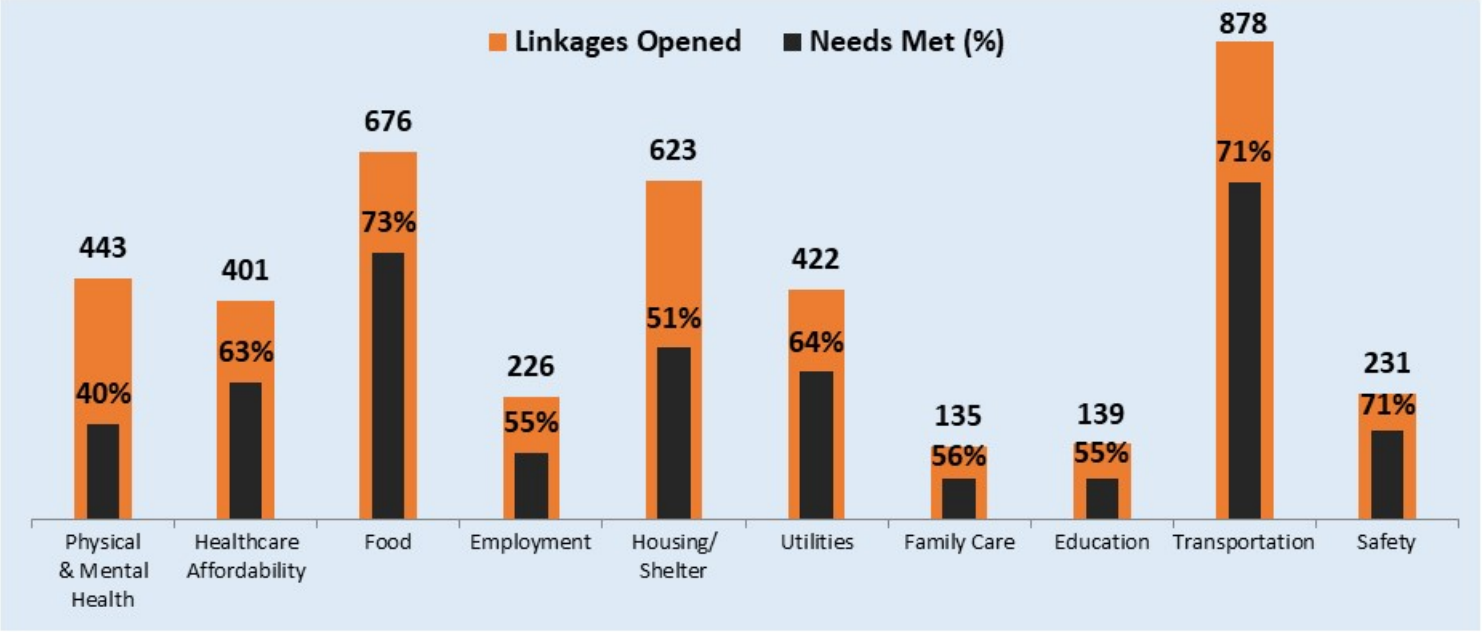


*The project described was supported by Grant Number CMS-1G1-14-001 from the Department of Health and Human Services, Centers for Medicare & Medicaid Services. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies. The research presented here was conducted by the awardee. Findings might or might not be consistent with or confirmed by the findings of the independent evaluation contractor. If you have any questions about the results, please contact Clare Tanner, Ph.D. at Michigan Public Health Institute: ctanner@mphi.org or 517-324-7381.

** Muskegon CHIR was excluded due to lack of linkage data.

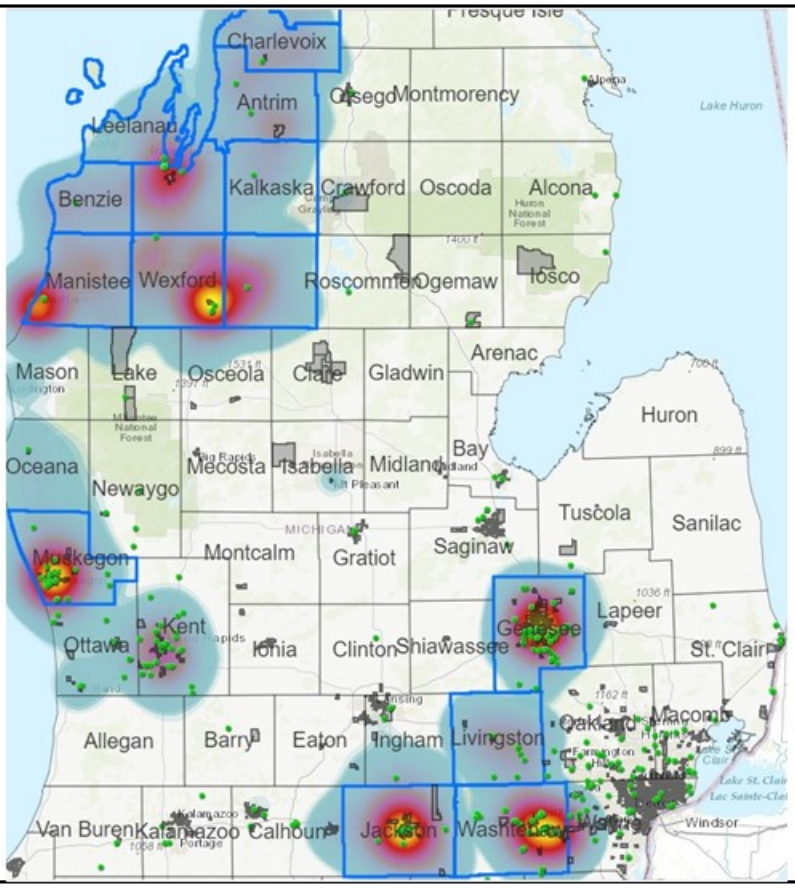
Linkage Status and Characteristics of Clients

Linkages Opened & Closed with Needs Met Across 4 CHIRs with Linkage Data (n=2,576 with linkage data)

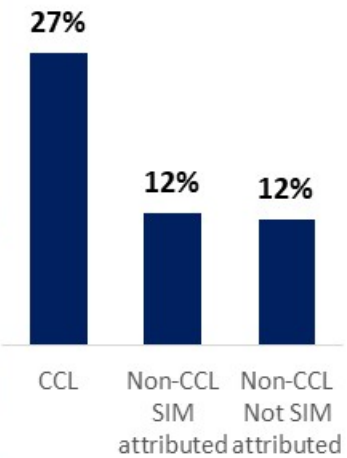


Residential Geographic Information

Concentration of Clients with a Need (n=10,832)



2,335 clients with linkage matched to Medicaid Data Warehouse. 27% of those who also had geocode live in the **top 10% most deprived areas**

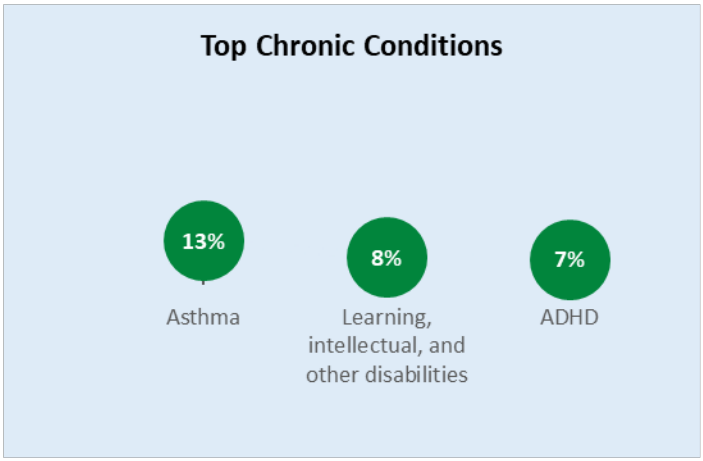


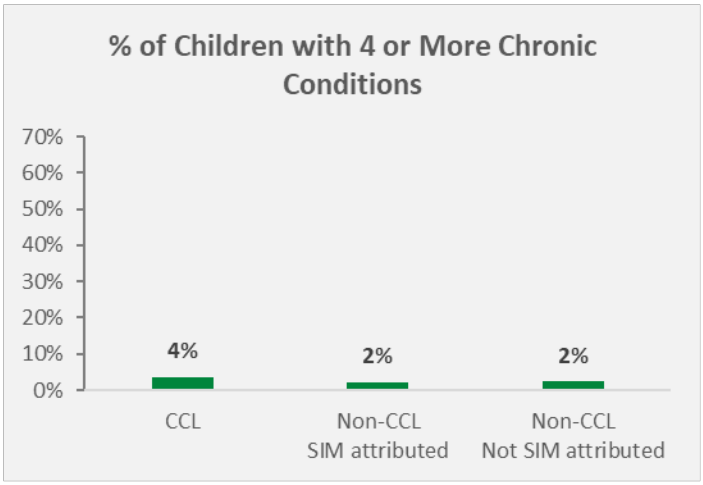
*The Area Deprivation Index (ADI) represents a geographic area-based measure of the socioeconomic deprivation experienced by aa neighborhood. ADI is used as a proxy measure for socioeconomic status to capture individual-level social risk factors. It includes factors for the theoretical domains of income, education, employment, and housing quality.

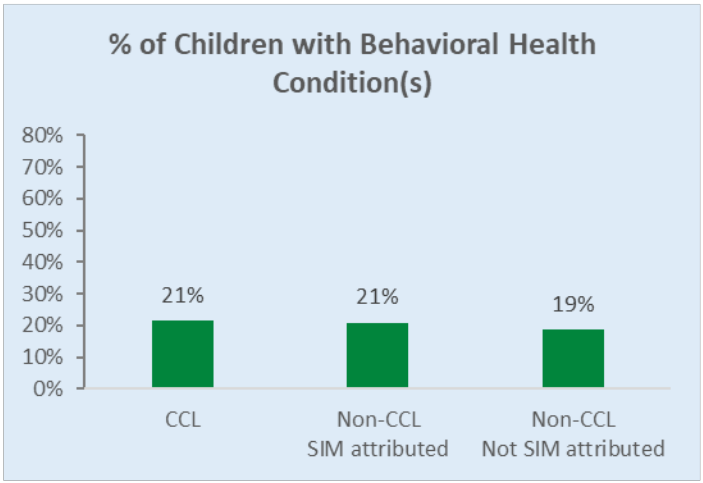
Health Conditions*

Children

(N=1,381 CCL Clients with linkage had health condition information in the Medicaid Data Warehouse, N=97,895 and N=61,849 for non-CCL SIM/Not-SIM Attributed)

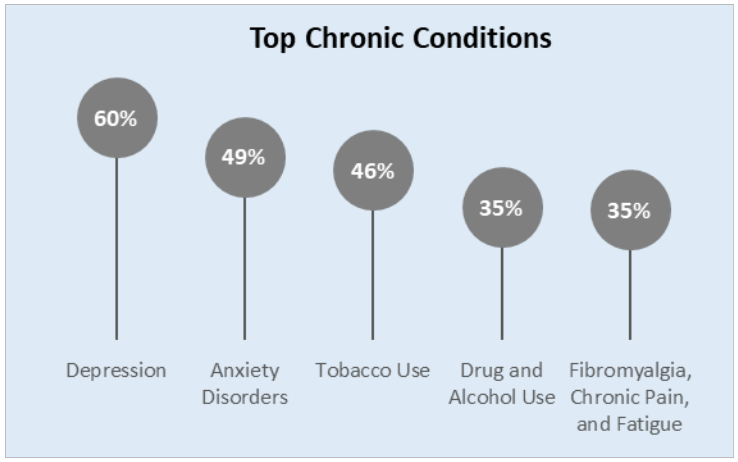


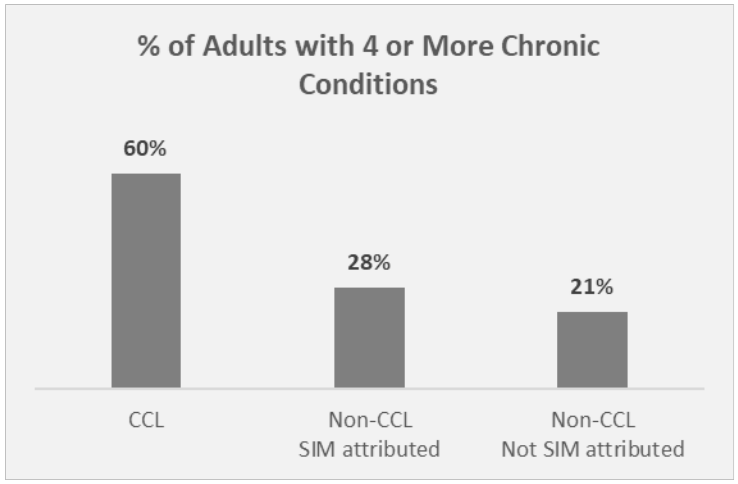


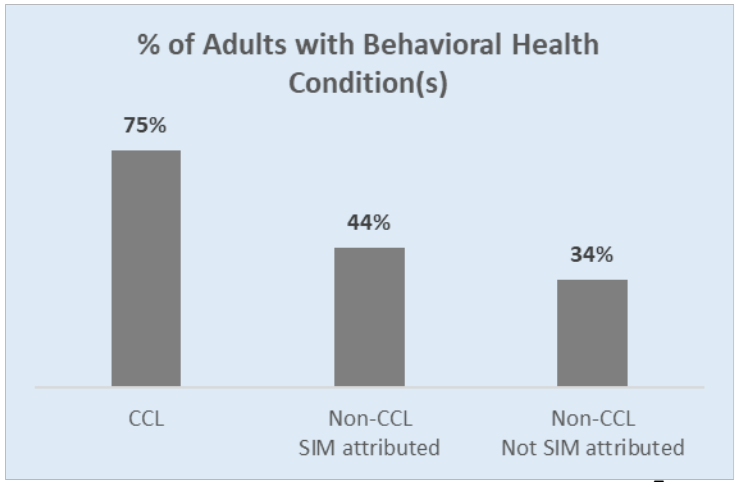


Adults

(N=778 CCL Clients with linkage had health condition information in the Medicaid Data Warehouse, N=115,950 and N=117,904 for non-CCL SIM/Not-SIM Attributed)







* Includes only beneficiaries with linkage data, matched to Medicaid Data Warehouse, and had chronic condition information in the Data Warehouse.

Baseline Year Healthcare Utilization and Costs *

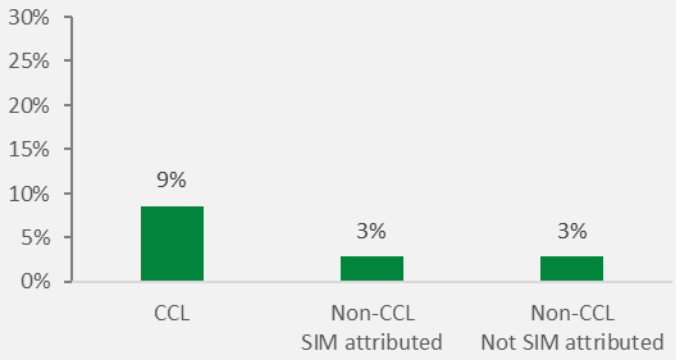
Children

(N=940 CCL Clients with linkage had Four Full Quarters of Medicaid Eligibility Before First Linkage Date, N=70,420 and N=36,178 for non-CCL SIM/Not-SIM Attributed)

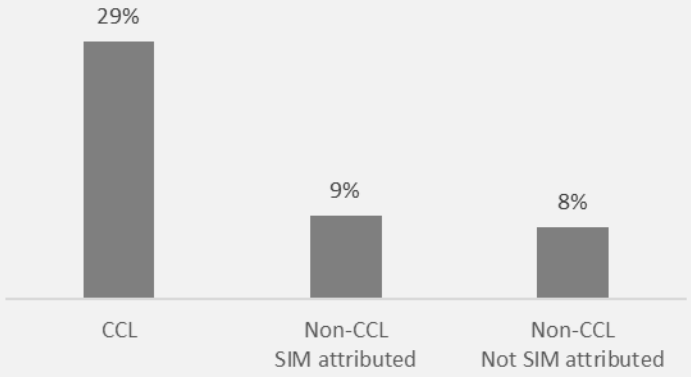
Adults

(N=544 CCL Clients with linkage had Four Full Quarters of Medicaid Eligibility Before First Linkage Date, N=66,992 and N=51,930 for non-CCL SIM/Not-SIM Attributed)

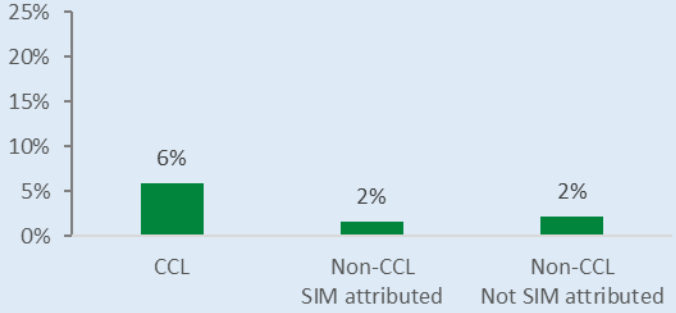
% of Children with 3 or More ED Visits During the Baseline Year



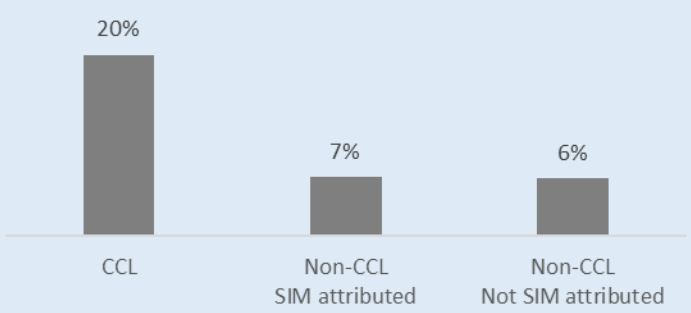
% of Adults with 3 or More ED Visits During the Baseline Year



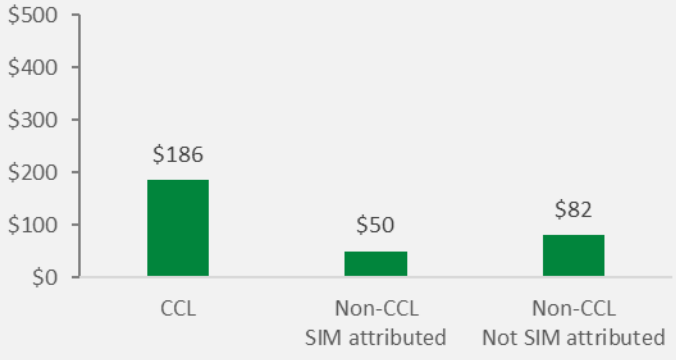
% of Children with 1 or More Acute Hospitalizations During the Baseline Year



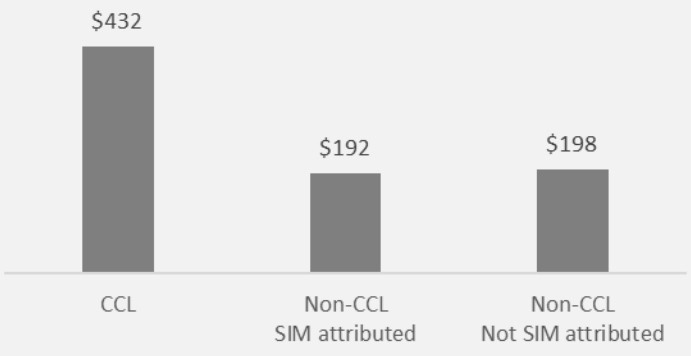
% of Adults with 1 or More Acute Hospitalizations During the Baseline Year



Baseline Year PMPM Medical Cost



Baseline Year PMPM Medical Cost



* Includes only beneficiaries with linkage data, matched to Medicaid Data Warehouse, and had full four quarters of Medicaid eligibility before first CCL date, defined as first linkage opened date. For the Non-CCL beneficiaries, the first CCL date was randomly assigned within the same time frame as the CCL clients..

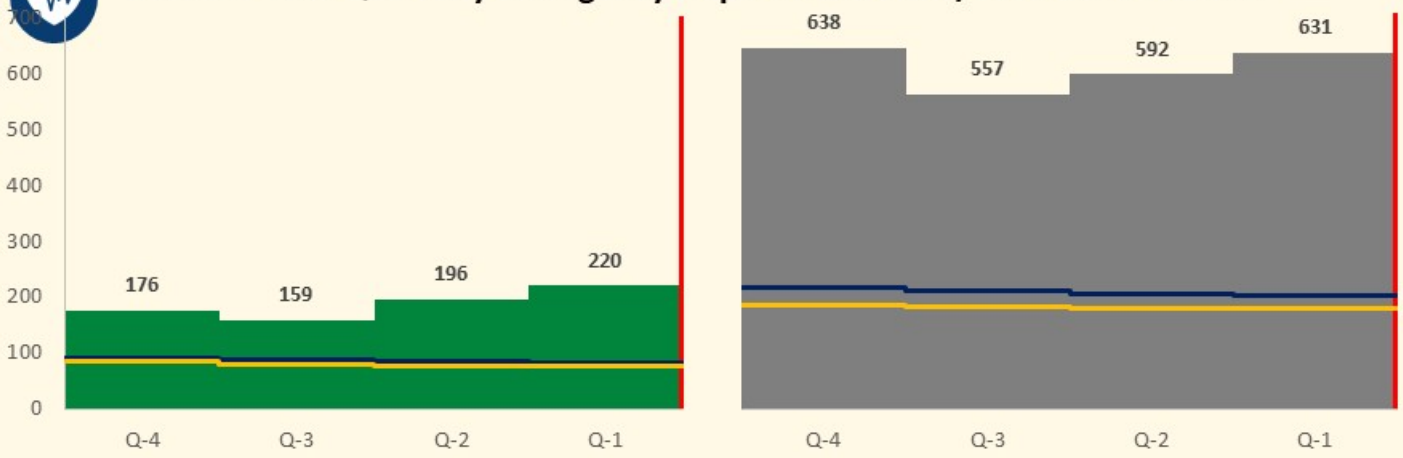
Baseline Year Quarterly Utilization and Cost for Beneficiaries who had Full Four Quarters of Medicaid Eligibility prior to First CCL Date*

Children served by CHIR (940) — CHIR Non-CCL beneficiaries Attributed to SIM (Children=70,420; Adult=66,992)

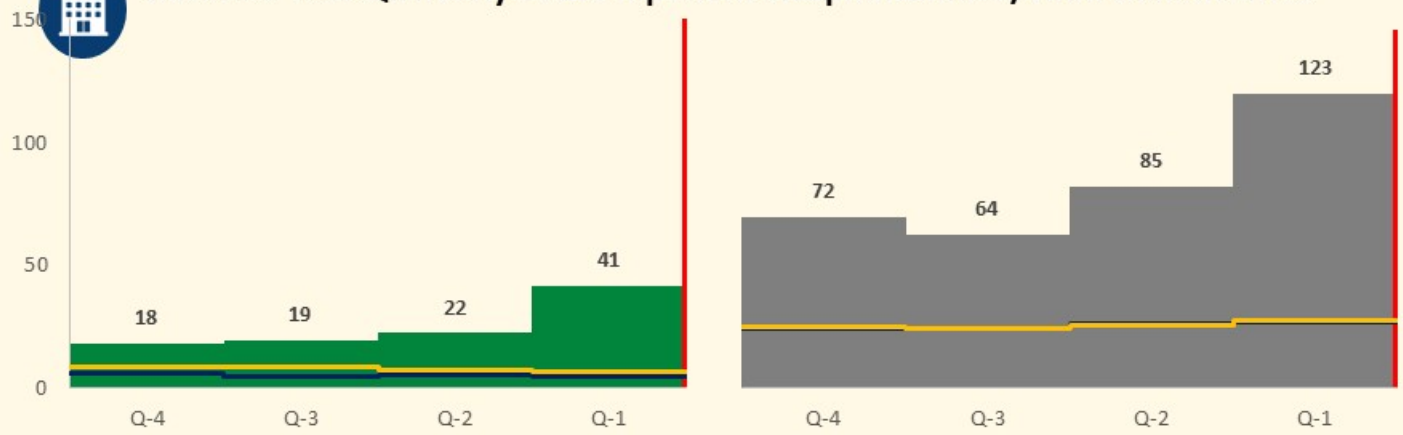
Adults served by CHIR (544) — CHIR Non-CCL beneficiaries Not Attributed to SIM (Children=36,178; Adult=51,930)

First CCL Date

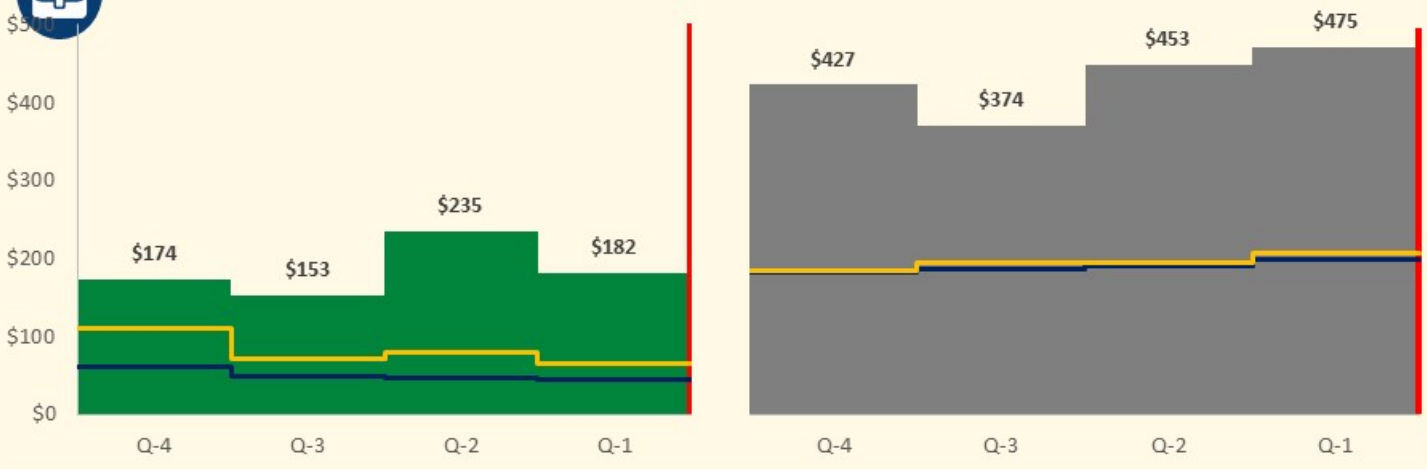
Baseline Year Quarterly Emergency Department Visits/1000 Beneficiaries



Baseline Year Quarterly Acute Inpatient Hospitalizations/1000 Beneficiaries



Baseline Year Quarterly PMPM Medical Cost



* Q-4 to Q-1 are normalized quarters of 90-day periods prior to the first CCL date, defined as first linkage opened date. For the Non-CCL beneficiaries, the first CCL date was randomly assigned within the same time frame as the CCL clients.

Table of Contents

Executive Summary

About this Report

This is the final report based on data submitted by the Community Health Innovation Region (CHIR) on Medicaid clients screened/served through CHIR Clinical Community Linkage (CCL) systems change initiatives.

The primary purpose of this report is to provide a window into:

- The developing capacity of data systems to track services and report on outcomes
- The reach and scale of these initiatives
- The social needs being identified in the CHIRs, as well as those that the CHIRs are addressing
- Information on the specific clients being served including:
    - Exposure to place-based risk: living in the geographic areas that have the highest amount of socioeconomic stress (also referred to as 'deprivation')
    - Prevalence of chronic physical and behavioral health conditions
    - Having high levels of ED and hospital use, and cost

As the five CHIRs have optimized their data documentation and reporting systems at different time periods, the best 12 months in which each CHIR has the most complete data on needs and linkages within the time period from November 2017 to June 2019 were selected for this report.

Findings Across CHIRs

- The five CHIRs included in this report provided social needs data on 10,832 clients with at least one need; 37% had 4 or more needs.
- The most common needs identified were physical and mental health (54%), utilities (43%), education (42%), and housing/shelter (35%).
- Four CHIRs provided individual level linkage data; 2,576 clients from these CHIRs had a linkage opened to address a social need.
- Most common services were provided by the CHIRs to meet transportation, food, housing/shelter and physical/mental health related needs.
- Of the 2,576 CCL clients with a linkage opened to address a need, 2,335 of them were matched to the Medicaid Data Warehouse.

- Compared to beneficiaries in a CHIR who did not receive CCL services, CHIR CCL clients with linkages opened were more likely to
    - be in ABAD eligibility category (15% vs. 9%), or in TANF (59% vs. 34%),
    - receive care management/coordination services (29% vs. 5%),
    - have four or more chronic conditions (60% vs. 25% for adults, 4% vs. 2% for children),
    - live in the Michigan's top 10% most deprived neighborhoods (27% vs. 12%),
    - have three or more ED visits during baseline year (29% vs. 9% for adults, 9% vs. 3% for children),
    - have an acute hospitalization during baseline year (20% vs. 7% for adults, 6% vs. 2% for children), and
    - have higher baseline year PMPM medical cost ($432 vs. $194 for adults, $186 vs. $61 for children).
- Asthma, learning/intellectual/other disabilities, ADHD, drug and alcohol use, and autism were the top chronic conditions for pediatric population; depression, anxiety disorders, tobacco use, drug and alcohol use, and fibromyalgia/chronic pain/fatigue ranked as top chronic conditions for adults.

Introduction

MDHHS has placed considerable emphasis on supporting CHIRs in developing systems to screen individuals for unmet social needs and ensure they are linked to appropriate resources to meet their needs. Within SIM, participating CHIRs have been required to develop systematic processes and build on existing or new community partnerships to address individuals' needs and promote overall well-being by coordinating care across settings. This is referred to as clinical-community linkages (CCL). The SIM evaluation is collecting and reporting data that will help CHIRs understand the impact of their CCL activities, and to support program improvement and sustainability efforts.

This report is based on the historical file submission from each CHIR. CHIRs were instructed to provide data on all clients with a CCL service during the timeframe 11/1/17 to 6/30/2019. A CCL service is defined as any of the following: social needs screening, linkage opened, or linkage closed. As the five CHIRs have optimized their data documentation and reporting systems at different time periods, the availability of screening results and linkage data varied across the CHIRs during the requested timeframe. Thus, the best 12 months in which each CHIR has the most complete data on needs and linkages were selected for the final CCL report. For Jackson, Livingston/Washtenaw, Northern, and Muskegon CHIRs the selected one-year period was from 7/1/2018 to 6/30/2019, while for Genesee, the selected one-year period was from 12/22/2017 to 12/21/2018.

It is also important to note that not every CHIR has data on the screening process as the screening activity could have been conducted by community and healthcare partners, and not necessarily by the CHIR entity itself. Thus, the data that were eventually included in the analysis for this report were only of clients with at least one need.

The report contains two sections. Section 1 provides a summary of CCL process metrics on the needs and linkages. Section 2 leverages the MDHHS Medicaid claims and eligibility data to describe demographics, geographic characteristics, and chronic conditions of the clients served by the CHIR CCL process, as well as their cost, emergency department (ED) use, and acute hospitalizations before and after being served by the CHIR.

Definition of Terms

CCL Activity. A CCL activity is the occurrence of a date or any other form of documentation that any one of the following activities took place: (a) a screening conducted, (b) a social needs linkage opened, or (c) a social needs linkage closed.

Need Identified. A need identified is a documented positive response on the CCL screening/assessment question, or a documented linkage opened/closed/status information within a social need domain.

Linkage Opened. A date or an indicator has been entered in the linkage opened date field for a specific need to indicate that a linkage has been opened to address the need. This can include the

CHIR communicating a client's specific need to internal or external service provider, linking clients to appropriate community resources or directly providing the resources and information to the client to address the need. In cases where there are no open linkage dates, other fields related to CHIR contact date are used as indicators of a linkage having been opened.

Served by the CHIR. A client is considered to have been served by the CHIR if the CHIR takes a first step towards addressing an identified need. Operationally, it is identified in the data by having at least one linkage opened for the client to address a specific need.

First CCL Date. First CCL date is defined as the earliest linkage opened date within the reporting time frame. If CHIR does not provide linkage data, the first CHIR and client contact date will be used as first CCL date.

Linkage Closed. A linkage for a specific need is considered closed if a date/indicator entered to indicate the cessation of any linkage activity to address the need.

Linkage Status. A linkage could be still open at reporting time as indicated for various reasons as indicated by a specific code in the linkage status field: 1=linkage still open. A linkage could be closed for various reasons as indicated by the following status codes in the linkage status field: 2=need met, 3=unable to contact, 4=lack of client follow-up, 5=no resource available, 6=need handled internally, 7=client declined services, and 8=for any other reason. An additional code for the linkage status field is 1=linkage open.

Linkage Closed – Need Met. CHIR receives communication or verification that the client's need has been addressed.

Area Deprivation Index. The Area Deprivation Index (ADI) represents a geographic area-based measure of the socioeconomic deprivation experienced by a neighborhood. ADI is used as a proxy measure for socioeconomic status to capture beneficiary-level social risk factors. It includes factors for the theoretical domains of income, education, employment, and housing quality. The ADI state ranking ranked Michigan's block groups into 10 levels, with 10 being the most deprived area and 1 being the least deprived area.

Urbanicity. The urban/rural classification is based on the rural-urban commuting area (RUCA) codes. RUCA codes are a Census tract-based classification scheme that utilizes the standard Bureau of Census Urbanized Area and Urban Cluster definitions in combination with work commuting information to characterize all of the nation's Census tracts regarding their rural and urban status and relationships.

Pediatric/Adult. Pediatric: 0 through 18 years by 12/31/2018. **Adult:** 19 years or older by 12/31/2018.

Chronic Condition. A chronic condition is a human health condition or disease that is persistent or otherwise long-lasting in its effects. The term chronic is usually applied when the course of the condition or disease lasts for more than three months. For this report, the Centers for Medicare &

Medicaid Services (CMS) Chronic Conditions Data Warehouse (CCW) classification categories and algorithms were adapted to identify the chronic conditions of the CCL Medicaid clients from their Medicaid claims data. The CMS-CCW defines two sets of conditions: (1) a set of 27 common chronic conditions and (2) a second set of over 40 (to date) other chronic or potentially disabling conditions which includes additional chronic health, mental health, disability-related, and substance abuse conditions. Appendix G contains more detailed description of the methodology for identifying chronic conditions for this report.

Behavioral Health Diagnosis. Three broad categories are included for reporting on the health conditions on CCL Medicaid clients with behavioral health diagnosis: (1) mental disorders, (2) alcohol and drug use disorders, and (3) neurodevelopmental disorders. Mental disorders include the following CCW chronic conditions: depression and depressive disorders, bipolar disease, schizophrenia and other psychotic disorders, Alzheimer's disease and related disorders/senile dementia, anxiety disorders and personality disorders. Neurodevelopmental disorders include the following CCW chronic conditions: ADHD, autism spectrum disorders, learning disabilities, intellectual disabilities and related conditions, and other developmental delays.

Normalized Quarters. Normalized quarters are individualized base on client's first CCL date. Normalized quarter -1 is the 90-day period before the first CCL date, inclusive of the first CCL date. For the reference groups, since there are no actual CCL dates, each reference beneficiary is assigned a random pseudo "first CCL date," with the date range mirroring the CHIR CCL population.

Utilization Outcomes. The emergency department (ED) visit and acute hospitalization outcomes are both based on HEDIS 2018 specifications. ED visits do not include visits that led to hospitalizations. The utilization outcomes are measured by quarterly (normalized quarter) events per 1000 beneficiaries.

Cost Outcomes. Cost are based on paid amounts from both fee for service (FFS) claims and encounters in the Medicaid Data Warehouse. Costs related to pharmacy, substance abuse, non-emergency transportation, chiropractic, dental and vision are excluded from medical cost. Cost is measured by quarterly (normalized quarter) Per Member Per Month (PMPM); i.e., total cost in the quarter divided by the number of eligible months in the quarter.

Data Suppression. Data suppression refers to the methods or restrictions applied to presented data (such as counts, percentages, and means) to limit the disclosure of information about beneficiaries or reduce the number of estimates with unacceptable levels of statistical reliability. For this report, values are suppressed for all non-zero numerators less than 10, and for all denominators less than 20.

Section 1. CCL Process Metrics

The CCL process metrics are meant to describe the scope of the work at the local level: What are the clients' social needs? Which needs are the CHIRs able to address through linkages?

1.1 Needs Identified

Table 1a presents the number of clients with at least one need during the CHIR selected 1-year period.

Table 1a. Number of Clients with Needs by CHIR

CHIR	Selected Time Period	Number of Clients with Needs
Genesee	12/22/2017 to 12/21/2018	1,635
Jackson	7/1/2018 to 6/30/2019	939
Livingston/Washtenaw	7/1/2018 to 6/30/2019	210
Muskegon*	7/1/2018 to 6/30/2019	7,410
Northern	7/1/2018 to 6/30/2019	638
All CHIRs		10,832

*Screening results for Muskegon only include clients who expressed the desire to receive help addressing their social needs. Also, results of screening for Employment, Transportations and Safety needs for Muskegon were not included in the totals because of inconsistent coding of screening questions across time and referral sources.

Table 1b presents the number of needs identified per client, and Table 1c presents the number of clients with need by need domain.

Table 1b. Number of Needs Identified per Client, N=10,832

Number of Needs	N of Clients	% of Clients
Any needs	10,832	
1 need Only	1,866	17%
2 to 3 needs	4,956	46%
4 to 5 needs	2,880	27%
6 or more needs	1,130	10%

Table 1c. Number of Clients with Need by Need Domain, N=10,832		
Need Domain	**N of Clients**	**% of Clients**
Physical and Mental Health	5,797	54%
Healthcare Affordability	3,228	30%
Food	3,566	33%
Employment	796	7%
Housing/Shelter	3,802	35%
Utilities	4,678	43%
Family Care	2,031	19%
Education	4,571	42%
Transportation	1,364	13%
Safety	309	3%

CHIRs may have clients with needs outside of the 10 requested domains; the current report is, however, limited to the 10 domains. Appendix A presents the 2018 SIM approved screening tool, while Appendices B to F present the screening tools from the individual CHIR and the mapping of the CHIRs' linkage domain/subdomains to the above 10 domains when provided by the CHIRs.

1.2 Linkage Information

Table 2 presents the number of clients with needs as well as the number of clients with linkages opened by need domain for only the four CHIRs that provided individual level linkage information (Genesee, Jackson, Livingston/Washtenaw and Northern). Muskegon CHIR was not able to provide individual level CCL data beyond screening.

Table 2. Number of Clients with Linkages by Social Needs Domain from 4 CHIRs*, N=3,422 Clients with Need; N=2,576 with Linkage Information

Need Domain	Number of Clients with Needs (N=3,422)	Clients with Linkage Data (N=2,576)	
		Number of Clients with Open Linkages	% of Clients with Needs
Physical and Mental Health	1,168	443	38%
Healthcare Affordability	771	401	52%
Food	1,179	676	57%
Employment	796	226	28%
Housing/Shelter	1,032	623	60%
Utilities	871	422	48%
Family Care	303	135	45%
Education	583	139	24%
Transportation	1,364	878	64%
Safety	309	231	75%

*Muskegon CHIR was not able to provide individual level linkage data.

Table 3 presents data on linkage status for individuals who had an open linkage. Percent values represent the proportion of individuals with linkage status information relative to the total number of individuals with an open linkage date in each domain.

Table 3. Linkage Status Information for Individuals with Open Linkages by Social Need Domain, N=2,576

Domain	Total Individuals w/ Open Linkages	Total Individuals w/ Linkage Still Open	Need Met	Handled Internally	Unable to Contact	No Individual Follow-up	Individual Declined	No Resource	Other	No Info
		Number (% of Individuals with Open Linkages)								
Physical and Mental Health	443	18 (4%)	176 (40%)	20 (5%)	34 (8%)	1 (0%)	37 (8%)	6 (1%)	2 (0%)	149 (34%)
Healthcare Affordability	401	4 (1%)	253 (63%)	6 (1%)	19 (5%)	2 (0%)	51 (13%)	22 (5%)	3 (1%)	41 (10%)
Food	676	19 (3%)	491 (73%)	6 (1%)	42 (6%)	1 (0%)	46 (7%)	2 (0%)	8 (1%)	61 (9%)
Employment	226	8 (4%)	124 (55%)	22 (10%)	12 (5%)	0 (0%)	25 (11%)	8 (4%)	1 (0%)	26 (12%)
Housing/Shelter	623	35 (6%)	315 (51%)	0 (0%)	67 (11%)	1 (0%)	74 (12%)	46 (7%)	8 (1%)	77 (12%)
Utilities	422	6 (1%)	271 (64%)	4 (1%)	36 (9%)	1 (0%)	69 (16%)	18 (4%)	2 (0%)	15 (4%)
Family Care	135	1 (1%)	75 (56%)	15 (11%)	5 (4%)	0 (0%)	24 (18%)	5 (4%)	1 (1%)	9 (7%)
Education	139	13 (9%)	77 (55%)	16 (12%)	13 (9%)	0 (0%)	11 (8%)	5 (4%)	3 (2%)	1 (1%)
Transportation	878	7 (1%)	620 (71%)	21 (2%)	62 (7%)	1 (0%)	112 (13%)	12 (1%)	2 (0%)	41 (5%)
Safety	231	2 (1%)	163 (71%)	0 (0%)	27 (12%)	0 (0%)	27 (12%)	8 (3%)	3 (1%)	1 (0%)

Please note that the tables above only show the number of clients that CHIRs provided CCL services within the 1-year time frame to meet the needs across the 10 domains. Data on CCL activities conducted by the CHIRs to meet the needs of clients outside of the 10 requested need domains are not reflected in this report.

Section 2. Demographic and Outcome Metrics

CHIR-provided client identifiers (such as names, date of birth, social security number, address, and some Medicaid beneficiary ID) were used to match the CCL data with Medicaid eligibility and claims data in the Medicaid Data Warehouse. Tables in this section provide the following information on clients served by CHIR, compared with reference groups:

- Descriptive information including age, gender, race/ethnicity, SIM attribution, care management and care coordination, Medicaid eligibility categories, and dual Medicaid and Medicare eligibility,
- Health conditions,
- Geographic distribution based on clients' residential census tracts, and
- Health outcomes during four quarters before the first CCL date.

The CCL clients included in section 2 tables are those who:

- Had at least one linkage opened for a social need, and
- Were matched to the 2016 - 2019 Medicaid eligibility data in the Medicaid Data Warehouse.

Additional table-specific exclusion criteria are defined below each table.

In some tables (4, 5, 6a, and 6b), the CCL clients were split into two groups based on whether the first linkage date was in the 12/2017 to 12/2018 time frame or in the 1/2019 to 6/2019 time frame. Two reference groups are also presented. Reference group A is composed of all non-CCL Medicaid beneficiaries in the CHIR who are attributed to SIM PCMHs, while reference group B is composed of all non-CCL Medicaid beneficiaries in the CHIR who are not attributed to SIM PCMHs. The same table-specific exclusion criteria are applied to the reference groups.

2.1 Characteristics of CCL Clients and Reference Groups

Table 4 presents demographic and Medicaid program enrollment information.

Table 4. Demographic Characteristics of CCL Clients, Compared to the Reference Groups, Total CCL Clients N[1] = 2,335

Demographics	First Linkage 12/2017-12/2018	First Linkage 1/2019-6/2019	Reference Group A[2]	Reference Group B[3]
N	1,878	457	222,189	279,586
Age				
0 to 18	1,356 (72.2%)	29 (6.3%)	101,916 (45.9%)	76,598 (27.4%)
19 to 24	72 (3.8%)	47 (10.3%)	22,362 (10.1%)	29,163 (10.4%)
25 to 34	114 (6.1%)	100 (21.9%)	37,405 (16.8%)	51,670 (18.5%)
35 to 44	94 (5.0%)	86 (18.8%)	24,628 (11.1%)	36,284 (13.0%)
45 to 54	121 (6.4%)	80 (17.5%)	18,806 (8.5%)	29,915 (10.7%)
55 to 64	103 (5.5%)	93 (20.4%)	15,569 (7.0%)	29,347 (10.5%)
65 or older	18 (1.0%)	22 (4.8%)	1,503 (.7%)	26,609 (9.5%)
Sex				
Female	992 (52.8%)	277 (60.6%)	117,696 (53.0%)	149,225 (53.4%)
Male	886 (47.2%)	180 (39.4%)	104,493 (47.0%)	130,361 (46.6%)
Race				
White	699 (37.2%)	331 (72.4%)	139,499 (62.8%)	183,484 (65.6%)
Black	1,045 (55.6%)	85 (18.6%)	52,439 (23.6%)	52,336 (18.7%)
Hispanic	55 (2.9%)	11 (2.4%)	9,003 (4.1%)	10,341 (3.7%)
Medicaid and SIM Status				
SIM Attributed	1,369 (72.9%)	284 (62.1%)	222,189 (100.0%)	0 (.0%)
Care Management Recipient	597 (31.8%)	88 (19.3%)	19,020 (8.6%)	4,330 (1.5%)
Medicaid Program Group				
ABAD	226 (12.0%)	127 (27.8%)	14,823 (6.7%)	32,197 (11.5%)
HMP	215 (11.4%)	160 (35.0%)	52,128 (23.5%)	43,441 (15.5%)
TANF	1,264 (67.3%)	116 (25.4%)	105,887 (47.7%)	67,103 (24.0%)
CSHCS	80 (4.3%)	0 (.0%)	1,841 (.8%)	4,174 (1.5%)
DUAL MME	74 (3.9%)	90 (19.7%)	2,716 (1.2%)	40,470 (14.5%)

[1] Clients served by CHIR CCL (i.e., with at least one linkage opened) and matched to the Medicaid Data Warehouse

[2] Non-CCL beneficiaries residing in CHIR, attributed to SIM PCMHs

[3] Non-CCL beneficiaries residing in CHIR, not attributed to SIM PCMHs

Table 5 provides the residential characteristics of CCL clients and the reference groups. Beneficiaries without a geocode in the Medicaid Data Warehouse are excluded.

The urban/rural classification is based on the rural-urban commuting area (RUCA) codes that utilize the standard Bureau of Census Urbanized Area and Urban Cluster definitions in combination with work commuting information to characterize all of the nation's Census tracts regarding their rural and urban status and relationships. The ADI - Area Deprivation Index (University of Wisconsin School of Medicine Public Health. 2015 Area Deprivation Index v2.0. Downloaded from https://www.neighborhoodatlas.medicine.wisc.edu/ May 22, 2019) represents a geographic area-based measure of the socioeconomic deprivation experienced by a neighborhood. The ADI state ranking is a decile rank of Michigan's block groups based on their ADI scores, with 10 being the most deprived area and 1 being the least deprived area.

Table 5. Residential Characteristics of CCL Clients, Compared to the Reference Groups, Total CCL Clients N[1] = 2,225

Residential Characteristics	First Linkage 12/2017-12/2018	First Linkage 1/2019-6/2019	Reference Group A[2]	Reference Group B[3]
N	1,826	399	199,030	201,295
Urbanicity				
Rural	136 (7.4%)	152 (38.1%)	44,579 (22.4%)	39,680 (19.7%)
Urban	1,690 (92.6%)	247 (61.9%)	154,451 (77.6%)	161,615 (80.3%)
Area Deprivation Index				
Top 10% most deprived areas	551 (30.2%)	52 (13.0%)	24,524 (12.3%)	23,566 (11.7%)
Lowest 90%	1,275 (69.8%)	347 (87.0%)	174,506 (87.7%)	177,729 (88.3%)

[1] Clients served by CHIR CCL and with geocode information in the Medicaid Data Warehouse

[2] Non-CCL beneficiaries residing in CHIR, attributed to SIM PCMHs, and with geocode information in the Medicaid Data Warehouse

[3] Non-CCL beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with geocode information in the Medicaid Data Warehouse

2.2 Health Conditions

The health conditions of CCL clients served by the CHIR and the Reference Groups are presented in Tables 6a and Table 6b, for pediatric and adult, respectively. The top ten chronic conditions among CCL clients served by the CHIR are listed. Appendix G provides information on how the chronic conditions were determined.

Table 6a. Health Conditions of Pediatric CCL Clients, Compared to the Reference Groups, Total CCL Pediatric Clients N[1] = 1,381

Health Conditions	First Linkage 12/2017-12/2018	First Linkage 1/2019-6/2019	Reference Group A[2]	Reference Group B[3]
N	1,356	25	97,895	61,849
Chronic Conditions				
No chronic conditions	877 (64.7%)	15 (60.0%)	69,691 (71.2%)	45,942 (74.3%)
1 chronic condition	285 (21.0%)	*	16,898 (17.3%)	9,003 (14.6%)
2 - 3 chronic conditions	145 (10.7%)	*	9,122 (9.3%)	5,367 (8.7%)
4 + chronic conditions	49 (3.6%)	*	2,184 (2.2%)	1,537 (2.5%)
Behavioral Health Diagnosis	287 (21.2%)	9 (36.0%)	20,507 (20.9%)	11,482 (18.6%)
Mental Disorders[4]	77 (5.7%)	*	10,059 (10.3%)	5,594 (9.0%)
Alcohol and Drug Use Disorders	56 (4.1%)	*	2,008 (2.1%)	1,070 (1.7%)
Neurodevelopmental Disorders[5]	209 (15.4%)	*	13,575 (13.9%)	7,616 (12.3%)
Top 10 Chronic Conditions				
Asthma	175 (12.9%)	*	6,550 (6.7%)	2,863 (4.6%)
Learning, Intellectual, and Other Developmental Disabilities	108 (8.0%)	*	3,767 (3.8%)	2,238 (3.6%)
ADHD	100 (7.4%)	*	9,997 (10.2%)	5,463 (8.8%)
Drug and Alcohol Use Disorders	56 (4.1%)	*	2,008 (2.1%)	1,070 (1.7%)
Autism Spectrum Disorders	51 (3.8%)	0 (.0%)	2,168 (2.2%)	1,271 (2.1%)
Depression	54 (4.0%)	*	6,434 (6.6%)	3,580 (5.8%)
Anemia	48 (3.5%)	*	828 (.8%)	537 (.9%)
Anxiety Disorders	36 (2.7%)	*	5,349 (5.5%)	2,920 (4.7%)
Epilepsy	29 (2.1%)	0 (.0%)	466 (.5%)	652 (1.1%)
Spina Bifida and Other Congenital Anomalies of the Nervous System	28 (2.1%)	0 (.0%)	266 (.3%)	361 (.6%)

[1] Pediatric CCL clients served by CHIR and with chronic condition information in the Medicaid Data Warehouse

[2] Non-CCL beneficiaries residing in CHIR, attributed to SIM PCMHs, and with chronic condition information in the Data Warehouse

[3] Non-CCL beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with chronic condition information in the Data Warehouse

[4] Mental disorders include these conditions: depression and depressive disorders, bipolar disorder, schizophrenia and other psychotic disorders, Alzheimer's disease and related disorders/senile dementia, anxiety disorders, and personality disorders.

[5] Neurodevelopmental disorders include these conditions: ADHD, autism spectrum disorders, learning disabilities, intellectual disabilities and related conditions, and other developmental delays

*Suppressed if a non-zero numerator <10 or a denominator <20

Table 6b. Health Conditions of Adult CCL Clients, Compared to the Reference Groups, Total CCL Clients N[1] = 778

Health Conditions	First Linkage 12/2017-12/2018	First Linkage 1/2019-6/2019	Reference Group A[2]	Reference Group B[3]
N	454	324	115,950	117,904
Chronic Conditions				
No chronic conditions	29 (6.4%)	54 (16.7%)	39,833 (34.4%)	55,866 (47.4%)
1 chronic condition	41 (9.0%)	39 (12.0%)	18,447 (15.9%)	16,774 (14.2%)
2 - 3 chronic conditions	92 (20.3%)	58 (17.9%)	25,055 (21.6%)	20,128 (17.1%)
4 + chronic conditions	292 (64.3%)	173 (53.4%)	32,615 (28.1%)	25,136 (21.3%)
Behavioral Health Diagnosis	362 (79.7%)	223 (68.8%)	51,509 (44.4%)	40,269 (34.2%)
Mental Disorders[4]	332 (73.1%)	207 (63.9%)	43,932 (37.9%)	33,391 (28.3%)
Alcohol and Drug Use Disorders	174 (38.3%)	102 (31.5%)	19,164 (16.5%)	14,920 (12.7%)
Neurodevelopmental Disorders[5]	34 (7.5%)	28 (8.6%)	6,617 (5.7%)	5,457 (4.6%)
Top 10 Chronic Conditions				
Depression	284 (62.6%)	179 (55.2%)	33,641 (29.0%)	24,844 (21.1%)
Anxiety Disorders	249 (54.8%)	133 (41.0%)	27,495 (23.7%)	20,656 (17.5%)
Tobacco Use	229 (50.4%)	125 (38.6%)	26,824 (23.1%)	21,892 (18.6%)
Drug and Alcohol Use Disorders	174 (38.3%)	102 (31.5%)	19,164 (16.5%)	14,920 (12.7%)
Fibromyalgia, Chronic Pain, and Fatigue	171 (37.7%)	100 (30.9%)	19,103 (16.5%)	14,222 (12.1%)
Hypertension	170 (37.4%)	80 (24.7%)	18,838 (16.2%)	15,713 (13.3%)
Obesity	163 (35.9%)	84 (25.9%)	24,013 (20.7%)	19,444 (16.5%)
Rheumatoid Arthritis/Osteoarthritis	133 (29.3%)	59 (18.2%)	11,033 (9.5%)	9,407 (8.0%)
Chronic Obstructive Pulmonary Disease and Bronchiectasis	86 (18.9%)	45 (13.9%)	6,593 (5.7%)	5,014 (4.3%)
Bipolar Disorders	100 (22.0%)	51 (15.7%)	8,942 (7.7%)	6,744 (5.7%)

[1]Adult clients served by CHIR CCL and with chronic condition information in the Medicaid Data Warehouse

[2] Non-CCL beneficiaries residing in CHIR, attributed to SIM PCMHs, and with chronic condition information in the Data Warehouse

[3] Non-CCL beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with chronic condition information in the Data Warehouse

[4] Mental disorders include these conditions: depression and depressive disorders, bipolar disorder, schizophrenia and other psychotic disorders, Alzheimer's disease and related disorders/senile dementia, anxiety disorders, and personality disorders

[5] Neurodevelopmental disorders include these conditions: ADHD, autism spectrum disorders, learning disabilities, intellectual disabilities and related conditions, and other developmental delays

2.3 Healthcare Utilization Measures

This section summarizes Emergency Department (ED) use and acute hospitalizations from the Medicaid Data Warehouse during the four quarters before the first CCL date (defined as first linkage opened date).

Q-4 through Q-1 are four baseline year quarters, calculated for each beneficiary as the successive 90-day periods prior to the first CCL date.

Table 7 presents ED visits and acute hospitalizations during the baseline year for those who had full baseline year of Medicaid eligibility, separating pediatric and adult populations.

Table 7. Baseline Year Healthcare Utilization Information for CCL Clients, Compared to the Reference Groups, CCL Pediatric Clients N[1]=940, CCL Adult Clients N[1]=544

Healthcare Utilizations	CCL Clients Served by CHIR	Reference Group A[2]	Reference Group B[3]
Pediatric - ED Visits in baseline year	940	70,420	36,178
0 ED visit	580 (61.7%)	55,532 (78.9%)	29,144 (80.6%)
1-2 ED visits	279 (29.7%)	12,826 (18.2%)	6,002 (16.6%)
3-4 ED visits	59 (6.3%)	1,576 (2.2%)	795 (2.2%)
5+ ED visits	22 (2.3%)	486 (.7%)	237 (.7%)
Pediatric - Acute Hospitalizations in baseline year			
0 acute hospitalization	885 (94.1%)	69,326 (98.4%)	35,403 (97.9%)
1 acute hospitalization	30 (3.2%)	910 (1.3%)	616 (1.7%)
2+ acute hospitalizations	25 (2.7%)	184 (.3%)	159 (.4%)
Adult - ED Visits in baseline year	544	66,992	51,930
0 ED visit	224 (41.2%)	45,157 (67.4%)	36,444 (70.2%)
1-2 ED visits	163 (30.0%)	15,586 (23.3%)	11,327 (21.8%)
3-4 ED visits	68 (12.5%)	3,670 (5.5%)	2,476 (4.8%)
5+ ED visits	89 (16.4%)	2,579 (3.8%)	1,683 (3.2%)
Adult - Acute Hospitalizations in baseline year			
0 acute hospitalization	434 (79.8%)	62,588 (93.4%)	48,604 (93.6%)
1 acute hospitalization	73 (13.4%)	3,127 (4.7%)	2,328 (4.5%)
2+ acute hospitalizations	37 (6.8%)	1,277 (1.9%)	998 (1.9%)

[1] Clients served by CHIR CCL with full baseline year of Medicaid eligibility

[2] Non-CCL Beneficiaries residing in CHIR, attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

[3] Non-CCL Beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

Table 8 presents the baseline year quarterly ED and acute hospitalizations rates for those who had four full baseline year quarters of Medicaid eligibility, separating pediatrics and adults.

Table 8. Baseline Year Quarterly Utilization Rates for CCL Clients, Compared to the Reference Groups, CCL Pediatric Clients N[1]=940, CCL Adult Clients N[1]=544

Healthcare Utilizations	CCL Clients Served by CHIR		Reference Group A[2]		Reference Group B[3]	
Pediatric - Quarterly ED rate (# visits/1000 beneficiaries)	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**
Q-4	940	176	70,420	90	36,178	84
Q-3	940	159	70,420	88	36,178	80
Q-2	940	196	70,420	84	36,178	77
Q-1	940	220	70,419	81	36,177	77
Pediatric – Quarterly Acute Hospitalization Rate (# admissions/1000 beneficiaries)	N	Rate	N	Rate	N	Rate
Q-4	940	18	70,420	6	36,178	9
Q-3	940	19	70,420	5	36,178	8
Q-2	940	22	70,420	5	36,178	7
Q-1	940	41	70,419	4	36,177	6
Adult - Quarterly ED rate (# visits/1000 beneficiaries)	N	Rate	N	Rate	N	Rate
Q-4	544	638	66,992	214	51,930	186
Q-3	544	557	66,992	209	51,930	183
Q-2	544	592	66,992	204	51,930	178
Q-1	544	631	66,993	201	51,931	179
Adult - Quarterly Acute Hospitalization Rate (# admissions/1000 beneficiaries)	N	Rate	N	Rate	N	Rate
Q-4	544	72	66,992	25	51,930	26
Q-3	544	64	66,992	25	51,930	25
Q-2	544	85	66,992	27	51,930	27
Q-1	544	123	66,993	27	51,931	28

[1] Clients served by CHIR CCL with four full baseline quarters of Medicaid eligibility

[2] Non-CCL Beneficiaries residing in CHIR, attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

[3] Non-CCL Beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

2.4 Healthcare Cost Measures

This section summarizes cost information from the Medicaid Data Warehouse during four quarters (baseline year) before the first CCL date.

Table 9 presents baseline year PMPM medical cost, separating pediatric and adult populations, for populations overall, as well as for subpopulations with acute hospitalizations and high ED utilizations, for those who had full baseline year of Medicaid eligibility.

Table 9. Baseline Year Medical PMPM Cost for CCL Clients, Compared to the reference groups, CCL Pediatric Clients N[1]=940, CCL Adult Clients N[1]=544

Baseline Year PMPM Cost (Medical)	CCL Clients Served by CHIR		Reference Group A[2]		Reference Group B[3]	
Pediatric - Average PMPM Cost	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**
Pediatric-overall	940	$186	70,420	$50	36,178	$82
Pediatric-with 1+ acute hospitalization	55	$2,421	1,094	$966	775	$1,726
Pediatric-with 5+ ED visits	22	$618	486	$519	237	$926
Adult - Average PMPM Cost	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**
Adult-overall	544	$432	66,992	$192	51,930	$198
Adult-with 1+ acute hospitalization	110	$1,270	4,404	$1,254	3,326	$1,450
Adult- with 5+ ED visits	89	$1,101	2,579	$817	1,683	$901

[1] Clients served by CHIR CCL with full baseline year of Medicaid eligibility

[2] Non-CCL Beneficiaries residing in CHIR, attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

[3] Non-CCL Beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

Table 10 presents quarterly PMPM cost for the four baseline year quarters, for those who had four full baseline quarters Medicaid eligibility.

Table 10. Baseline Quarterly Medical PMPM Cost for CCL Clients, Compared to the reference groups, CCL Pediatric Clients N[1]=940, CCL Adult Clients N[1]=544

Quarterly PMPM Cost (Medical)	CCL Clients Served by CHIR		Reference Group A[2]		Reference Group B[3]	
Pediatric - Average quarterly PMPM Cost	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**
Q-4	940	$174	70,420	$61	36,178	$110
Q-3	940	$153	70,420	$49	36,178	$72
Q-2	940	$235	70,420	$47	36,178	$80
Q-1	940	$182	70,419	$44	36,177	$66
Adult - Average quarterly PMPM Cost	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**
Q-4	544	$427	66,992	$185	51,930	$187
Q-3	544	$374	66,992	$189	51,930	$196
Q-2	544	$453	66,992	$192	51,930	$198
Q-1	544	$475	66,993	$200	51,931	$210

[1] Clients served by CHIR CCL with four full baseline quarters of Medicaid eligibility

[2] Non-CCL Beneficiaries residing in CHIR, attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

[3] Non-CCL Beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

Lastly, we break down total healthcare cost by the following categories:

- Medical cost
  - ✓ Professional Cost, excluding FQHC and RHC
  - ✓ Institutional Cost, excluding FQHC and RHC
  - ✓ FQHC and RHC (with both professional and institutional)
- Pharmacy Cost

Table 11 presents baseline year PMPM cost for each cost category, for those with full baseline year Medicaid eligibility, separating pediatric and adult populations.

Table 11. Baseline Year PMPM Cost Breakdown for CCL Clients, Compared to the reference groups, CCL Pediatric Clients N[1]=940, CCL Adult Clients N[1]=544

Baseline Year PMPM Cost	CCL Clients Served by CHIR		Reference Group A[2]		Reference Group B[3]	
Pediatric – Average PMPM Cost	**N**	**Mean (% Medical)**	**N**	**Mean (% Medical)**	**N**	**Mean (% Medical)**
Medical	940	$186 (100.0%)	70,420	$50 (100.0%)	36,178	$82 (100.0%)
Professional (no FQHC/RHC)	940	$54 (28.8%)	70,420	$23 (45.0%)	36,178	$32 (38.8%)
Institutional (no FQHC/RHC)	940	$132 (71.0%)	70,420	$26 (52.4%)	36,178	$53 (64.7%)
FQHC/RHC (professional+institutional)	940	$1 (.6%)	70,420	$2 (3.9%)	36,178	$2 (2.2%)
Pharmacy	940	$29 (15.8%)	70,420	$27 (52.6%)	36,178	$78 (95.6%)
Adult – Average PMPM Cost	**N**	**Mean (% Total)**	**N**	**Mean (% Total)**	**N**	**Mean (% Total)**
Medical Overall	544	$432 (100.0%)	66,992	$192 (100.0%)	51,930	$198 (100.0%)
Professional (no FQHC/RHC)	544	$162 (37.5%)	66,992	$78 (40.9%)	51,930	$77 (39.0%)
Institutional (no FQHC/RHC)	544	$265 (61.2%)	66,992	$110 (57.7%)	51,930	$110 (55.5%)
FQHC/RHC (professional+institutional)	544	$10 (2.3%)	66,992	$4 (2.2%)	51,930	$4 (1.9%)
Pharmacy	544	$266	66,992	$147	51,930	$131

[1] Clients served by CHIR CCL with full baseline year of Medicaid eligibility
[2] Non-CCL Beneficiaries residing in CHIR, attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility
[3] Non-CCL Beneficiaries residing in CHIR, not attributed to SIM PCMHs, and with four full baseline quarters of Medicaid eligibility

Tables 12a, 12b, and 12c present quarterly healthcare PMPM cost by major cost categories during the four baseline quarters for those who had four full baseline quarters Medicaid eligibility, for the CCL clients served by CHIR, reference group A, and reference group B, respectively.

Table 12a. Baseline Year Quarterly PMPM Cost Breakdown for CHIR CCL Clients, CCL Pediatric Clients N[1]=940, CCL Adult Clients N[1]=544

Cost		Medical Overall	Professional (no FQHC/RHC)	Institutional (no FQHC/RHC)	FQHC/RHC (Professional + Institutional)	Pharmacy
Pediatric – Average Quarterly PMPM Cost	**N[1]**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean**
Q-4	940	$174 (100.0%)	$50 (28.9%)	$123 (70.9%)	$1 (.5%)	$28
Q-3	940	$153 (100.0%)	$47 (30.5%)	$106 (68.8%)	$1 (.5%)	$26
Q-2	940	$235 (100.0%)	$48 (20.5%)	$187 (79.3%)	$1 (.4%)	$31
Q-1	940	$182 (100.0%)	$69 (38.2%)	$113 (62.2%)	$2 (.9%)	$33
Adult – Average Quarterly PMPM Cost	**N[1]**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean**
Q-4	544	$427 (100.0%)	$151 (35.4%)	$274 (64.2%)	$9 (2.2%)	$210
Q-3	544	$374 (100.0%)	$156 (41.7%)	$213 (57.0%)	$10 (2.7%)	$233
Q-2	544	$453 (100.0%)	$155 (34.1%)	$291 (64.3%)	$10 (2.1%)	$312
Q-1	544	$475 (100.0%)	$186 (39.2%)	$280 (59.0%)	$11 (2.4%)	$308

[1] Clients served by CHIR CCL with with four full baseline quarters of Medicaid eligibility

Table 12b. Baseline Year Quarterly PMPM Cost Breakdown for Reference Group A[1]

Cost		Medical Overall	Professional (no FQHC/RHC)	Institutional (no FQHC/RHC)	FQHC/RHC (Professional + Institutional)	Pharmacy
Pediatric - Average Quarterly PMPM Cost	**N**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean**
Q-4	70,420	$61 (100.0%)	$25 (40.2%)	$35 (56.9%)	$2 (3.4%)	$27
Q-3	70,420	$49 (100.0%)	$23 (46.0%)	$25 (51.1%)	$2 (4.1%)	$27
Q-2	70,420	$47 (100.0%)	$22 (47.0%)	$25 (52.2%)	$2 (4.2%)	$27
Q-1	70,419	$44 (100.0%)	$21 (48.3%)	$21 (47.9%)	$2 (4.2%)	$26

Table 12b. Baseline Year Quarterly PMPM Cost Breakdown for Reference Group A[1]						
Cost		**Medical Overall**	**Professional (no FQHC/RHC)**	**Institutional (no FQHC/RHC)**	**FQHC/RHC (Professional + Institutional)**	**Pharmacy**
Adult - Average Quarterly PMPM Cost	**N**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean**
Q-4	66,992	$185 (100.0%)	$76 (41.0%)	$106 (57.4%)	$4 (2.3%)	$145
Q-3	66,992	$189 (100.0%)	$78 (41.4%)	$108 (57.2%)	$4 (2.2%)	$146
Q-2	66,992	$192 (100.0%)	$80 (41.4%)	$110 (57.3%)	$4 (2.2%)	$147
Q-1	66,993	$200 (100.0%)	$80 (40.0%)	$118 (58.7%)	$4 (2.0%)	$149

[1] Non-CCL Beneficiaries residing in CHIR, attributed to SIM PCMHs with four full baseline quarters of Medicaid eligibility

Table 12c. Baseline Year Quarterly PMPM Cost Breakdown for Reference Group B[1]						
Cost		**Medical Overall**	**Professional (no FQHC/RHC)**	**Institutional (no FQHC/RHC)**	**FQHC/RHC (Professional + Institutional)**	**Pharmacy**
Pediatric - Average Quarterly PMPM Cost	**N**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean**
Q-4	36,178	$110 (100.0%)	$34 (31.3%)	$75 (68.4%)	$2 (1.7%)	$78
Q-3	36,178	$72 (100.0%)	$32 (44.3%)	$38 (53.1%)	$2 (2.5%)	$77
Q-2	36,178	$80 (100.0%)	$31 (39.3%)	$63 (79.1%)	$2 (2.2%)	$76
Q-1	36,177	$66 (100.0%)	$30 (44.6%)	$36 (53.5%)	$2 (2.6%)	$82
Adult - Average Quarterly PMPM Cost	**N**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean (% Total)**	**Mean**
Q-4	51,930	$187 (100.0%)	$74 (39.6%)	$103 (55.2%)	$4 (2.0%)	$128
Q-3	51,930	$196 (100.0%)	$77 (39.3%)	$108 (55.3%)	$4 (2.0%)	$128
Q-2	51,930	$198 (100.0%)	$78 (39.5%)	$109 (55.0%)	$4 (1.9%)	$133
Q-1	51,931	$210 (100.0%)	$79 (37.9%)	$118 (56.4%)	$4 (1.7%)	$135

[1] Non-CCL Beneficiaries residing in CHIR, not attributed to SIM PCMHs with four full baseline quarters of Medicaid eligibility

Appendix A. SIM Suggested 2018 Social Determinants of Health Screening Tool

State Innovation Model

Suggested 2018 Social Determinants of Health Screening Tool

Domain	Question	Response	
Healthcare	In the past month, did poor health keep you from doing your usual activities, like work, school or a hobby?	**Yes**	**No**
	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	**Yes**	**No**
Food	In the past year, did you ever eat less than you needed to because there was not enough food?	**Yes**	**No**
Employment & Income	Is it hard to find work or another source of income to meet your basic needs?	**Yes**	**No**
Housing & Shelter	Are you worried that in the next few months, you may not have housing?	**Yes**	**No**
Utilities	In the past year, have you had a hard time paying your utility company bills?	**Yes**	**No**
Family Care	Do you need help finding or paying for care for loved ones? For example, child care or day care for an older adult.	**Yes**	**No**
Education	Do you want help with school or job training, like finishing a GED, going to college, or learning a trade?	**Yes**	**No**
Transportation	Do you ever have trouble getting to school, work, or the store because you don't have a way to get there?	**Yes**	**No**
Personal and Environmental Safety	Do you ever feel unsafe in your home or neighborhood?	**Yes**	**No**
General	If you answered yes, would you like to receive assistance with any of these needs?	**Yes**	**No**
	Are any of your needs urgent?	**Yes**	**No**

State Innovation Model

Question Intent by Domain

Domain	Intent
Healthcare	Assess patient/client perception of their physical and/or mental health and potential impact on overall wellbeing and independence.
	Assess healthcare access related to cost, or more broadly, economic stability.
Food	Assess food insecurity, access and affordability.
Employment & Income	Assess potential joblessness, and income instability.
Housing & Shelter	Assess potential risk of homelessness, and housing instability.
Utilities	Assess risk, not whether there has been a shut off notice or had services shut off, but as a proxy of economic stability. This question intentionally focuses more broadly than service shut off (i.e. includes notices).
Family Care	Assess whether dependent care may be a barrier to (patient, client, beneficiary) taking care of themselves; assess the potential need for respite care and/or any patient concerns around current family care arrangements.
Education	Assess patient/client education level, ability for economic independence/stability and potential activation.
Transportation	Assess if transportation, or lack of transportation, is a limiting factor in daily life (i.e. goes beyond medical transportation).
Personal and Environmental Safety	Assess potential concerns of personal safety in a broad enough sense to capture potential for subsequent domestic violence screening.
General	Identify if any of the needs the patient, client, beneficiary indicated above are already being addressed or not, and whether the patient, client, beneficiary is open to assistance activation.
	Assess severity of identified needs.

Appendix B. Genesee CHIR Screening Tool and Mapping of Genesee Linkage Domains/ Subdomains with the 10 SIM Need Domains

Genesee Community Health Innovation Region Health Needs Screening Tool

Name: _____ Today's Date: _____

Address: _____ Phone Number: _____

_____ Date of Birth: _____ Gender: _____

Race/Ethnicity: _____

Physician/Provider: _____ Health Insurance:

Preferred Language: _____ ☐ Medicaid ☐ Commercial ☐ Medicare

		YES / NO
	In the last 12 months, did you ever **eat less than you felt you should** because there wasn't enough money for food?	Y N
	In the last 12 months, has your **utility company shut off your service** for not paying your bills?	Y N
	Are you worried that in the next 2 months, you **may not have stable housing?**	Y N
	Do problems getting **child care make it difficult for you to work** or study? *(leave blank if you do not have children)*	Y N
$	In the last 12 months, have you **needed to see a doctor, but could not** because of cost?	Y N
	In the last 12 months, has **lack of transportation** kept you from medical appointments? Has it kept you from meetings, work or getting things needed for daily living?	Y N Y N
	Do you ever need help **reading information from your doctor?**	Y N
	Are you **afraid you might be hurt** in your apartment building or house?	Y N
	Are you interested in information on **alcohol and/or drug misuse** (including prescription drugs)?	Y N
	Have you **felt sad or depressed** much of the time in the past year?	Y N
	Do you need help with **access to clean water, or have you used Flint water** since April 2014?	Y N
	If you checked YES to any boxes above, **would you like to receive assistance** with any of these needs?	Y N
	Are any of your needs urgent? For example: I don't have food tonight, I don't have a place to sleep tonight	Y N

☐ Declined to answer screen.

This screening tool has been sourced from materials provided by Health Leads.

SIM-3A3 Genesee.CHIR.SDOH.Tool.form.Final.101017XE

SIM Domains	Genesee - Domains/Subdomains
Physical and Mental Health	1.09 Depression
	7.01 Counseling
	7.02 Risk of Harm to self or others
	7.03 Connection to Behavioral Health Needed
	7.04 Other Behavioral Health Services
Healthcare Affordability	1.05a Financial (Medical)
	1.05b Financial (Global)
	8.01 Access to Medical Provider
	8.02 Access to Insurance
	8.03 Access to Specialists
	8.04 Access to Dental
	8.05 Access to Prescriptions
	8.06 Access to Home Care Services
Food	1.01 Food
Employment & Income	1.14 Employment
Housing & Shelter	1.03 Housing
Utilities	1.02 Utilities
Family Care	1.04 Child Care Services
Education	1.13 Education/Job Training
Transportation	1.06a Transportation (Medical)
	1.06b Transportation (Global)
	1.06c Car Seat Needed
Personal and Environmental Safety	1.08 Safety
	10.01 General Concern for Well Being
	10.02 Caregiver overwhelmed or situation requires support
	10.03 Concern for wellbeing not rising yet to level of mandated reporting
	10.04 Support needed with or after C.P.S. report or P.S. Case Open

Genesee Specific Domains	**Genesee - Subdomains**
Basic Needs	1.1 Clean Water
	1.12a Household Goods
	1.12b Furniture
	1.12c Appliances
	1.12d Clothing
	1.12e Baby Supplies
	1.12f Pack n Play
	1.12g Personal Care Items
	1.12h Medical Supplies
	1.12i Other Basic Needs
Health Education	1.07a Newborn / New Parent Education
	1.07b Teen Parent

Genesee Specific Domains	Genesee - Subdomains
	1.07c Pregnancy
	1.07d Early Childhood Development Services
	1.07e Asthma
	1.07f Physical Activity / Obesity
	1.07g Nutrition
	1.07h Medical Home Policies
	1.07i Diagnostic Education
	1.07j Education Support in School Setting
	1.07k Health Literacy
	1.07L Lead Education
	1.07m Introduction to CHAP
	1.07n Information on Substance/Alcohol Use
	1.11 Interpreter Services
	9.01 Help Navigating DHHS
	9.02 Help Navigating Hospitals
	9.03 Help Navigating Other Community-based Agencies
	9.04 Legal assistance
Connecting to a Medical Home	2.01 Newborn Check
	2.02 Well Child Visit
	2.03 Overdue or Missing Immunization
	2.04 Specialist
	2.05 ED Visit Follow Up
	2.06 Other Follow Up
	3.01 Well Child Visit
	3.02 Follow Up Appointment
	3.03 Overdue or Missing Immunization
	3.04 Lead Testing
	3.05 ED Visit Follow Up
	3.06 Other Apt. Scheduled
	3.07 Care Transition
	4.00 At Risk of Dismissal from Medical Home
	5.00 Frequent No Shows
ED Use Supports and Services	6.01 High ED Use
	6.02 Inappropriate ED Use
	6.03 Preventable ED Use
	6.04 Prospective ED Use

Appendix C. Jackson CHIR Screening Tool

Brief Social Needs Screening

Revised 5-3-18

Domain	Question	Yes	No
Healthcare	Does your physical or mental health keep you from doing things you need or want to do? (work, school, take care of yourself)		
	Have you needed to see a provider but could not because of cost?		
Food	Do you struggle to get the food you need?		
Housing	Do you need help with housing?		
Utilities	Do you have a hard time paying your utility bills?		
Family Care	Do you need help finding or paying for care for loved ones? For example, child care or day care for an older adult.		
Transportation	Do you have trouble with transportation?		
Literacy	Do you ever need help reading important papers?		
Employment/ Income	Do you need help finding a job, better job or steady source of income?		
Education	Do you think more education could be helpful for you?		
Safety	Are you afraid you might be hurt in your living environment?		
General	Would you like assistance with any of these needs?		
	Are any of your needs urgent?		

Appendix D. Livingston/Washtenaw CHIR Screening Tool and Mapping of L/W Domains/ Subdomains with the 10 SIM Need Domains

MI CARE CONNECT

Livingston/Washtenaw SIM

Concrete Needs Assessment

IDENTIFYING INFORMATION				
NAME	DOB	AGE	CASE #	GENDER
ADDRESS				

ASSESSMENT DATE

ASSESSMENT TYPE
Initial Reassessment

NEXT REVIEW DATE

CASE #

DATE OF BIRTH

GENDER

GENDER IDENTIFICATION

FIRST NAME

MIDDLE NAME

LAST NAME

SSN

ALIASES AND OTHER IDENTIFYING INFORMATION

MEDICAID ID #

MI CHILD ID #

HOME ADDRESS

ALTERNATE PHONE

COUNTY OF RESIDENCE

EMAIL

PRIMARY SPOKEN LANGUAGE

COMMUNICATION PREFERENCE

FOOD SECURITY

IN THE PAST YEAR, WERE YOU WORRIED WHETHER YOUR FOOD WOULD RUN OUT BEFORE YOU GOT MONEY TO BUY MORE?

☐ Often True ☐ Sometimes True ☐ Never True
☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

HOUSING INSTABILITY

ARE YOU WORRIED OR CONCERNED THAT IN THE NEXT 2 MONTHS YOU MAY NOT HAVE STABLE HOUSING THAT YOU OWN, RENT, OR STAY IN AS PART OF A HOUSEHOLD?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

IF YES, WHERE HAVE YOU USUALLY STAYED IN THE PAST MONTH (30 DAYS)?

UTILITY NEEDS

IN THE PAST YEAR, HAS THE UTILITY COMPANY SHUT OFF YOUR SERVICE FOR NOT PAYING YOUR BILLS?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

FINANCIAL RESOURCE STRAIN

IN THE PAST YEAR, HAVE YOU HAD HARD TIME MAKING MONEY LAST AS LONG AS YOU NEED IT TO?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

IN THE PAST YEAR, DID YOU SKIP MEDICATIONS TO SAVE MONEY?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

BENEFITS AND ENTITLEMENTS

DO YOU CURRENTLY HAVE HEALTH CARE COVERAGE / INSURANCE?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

IF YES, WHAT TYPE OF INSURANCE DO YOU HAVE?

IF YOU HAVE MEDICAID OR MEDICARE/MEDICAID WHO IS YOUR MEDICAID PROVIDER?

TRANSPORTATION

IN THE PAST 6 MONTHS, HAVE YOU EVER HAD TRANSPORTATION PROBLEMS TO GET TO WORK, CHILD CARE OR APPOINTMENTS?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

IN THE PAST 6 MONTHS, HAVE YOU EVER HAD TO GO WITHOUT HEALTH CARE BECAUSE YOU DIDN'T HAVE A WAY TO GET THERE?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

CHILD CARE

DO YOU HAVE PROBLEMS GETTING CHILD CARE THAT MAKE IT HARD FOR YOU TO GET TO WORK, SCHOOL OR OTHER PLANS?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

ELDERLY CARE

DO YOU HAVE PROBLEMS GETTING ELDERLY CARE THAT MAKE IT DIFFICULT TO GET TO WORK, SCHOOL OR OTHER PLACES?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

LITERACY

DO YOU HAVE TROUBLE UNDERSTANDING YOUR DOCTOR'S INSTRUCTIONS/DIRECTIONS?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

SOCIAL ISOLATION AND LIFE STABILITY

DO YOU FEEL YOU HAVE SOCIAL SUPPORT (FRIENDS, FAMILY, NEIGHBORS AND CHURCH FAMILY) THAT COULD HELP YOU IF YOU NEEDED IT?

☐ Always ☐ Often ☐ Sometimes ☐ Occasionally ☐ Never
☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

HOW OFTEN DO YOU FEEL LONELY?

☐ Often ☐ Some of the Time ☐ Hardly Ever ☐ Never ☐ Unsure
☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

MY LIFE IS UNSTABLE.

☐ Strongly Agree ☐ Agree ☐ Unsure ☐ Disagree ☐ Strongly Disagree
☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

CURRENT/PAST LEGAL NEEDS

DO YOU HAVE ANY PENDING OR PAST LEGAL ISSUES?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

MEDICAL NEEDS

IN GENERAL, HOW WOULD YOU RATE YOUR HEALTH?

☐ Excellent ☐ Very Good ☐ Good ☐ Fair ☐ Poor
☐ Unsure ☐ Not Applicable ☐ Refused to Answer

DO YOU GO TO YOUR DOCTOR WHEN YOU ARE SICK OR IN PAIN?
☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

DO YOU TAKE YOUR MEDICATION AS PRESCRIBED BY YOUR DOCTOR?
☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

DO YOU NEED MORE HELP WITH YOUR MEDICAL ISSUES (MAKING APPOINTMENTS, TRANSPORTATION, FOLLOWING DIRECTIONS FROM DOCTOR)?
☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

DO YOU NEED HELP WITH ER/INPATIENT DISCHARGE PLANS?
☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

I AM CONFIDENT THAT I CAN TELL WHEN I NEED TO GO TO THE ER AND WHEN I CAN HANDLE A HEALTH PROBLEM WITHOUT GOING TO THE ER.
☐ Strongly Agree ☐ Agree ☐ Unsure ☐ Disagree ☐ Strongly Disagree
☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

DO YOU CURRENTLY HAVE ANY CHRONIC HEALTH CONDITIONS? (SELECT ALL THAT APPLY)

☐ Arthritis	☐ Asthma	☐ Cancer
☐ Diabetes	☐ Heart Disease	☐ Kidney Disease
☐ Liver Disease	☐ Lung Disease	☐ Stroke
☐ Traumatic Brain Injury		
☐ Other		

IF YES, WHO ARE YOU WORKING WITH TO TREAT THESE CONDITIONS?

DO YOU HAVE A PRIMARY CARE DOCTOR OR CLINIC YOU USUALLY GO TO WHEN YOU ARE SICK OR NEED ADVICE ABOUT YOUR HEALTH?
☐ Yes ☐ No
IF YES, WHERE IS THAT?

MENTAL HEALTH

ARE YOU CURRENTLY RECEIVING MENTAL HEALTH SERVICES?
☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

DO YOU THINK YOU NEED MENTAL HEALTH SERVICES?
☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

DO YOU KNOW HOW TO GET MENTAL HEALTH SERVICES?
☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer
BARRIER/ACTION

PHQ-9

ADULT OR CHILD?
☐ PHQ-9 Adult ☐ PHQ-9 Modified for Adolescents ☐ Not Applicable / Under Age 11

OVER THE LAST 2 WEEKS, HOW OFTEN HAVE YOU BEEN BOTHERED BY ANY OF THE FOLLOWING PROBLEMS:

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things?	☐	☐	☐	☐
Feeling down, depressed, or hopeless?	☐	☐	☐	☐
Trouble falling or staying asleep, or sleepingtoo much?	☐	☐	☐	☐
Feeling tired or having little energy?	☐	☐	☐	☐
Poor appetite or overeating?	☐	☐	☐	☐
Feeling bad about yourself, or that you are a failure or have let yourself or your family down?	☐	☐	☐	☐

Trouble concentrating on things, such as reading the newspaper or watching television?	☐	☐	☐	☐
Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?	☐	☐	☐	☐
Thoughts that you would be better off dead or of hurting yourself in some way?	☐	☐	☐	☐

Total Score:

IF YOU CHECKED OFF ANY PROBLEMS, HOW DIFFICULT HAVE THESE PROBLEMS MADE IT FOR YOU TO DO YOUR WORK, TAKE CARE OF THINGS AT HOME, OR GET ALONG WITH OTHER PEOPLE?

☐ Not difficult at all ☐ Somewhat difficult ☐ Very difficult ☐ Extremely difficult

PHQ-9 SCORES AND PROPOSED TREATMENT ACTIONS

PHQ-9 Score	Depression Severity	Proposed Treatment Actions
0-4	None-Minimal	None/Ongoing monitoring
5-9	Mild	Watchful Waiting; repeat PHQ-9 at follow-up
10-14	Moderate	Treatment plan, considering counseling, Psychiatric follow-up/or pharmacotherapy
15-19	Moderately Severe	Active treatment psychiatrist and therapy
20-27	Severe	Immediate review and treatment by psychiatrist

BARRIER/ACTION

DO YOU HAVE ANY THOUGHTS OF HARMING YOURSELF OR OTHERS?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

SUBSTANCE ABUSE

DO YOU THINK YOU NEED SUBSTANCE ABUSE SERVICES?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

ALCOHOL AND DRUG USE SCREENING

ADOLESCENT SCREENING ☑ Not Applicable

ADULT SCREENING ☐ Not Applicable

HAVE PEOPLE ANNOYED YOU BY CRITICIZING YOUR DRINKING OR DRUG USE?

☐ Yes ☐ No

HAVE YOU EVER FELT YOU OUGHT TO CUT DOWN ON YOUR DRINKING OR DRUG USE?

☐ Yes ☐ No

HAVE YOU EVER FELT BAD OR GUILTY ABOUT YOUR DRINKING OR DRUG USE?

☐ Yes ☐ No

HAVE YOU EVER HAD A DRINK OR USED DRUGS FIRST THING IN THE MORNING TO STEADY YOUR NERVES OR TO GET RID OF A HANGOVER?

☐ Yes ☐ No

BARRIER/ACTION

WHAT ARE YOUR MOST IMPORTANT NEEDS?

OTHER NEEDS

ARE THERE OTHER BARRIERS OR NEEDS YOU HAVE THAT WERE NOT ASKED?

☐ Yes ☐ No ☐ Unsure ☐ Not Applicable ☐ Refused to Answer

BARRIER/ACTION

WHAT WOULD YOU LIKE TO WORK ON AS PART OF YOUR CARE PLAN?

DISPOSITION

☐ Continue to Participate in SIM

☐ Maintain Existing Hublet Assignment

☐ Transfer to Another Hublet - New Hublet will develop Care Plan

NEW HUBLET

☐ Declined to Participate in SIM

☐ Unsure / Requested More Information; requires staff follow up

DISPOSITION COMMENTS

SIGNATURES

STAFF SIGNATURE / CREDENTIALS _____ DATE _____

ADDITIONAL STAFF SIGNATURE / CREDENTIALS _____ DATE _____

SIM Domains	Livingston-Washtenaw Domains/Subdomains
Physical and Mental Health	Medical: Medical Issues
	Mental Health
Healthcare Affordability	Financial: Skip Medication
Food	Household: Food Security
Employment & Income	Financial: Resource Strain
Housing & Shelter	Household: Housing Instability
Utilities	Household: Utility Needs
Family Care	Barriers: Child Care
	Elderly Care
Education	(no equivalent domain)
Transportation	Barriers: Transportation HealthCare
Personal and Environmental Safety	(no equivalent domain)
Other	Benefits and Entitlements
	Legal Needs
	Literacy
	Social Isolation/Life Stability
	Substance Abuse
	Other

Appendix E. Muskegon CHIR Screening Tools

SDOH Survey Tool Attachment F

Social Determinant of Health Screening Tool Template

Domain	Question	Response	
Healthcare	In the past month, did poor physical or mental health keep you from doing your usual activities, like work, school or a hobby?	Yes	No
	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	Yes	No
Food	Do you ever eat less than you feel you should because there is not enough food?	Yes	No
Employment & Income	Do you have a job or other steady source of income?	Yes	No
Housing & Shelter	Are you worried that in the next few months, you may not have safe housing that you own, rent, or share?	Yes	No
Utilities	In the past year, have you had a hard time paying your utility company bills?	Yes	No
Childcare	Does getting child care make it hard for you to work, go to school or study?	Yes	No
Education	Do you think completing more education or training, like finishing a GED, going to college, or learning a trade, would be helpful for you?	Yes	No
Transportation	Do you have a dependable way to get to work or school and your appointments?	Yes	No
Clothing & Household	Do you have enough household supplies? For example, clothing, shoes, blankets, mattresses, diapers, toothpaste, and shampoo.	Yes	No
General	Would you like to receive assistance with any of these needs?	Yes	No
	Are any of your needs urgent?	Yes	No

Muskegon CHIR

Social Determinants of Health Screening

Domain	Question	Response		
Healthcare	In the past month, did poor physical or mental health keep you from doing your usual activities, like work, school or a hobby?	**Yes**	No	NA
	In the past year, was there a time when you needed to see a doctor but could not because it cost too much?	**Yes**	No	NA
Food	Do you ever eat less than you feel you should because there is not enough food?	**Yes**	No	NA
Employment & Income	Do you have a job or other steady source of income?	Yes	**No**	NA
Housing & Shelter	Are you worried that in the next few months, you may not have safe housing that you own, rent, or share?	**Yes**	No	NA
Utilities	In the past year, have you had a hard time paying your utility company bills?	**Yes**	No	NA
Education	Do you think completing more education or training, like finishing a GED, going to college, or learning a trade, would be helpful for you?	**Yes**	No	NA
Transportation	Do you have a dependable way to get to work or school and your appointments?	Yes	**No**	NA
Clothing & Household	Do you have enough household supplies? For example, clothing, shoes, blankets, mattresses, diapers, toothpaste, and shampoo.	Yes	**No**	NA
Childcare	Does getting childcare make it hard for you to work, go to school, or study?	**Yes**	No	NA
Eldercare	Does getting eldercare make it hard for you to work, go to school, or study?	**Yes**	No	NA
Personal & Environmental Safety	Do you feel safe in your current home environment or surroundings?	Yes	**No**	NA
General	Would you like to receive assistance with any of these needs?	**Yes**	No	NA
	Are any of your needs urgent?	**Yes**	No	NA

Appendix F. Northern CHIR Screening Tool and Mapping of Northern Domains/ Subdomains with the 10 SIM Need Domains

Welcome to Community Connections. We can work together to help you and your family stay healthy!

Name _____

Name of Health Care Provider _____

Question	Yes	No
In the past month, did poor physical health keep you from doing your usual activities, like work, school or a hobby?		
In the past month did poor mental health keep you from doing your usual activities, like work, school, or a hobby?		
In the past 3 months, was there a time when you needed to see a doctor but could not because it cost too much?		
In the past 3 months, have you had to eat less than you feel you should because there is not food?		
Is it hard to find work or another source of income to meet your basic needs?		
Are you worried that in the next few months, you may not have housing?		
Has it been difficult to go to work or school because you couldn't find care for a child or older adult?		
Do you think completing more education or training, like finishing a GED, going to college, or learning a trade, would be something you would like to work on in the next 6 months?		
Do you have trouble getting to school, work or the store because you don't have a way to get there?		
In the past 3 months, have you had a hard time paying your utilities?		
Have you been a patient in the Emergency Room 2 or more times in the past 6 months?		

You identified some needs today that may make being healthy very difficult. Would you like someone from our team to assist you in person, via phone or text to work on the needs that you identified today? ❑ Yes ❑ No

If yes, please fill out your contact information below. Thank you.

Print Name:_____ **DOB:**_____/_____/_____ **Gender:** _____

Parent/Guardian Name *(If a minor)*: _____ **County** _____

Primary Phone: _____ **Alt. Phone:** _____ **Zip Code** _____

Address _____ **City** _____

Preferred method of client contact: ☐Phone ☐Text

_____ _____

Signature Date

This tool has been adapted from the Health Leads Social Needs Screening

SIM Domains	Northern Benzie Leelanau DHD – Domains/Subdomains	Northern Health Department of Northwest Michigan - Domains/Subdomains
Physical and Mental Health	Medical Home Pathway	Healthcare_Q1
	Medical Referral Pathway	
Healthcare Affordability	Health Insurance Pathway	Healthcare_Q2
	SS Medical Debt Assistance	
Food	SS Food Assistance/WIC	Food
Employment & Income	Employment Pathway	Employment
Housing & Shelter	Housing Pathway	Housing
Utilities	SS Utilities Assistance	Utilities
Family Care	SS Child Care Assistance	Family Care
	SS Child/Family Assistance	
Education		Education
Transportation	SS Transportation Assistance	Transportation
Personal and Environmental Safety		Safety
Other	Behavioral Health Pathway	
	SS Financial Assistance	

Appendix G. Methodology for Identifying Chronic Conditions

The Centers for Medicare & Medicaid Services (CMS) Chronic Conditions Data Warehouse (CCW) classification categories and algorithms were adapted to identify the chronic conditions of the beneficiaries. The CCW condition indicators have been developed to facilitate researchers in identifying Medicaid and/or Medicare beneficiaries with specific conditions.

The CMS-CCW defines two sets of conditions from claims data: (1) a set of 27 common chronic conditions, and (2) a second set of over 40 (to date) other chronic or potentially disabling conditions which includes additional chronic health, mental health, disability-related and substance abuse conditions. The condition indicators are developed from algorithms that search administrative claims data for specific diagnosis codes, MS-DRG codes, or procedure codes. ICD-9 code-based algorithms are used for services that occurred prior to October 1, 2015. Starting in 2016, chronic conditions are identified based on ICD-10 codes. More information on the identification of the conditions including the detailed algorithms for each condition can be downloaded from the Chronic Condition Data Warehouse website (www.ccwdata.org).

The table below lists each of the CCW conditions in the first column. While there are almost 70 conditions (to date) listed in CCW, several of these conditions, however, are not mutually exclusive and have been designed to enhance research of specific Medicare and Medicaid populations. Some conditions are considered specific subsets of another larger conditions. To create mutually exclusive categories, several of these conditions have either been combined together to form a broader category along the line of other similar studies, or the specific subset of a condition subsumed into the broader condition. The second column lists the final set of 48 mutually exclusive conditions used in the analysis which were identified using the CCW algorithms.

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Acquired Hypothyroidism	1. Acquired Hypothyroidism
Acute Myocardial Infarction	2. Ischemic Heart Disease (Acute MI subsumed under larger category of Ischemic Heart Disease)
Ischemic Heart Disease	
Alzheimer's Disease	3. Alzheimer's disease and related disorders or senile dementia (Alzheimer's disease subsumed under larger category of Alzheimer's Disease & related disorders or senile dementia)
Alzheimer's Disease and Related Disorders or Senile Dementia	
Anemia	4. Anemia
Asthma	5. Asthma
Atrial Fibrillation	6. Atrial Fibrillation
Benign Prostatic Hyperplasia	7. Benign Prostatic Hyperplasia

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Cancer, Breast	8. Cancer
Cancer, Colorectal	
Cancer, Endometrial	
Cancer, Lung	
Cancer, Prostate	
Leukemias and Lymphomas	
Cataract	9. Eye Disease-Cataract and Glaucoma
Glaucoma	
Chronic Kidney Disease	10. Chronic Kidney Disease
Chronic Obstructive Pulmonary Disease and Bronchiectasis	11. Chronic Obstructive Pulmonary Disease and Bronchiectasis
Diabetes	12. Diabetes
Heart Failure	13. Heart Failure
Hip/Pelvic Fracture	14. Hip/Pelvic Fracture
Hyperlipidemia	15. Hyperlipidemia
Hypertension	16. Hypertension
Osteoporosis	17. Osteoporosis
Rheumatoid Arthritis/ Osteoarthritis	18. Rheumatoid Arthritis/ Osteoarthritis
Stroke / Transient Ischemic Attack	19. Stroke / Transient Ischemic Attack
ADHD, Conduct Disorders, and Hyperkinetic Syndrome	20. ADHD, Conduct Disorders, and Hyperkinetic Syndrome
Alcohol Use Disorders	21. Substance Use Disorders
Drug Use Disorders	
Opioid Use Disorder	
Anxiety Disorders	22. Anxiety Disorders (PTSD subsumed under larger category of anxiety disorders)
Post-Traumatic Stress Disorders (PTSD)	
Autism Spectrum Disorders	23. Autism Spectrum Disorders
Bipolar Disorder	24. Bipolar Disorder
Cerebral Palsy	25. Cerebral Palsy
Cystic Fibrosis and Other Metabolic Developmental Disorders	26. Cystic Fibrosis and Other Metabolic Developmental Disorders
Depression	27. Depression (Depressive disorders subsumed under larger category of depression)
Depressive Disorders	

CCW Chronic Conditions	Chronic Conditions Used in Analysis
Epilepsy	28. Epilepsy
Fibromyalgia, Chronic Pain and Fatigue	29. Fibromyalgia, Chronic Pain and Fatigue
Human Immunodeficiency Virus and/or Acquired Immunodeficiency Syndrome (HIV/AIDS)	30. Human Immunodeficiency Virus and/or Acquired Immunodeficiency Syndrome (HIV/AIDS)
Intellectual Disabilities and Related Conditions	31. Intellectual, Learning and other Developmental Disabilities
Learning Disabilities	
Other Developmental Delays	
Liver Disease, Cirrhosis and Other Liver Conditions (excluding Hepatitis)	32. Liver Disease, Cirrhosis and Other Liver Conditions (excluding Hepatitis)
Migraine and Chronic Headache	33. Migraine and Chronic Headache
Mobility Impairments	34. Mobility Impairments
Multiple Sclerosis and Transvers Myelitis	35. Multiple Sclerosis and Transvers Myelitis
Muscular Dystrophy	36. Muscular Dystrophy
Obesity	37. Obesity
Peripheral Vascular Disease (PVD)	38. Peripheral Vascular Disease (PVD)
Personality Disorders	39. Personality Disorders
Pressure and Chronic Ulcers	40. Pressure and Chronic Ulcers
Schizophrenia	41. Schizophrenia and Other Psychotic Disorders (Schizophrenia subsumed under larger category of schizophrenia & other psychotic disorders)
Schizophrenia and Other Psychotic Disorders	
Sensory – Blindness and Visual Impairment	42. Sensory – Blindness and Visual Impairment
Sensory – Deafness and Hearing Impairment	43. Sensory – Deafness and Hearing Impairment
Spina Bifida and Other Congenital Anomalies of the Nervous System	44. Spina Bifida and Other Congenital Anomalies of the Nervous System
Spinal Cord Injury	45. Spinal Cord Injury
Tobacco Use	46. Tobacco Use
Traumatic Brain Injury and Nonpsychotic Mental Disorders Due to Brain Damage	47. Traumatic Brain Injury and Nonpsychotic Mental Disorders Due to Brain Damage
Viral Hepatitis (broken into Hepatitis A, B, C, D and E)	48. Viral Hepatitis (general – covers all types of Hepatitis from A to E)

Acronym List

ABAD – Aged Blind and Disabled

ADHD - Attention-deficit/hyperactivity disorder

ADI – Area Deprivation Index

CCL - Clinical-Community Linkages

CCW - Chronic Conditions Data Warehouse

ED – Emergency Department

FFS - Fee for service claims

HMP – Healthy Michigan Plan

ICD-10-CM – International Classification of Disease, Tenth revision, Clinical Modification

PCMH – Patient Centered Medical Homes

PMPM - Per Member Per Month

RUCA – Rural-Urban Commuting Area

SIM – State Innovation Model

TANF – Temporary Assistance for Needy Families