Turning data into insights to improve health for our families, neighbors, and friends by connecting our healthcare community.
Dear friends and colleagues,

Over my time as a member of the MHIN team, I have had the profound privilege of watching this organization grow and evolve in ways that even our earliest advocates may not have predicted. Indeed, the healthcare industry is changing rapidly—and with that, our understanding of what it means to be healthy—but here at MHIN we remain enthusiastic in embracing those changes and all of the challenges that accompany them. I feel a distinct sense of nostalgia when I look back on all MHIN has accomplished to date. That would not have been possible without the leadership and support of our healthcare community. I feel a sincere sense of gratitude when I recognize all that our past efforts are enabling us to accomplish today.

As we pause to appreciate how far we have come, we prepare with great diligence for the future. It is our commitment to the residents of the communities and regions we serve always to stay at the forefront of the health technology industry, to be on the leading edge of what research shows will make us all healthier and happier. But more than that, it is our promise that you will be on the leading edge with us. We will work hard to bring technology to your hands in such a way that it empowers you to do your job better. With this promise comes a lot of work, but we are confident that our community will continue to rise to the challenge. To help us along the way, we have developed this plan. It embodies the spirit of our future—our mission to unravel the principles of population health and to improve health outcomes through information and technology.

We hope that you will embrace this plan and step with us into this exciting next chapter for MHIN. After all, we can’t do it without you.

Warmest regards,

Kelly Hahaj
Chief Executive Officer
MHIN
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"The goal is to turn data into information, and information into insight."
Carly Fiorina, Former CEO of HP
How will this work?

RESEARCH AGENDA

This Plan follows a thoughtfully considered research agenda and takes into account the various elements that may evolve based on certain constraints including shifting community priorities, emergent unforeseen health needs of the community, funding opportunities, and an overall consensus of effort. Our commitment to this Plan is to follow it with vigilance, while remaining mindful of the fluidity of these constraints. Some of the tactical efforts and projects outlined in this Plan are contingent on external funding we will make every effort to obtain. Others rely on the efforts of community partnerships we are working hard to solidify. All of them are ambitious. We will do our best to follow the timelines and deliverables set forth here but anticipate that some things may change. We will update this Plan annually to keep you apprised of those changes. With that in mind, our current projected timeline can be observed here.

TIMELINE

Why a Population Health Plan?

PUTTING DATA INTO ACTION

The purpose of this Plan is to outline the priority areas of population health focus and activities that will be pursued over the next three years to protect and improve the health and well-being of our local communities.

This Plan specifically aims to:

• Provide a methodology for identifying, acquiring, and operationalizing a MHIN-specific Data Set of Social Determinants of Health.

• Improve the capacity of our provider and public health system partners to collaboratively engage with local communities and stakeholders to address current and emerging health needs of local communities.
WHY A POPULATION HEALTH PLAN?

• Foster and support innovation in population health practice.
• Inform and empower health professionals and other stakeholders within the region to deliver effective population health activities.
• Develop mechanisms that encourage residents to actively engage in the management and improvement of their own health and wellness.

STRATEGIC HIGHLIGHTS

This plan has been developed with the specific intent of leveraging the power of MHIN’s content expertise in health information, data science, and social and community health to utilize the same data analytics platform that supports its commercial partners for the benefit of improving regional health outcomes through our public health and social service community collaborations. Central to these efforts has been the development of regionally-relevant data that is derived from local community and social services partners, who provide the behavioral and social context to our traditional clinical sources.

In this Plan, we will provide a brief description of the effort or problem being currently developed and deployed by MHIN in collaboration with its partner organizations. In the Data into Action section, we will explain specifically how MHIN intends to participate in improving outcomes or available data resources to support these efforts, over the next three years.

LOOKING AHEAD

Behavioral and social factors have profound effects on life expectancy and health-related quality of life. The magnitude of these effects has been under-recognized. The goal of extending the human life span and of improving health-related quality of life for the residents of our region will require rigorous new research and innovation that establishes causal relationships, improves measurements, and systematically evaluates intervention strategies, as well as effective practices that emerge from this research.

In its current initial iteration, this strategic plan seeks to establish agreed-upon priorities and approaches for leveraging the power of research, data and analytics to confront the region’s most immediate health concerns. Working from identified baselines, this plan will serve as the basis for developing a data-informed ecosystem that promotes quality healthcare and wellness for all of the region’s residents – particularly those most vulnerable or at risk. This Plan is intended to be subject to iterative and annual assessment and adjustment by the board of directors, with the goal of maintaining its relevance as a responsibly utilized resource.

The Changing Landscape

THE SOCIAL DETERMINANTS OF HEALTH (SDOH):
FROM EXPLANATORY MODEL TO ACTIONABLE DATA SET

The last several years have seen significant shifts in the health landscape within the U.S. With the advent of the Affordable Care Act in 2010, new attention has been focused on moving the SDoH beyond an explanatory model and toward an operationalized set of variables, which are empowering innovation that reaches beyond clinical care to shape the health of patients by changing community conditions. Research has shown that the SDoH play a larger role than healthcare in shaping life expectancy and health status over the life course.
These findings have raised questions concerning whether funding is best spent providing healthcare rather than population-wide opportunities to improve health.

Many physicians recognize the importance of the SDoH for their patients’ health, even if they feel unable to address these factors. A recent national survey of primary care physicians and pediatricians revealed that 85 percent believe that their patients’ social needs — e.g., access to nutritious food, reliable transportation, and adequate housing — are just as important as medical treatment for addressing their medical conditions.

However, 80 percent of physicians surveyed are “not confident in their capacity to address their patients’ social needs” and believe this impedes their ability to provide quality care (Robert Wood Johnson Foundation, 2011).

In response to these emergent views, Accountable Care Organizations (ACOs), health systems, and community health centers (CHCs) are also reorienting their focus to the improvement of a broader population’s health. By increasingly accounting for the social, economic, and environmental factors shaping their patients’ health, these organizations are adopting the “Triple Aim” as a national strategy to improve the quality of healthcare. It marks an important milestone for health policy in the United States: the shift from a focus on acute and specialized care for the individual to meeting the health needs of a population or “population health,” including leveraging the SDoH.

Originally developed by Institute for Healthcare Improvement, the Triple Aim argues that healthcare organizations should pursue simultaneously the following goals:

- Excellent healthcare experience
- Lower per capita costs (or at least slowing the rate of growth of healthcare costs)
- Improved population health (Berwick, Nolan, & Whittington, 2008)

The challenges for all partners arise in their ability to develop intelligent strategies to deploy such complex systems. Traditional data sources such as rich institutional patient data (which lacks context), or U.S. Census, Behavioral Risk Factor Surveillance System (BRFSS), and County Health Rankings (which are aggregate estimates, often taking a couple of years to be published) provide a generalized picture of the residents, lacking the ability to statistically process categorical data.
What is increasingly sought from these stakeholders in the health continuum is the ability to access and process high quality, cross-sectorial data about the communities they serve in a timely enough manner to provide resources that promote “chronic wellness” (ibid).

Building from a Baseline: Developing a Data-Driven Population Health Strategy

Population health management is not a function of EHRs (Electronic Health Records), rather health and wellness – the two key drivers of any population health management strategy – are a function of attributes outside of the setting of healthcare (Chawla & Davis, 2013). There is also an exponentially growing wealth of new data emerging from traditional and less traditional or siloed sources (see Fig. 2), as well as new self-reported behaviors and remote monitoring via the internet and wireless devices (fitness tracking, social networks, physical activity postings, etc.). This increasingly involves factors other than just what has traditionally appeared in a person’s electronic medical record.

However, combining these data into an enhanced picture of individual and community health presents a completely new level of “people, data, and technology” complexity. Dealing with these new complexities will entail an active and collaborative strategy, which benefits from MHIN’s long and broad-reaching relationships with regional partners spanning healthcare to the social services spectrum, as well as a number of current and emergent advances in health analytics technology and data science. In developing a population health strategy that works to identify and collect the necessary data across these traditionally isolated sectors, and applying state-of-the-art technologies and science, MHIN will actively collaborate to keep as many residents in the region as healthy as possible.

With input from its regional health improvement partners, MHIN is developing and implementing a Regional Population Health Platform that will help stakeholders identify baselines and track changes in emerging health development across the communities within our region. Partner organizations will be able to access visualizations of aggregated data across multiple sectors which inform recent trending health information for the region as an aid to programmatic and allocations decision-making. This platform will draw upon a number of collaborating contributor sources to provide an early warning system to not only identify evolving health gaps
and concerns, but to provide community leaders with tools to access relevant data at the local level in order to monitor local health strengths and successes and inform community readiness for new interventions and policies.

MHIN will build upon its existing Health Information Exchange (HIE) architecture to develop the Regional Population Health Data Platform and derive and provide an enhanced set of social indicators by increasing aggregated patient data collected from local healthcare providers and partner organizations. The early warning and monitoring system will merge technology and analytic methods utilizing the established set of social and clinical indicators to generate community-level health profiles using various reporting mechanisms, such as gap analysis, heat mapping, and dashboards.

MHIN will develop and host a web-based platform that will display aggregated community health and social indicator data in near real-time. This will give public health officials and partner providers an accurate representation of what is happening in the community dynamically, as data becomes available. Other monitoring systems use data from previous years to inform health disparities, which may not be as relevant or accurate today. A real-time health monitoring system will allow decision-makers to monitor the health status of the community across the various sectors that describe the social determinants and analyze the prevalence of risk indicators through graphical representation. The widespread adoption of HIEs has allowed public health officials to have access to vast clinical data, but now by marrying this with additional social indicators, we will create the opportunity to use that data to coordinate efforts to cultivate a proactive culture of health by highlighting strengths and addressing gaps within a community’s health. This early warning system will allow partner organizations to quickly assess the scope and nature of health strengths and disparities while providing them with critical information to determine how best to respond.

The implementation of a regional population health platform will inform these efforts by indicating priorities or opportunities for collaboration for partner organizations, such as health departments, community-serving organizations, health systems, school districts, public safety, community mental health centers, park departments, accountable care organizations, employer wellness plans, etc. MHIN is establishing an iterative process with partner organizations for ongoing development of customized applications that utilize near real-time information and use it to develop further interventions.

Partner organizations include:

- The St. Joseph County Health Improvement Alliance
- The Central Northern Indiana Perinatal Collaborative
- The Behavioral Health Workgroup of St. Joseph & Elkhart Counties
- United Way of St. Joseph County
- Real Services
- The Center for the Homeless
- Bridges Out of Poverty
- The Elkhart County Council on Aging
- The Minority Health Coalitions of St. Joseph and Elkhart Counties
- The St. Joseph and Elkhart County Health Departments
- and many other organizations.
“In the future, it’s going to become more and more impossible for the economy to support how expensive medical care is and the number of sick people we have. Why don’t we just get our population healthier so we don’t need medical care?”

Joel Fuhrman, MD, Author
Through its ongoing data management services in the region, MHIN already currently stores over 15 years of medical history in individual longitudinal patient records in the secure Clinical Data Repository (CDR) and processes over 2 million inbound and about 8 million outbound clinical transactions each month. Data sources include 12 hospitals and health systems, 5 laboratories, several diagnostic and imaging centers, as well as over 300 ambulatory specialists and primary care providers. MHIN is also one of few HIEs in the country that has already established a Clinical Exchange Platform (CEP) operating on XDS.b CCD exchange standards, which is supported by Cerner Corporation to provide an infrastructure for sharing healthcare information. This has allowed the HIE to successfully connect with healthcare organizations in the community to submit and retrieve patient data in order to coordinate care. Furthermore, MHIN receives Medicaid claims data from the State of Indiana and stores it in a separate SQL Server database that is merged within specific clinical applications and services utilized by MHIN partners.

MHIN has recently purchased Cerner’s HealtheIntent platform, which is a multi-purpose, programmable platform designed to scale at a population level while facilitating health care at a person and provider level. HealtheIntent, facilitates MHIN’s ability to aggregate or provide access to data in near real-time, providing clarity to millions of data points in an actionable and programmable workflow. It enables organizations to identify, score, and predict the risks of individual patients, allowing them to match the right care programs to the right individuals and to perform population level analytics. MHIN will leverage this product to aggregate, transform and reconcile data across the continuum of care. Acquiring data from non-traditional providers is vital to the success of these tools. MHIN will utilize the partnership with the social service agencies in the region that provide post-acute and allied health services and support to collect social indicator and health information to supplement the clinical information already stored in the HIE. This anticipates future compliance that regional providers will need to address in ongoing Meaningful Use stages. The Centers for Medicare & Medicaid Services (CMS) is working with the Office of the National Coordinator for Health Information Technology (ONC) and other parts of the U.S. Department of Health and Human Services to establish regulations for the third stage of the meaningful use incentive program. Meaningful Use Stage 3 is in development and implementation for this stage is expected to start in 2017.

Expansion beyond the traditional medical information collected in EHRs to include social and behavioral health determinants requires the identification and application of criteria for determining what domains should be included in all EHRs and for specific populations. The rapid adoption of EHRs and the exigent Meaningful Use Stage 3 criteria formulation by the ONC and CMS add urgency to this effort (Institute of Medicine, 2014).

In response to this stated need for improved conceptualization and availability of data on how the social environment impacts the health of populations, MHIN is developing its own Data Set Directory of Social Determinants of Health. This process has been thoroughly researched and discussed with federal, state, and local agencies engaged in similar efforts to refine social indicators of health. It is strongly informed by the work of the National Association of Community Health Centers, who is working to improve their data collections relative to the SDoH through their Protocol to Respond to and Assess Patient Assets, Risks, and Experiences (PRAPARE) program, which is an evidence-based protocol to collect and respond to data on the social determinants of health. The program deploys a data abstraction tool throughout participating Federally Qualified Health Clinics (FQHCs) and CHCs, which align with national initiatives, including Healthy People 2020, ICD-10, and the IOM’s Recommended Social and Behavioral Domains and Measures for the Electronic Health Records (cited above). The MHIN Data Set of Social Determinants of Health has been derived from traditional medical information collected in EHRs, as well as non-traditional siloed data contributors in social services across the region.

The focus of MHIN’s work over the first three years will be around coordinating the integration of the MHIN Data Set of Social Determinants of Health into the Bio-Surveillance efforts and selected Regional Health Priorities in generating the community-level health profiles mentioned previously (using various reporting mechanisms, such as gap analysis, heat mapping, and dashboards). This work will be coordinated to support partner health system and provider-based interventions with community stakeholders and other key partners through mature collaborations.
IMPLEMENTING THE MHIN POPULATION HEALTH STRATEGY

Connection and cooperation among health related sectors is essential for developing a robust population health ecosystem, where health is a fundamental and guiding social value and everybody has the opportunity to live longer, healthier lives. MHIN continues to foster alignment among healthcare, public health, and other community systems to address the multiple determinants of health and improve the health of communities. To that end, MHIN is working to develop a number of strategies, including discovering and disseminating well-developed, sustainable examples of local sector alignment; promoting healthcare organizations’ role in community health improvement; and fostering multi-sector data and information sharing to improve community health (discussed in the previous section). Its work in this area is focused on identifying challenges and opportunities, highlighting promising and innovative approaches, and driving the development and spread of innovations.

In order to meet these objectives, MHIN's work over the next three years will concentrate on using its Data Set of Social Determinants to inform and enhance its Bio-Surveillance efforts, Remote Monitoring and selected Regional Health Priorities (discussed in detail in the following sections). This work will be coordinated to support partner health system and provider-based interventions with community stakeholders and other key partners through mature collaborations in our Regional Analytics projects, which include:

- Data extraction, projections and analyses to assist in performance monitoring including and the identification of emerging trends.
- Creating data products that aid health systems, ACOs, and Health Departments in their ability to review and develop, redesign and implement new models of care.
- Assessing the impact of intervention activities based on health outcomes, while taking into account the influence of social conditions and patient’s behavioral compliance.
• Expand the scope of data being contributed to the data repository by developing partnerships with social services agencies and organizations, which have historically collected siloed social indicator and behavioral data on program participants.

• Work with the Indiana State Department of Health (ISDH) State Registrar to obtain access to statewide vital records data for regional residents in order to complete health outcomes assessments and race / ethnicity records.

The Strategy and Planning process will also:

• Assist external organizations such as State, Federal, non-government organizations, and other local health departments to plan and develop effective solutions to improve performance by facilitating data-sharing through planning processes, building planning capacity, and by providing high-level technical expertise regarding the extraction, analysis and interpretation of epidemiological, demographic, and clinical data.

• Provide technical assistance on how to lead, manage, facilitate, and consult on the development of strategies and plans with stakeholders internal to and external to the local health improvement alliances, including government, non-government, and private organizations.

• Provide technical assistance and leadership for use of clinical and population data-sharing of evidence based information to guide processes to define clinical and population health priorities and service development opportunities across partner organizations and the region.

• Provide advice regarding the potential impact of new Federal and State policies and strategies and models of care developed by the Office of the National Coordinator (ONC), Department of Health and Human Services (DHHS), and other health and non-health organizations.

Data into Action

WHAT WE ARE DOING

Hospitals, ACOs, healthcare systems, health departments, and social services organizations have shown an increasing willingness to collaborate with a variety of community partners across sectors to improve health outcomes. However, the strength of these partnerships vary by the community need being addressed. The extent to which these partner organizations engage in creating sustainable change varies. Two of the foundational factors organizations can consider in determining their role are:

1. The degree of mission alignment with population health
2. The level of engagement and commitment from their board and senior leadership.

Hospitals, healthcare systems, ACOs and health departments also can consider their level of readiness, including:

<table>
<thead>
<tr>
<th>Foundational Organizational Factors</th>
<th>Regional Health System Readiness Assessment</th>
<th>Other Strategic Considerations</th>
</tr>
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<tbody>
<tr>
<td>Mission alignment with population health</td>
<td>Resource Commitment</td>
<td>Community participation readiness</td>
</tr>
<tr>
<td>Senior leadership engagement with population health mission</td>
<td>Financial and care delivery model alignment with population health</td>
<td>Resources and expertise contribution from community partners</td>
</tr>
<tr>
<td>Resource Commitment</td>
<td>Core Competencies</td>
<td>Stakeholder population health goal consensus</td>
</tr>
</tbody>
</table>
MHIN regularly reviews available resources with community partner organizations to identify how and where our collaborating healthcare partners are addressing community health within the region. In addition to findings from national and state reviews, MHIN reviews community health needs assessments from partner tax-exempt hospitals and health departments around the region. Based on this review, the most commonly identified driver of community health needs is a lack of access to care. Other commonly prioritized drivers include lack of health insurance; socioeconomic factors; limited preventive and screening services; limited care coordination; and inadequate chronic condition management. The most frequently prioritized health needs are obesity and behavioral health; other commonly prioritized health concerns include substance abuse, diabetes, cancer, tobacco cessation, cardiovascular disease, and infant mortality.

MHIN has taken these needs and contingencies into consideration in developing its Focus Initiatives with its partner organizations across the region. Particular attention is paid to improving data needs or sectors of health delivery within a "system of systems" (Jacobson & Teutsch, 2012) approach (Fig. 4).

In the following sections, we describe the four areas MHIN has identified to systematically focus its population health efforts.

1. Regional Analytics

MHIN will apply the power of its data analytics resources in its HealtheIntent Population Health platform to identify and report on the health ecology of our region’s communities to aggregate, transform, and reconcile data across the continuum of care. Drawing from clinical data contributed by more than 200 data sources, and averaging more than 4.9 million transactions inbound each month, today this technology is helping our healthcare community improve outcomes and lower costs for health and care. Moving forward, MHIN will train this same bleeding-edge technology on addressing our region’s population health needs. We are operationalizing this by improving the secured exchange of data and data products to increase the capacity of partner organizations in two sectors.
1.1 Community and Human Services Organizations

- United Ways
- Community Mental Health Centers
- County Homeless Continuum of Care
- Family & Children’s Services
- County Councils & Area Agencies on Aging
- Minority Health Coalitions
- and many other organizations

1.2 State and Local Agencies

- State & Local Health Departments
- Division of Mental Health & Addictions (FSSA)
- Regional Transportation Authorities
- Environmental Protection
- Housing Authorities
- Mayor’s Offices

2. Bio-Surveillance

Bio-Surveillance is the process of gathering, integrating, and communicating essential information that might relate to disease activity and threats to human health. For the public and population health professional, bio-surveillance activities range from standard epidemiological practices to advanced technological systems, utilizing complex algorithms (Fig. 3). We are developing secure mechanisms to provide the ability to track population health patterns of disease and act as an early warning system for emergent conditions via secured dashboard. This work is occurring in four distinct efforts:

2.1 Identify Data Currently Available in Data Repository
2.2 Identify and Obtain Data Currently Not Being Received Local Governmental Sources
2.3 Identify and Obtain Data Currently Not Being Received from Hospitals
2.4 Identify and Obtain OB Data Currently Not Being Received from Hospitals or Providers

Benefits of bio-surveillance include:

- Provides the ability to track population health patterns of disease and acts as an early warning system for emerging conditions
- Establishes baseline levels for specific diseases
• Identifies causes of diseases and indicators associated with those causes to predict future outbreaks
• Relies on the availability of accurate data from the geographic and demographic areas in which bio-surveillance is implemented

Indiana State-Level Activities:

Indiana Public Health Emergency Surveillance System (PHESS): State Bio-Surveillance program that records data of reportable diseases for the purposes of predicting future outbreaks:
• Tracks the early warning signs of disease symptoms
• Uses retrospective analysis of compiled data on the incidence and prevalence of reported diseases
• Uses this data to predict or identify outbreaks
• Key measure for hospitals implementing Meaningful Use
• Data is based on Chief Complaint, admit/discharge diagnosis
“People say that releasing the data may make us look bad. But that is the point. We have to be willing to fix things where the data shows deficiencies. That is a conscious choice you have to make.”

Nirav Shah, MD, MPH, New York State Commissioner of Health
Electronic Lab Reporting

The electronic transmission of records of reportable conditions from a laboratory to a public health entity via fax or standard mail, depending on the county's Health Department procedure.

- Legally required in Indiana to be reported to ISDH
- Key measure for Meaningful Use program
- ISDH uses this data to predict or identify outbreaks

Today MHIN provides a service to streamline the data submission process to PHESS. We are currently contracted with several hospitals across the region to electronically submit their reportable lab results directly to ISDH. In this way, MHIN encourages secure data-exchange by acting as a conduit for receiving and submitting data securely with ISDH. Hospital systems identify and flag the result and MHIN passes it through to ISDH. Based on input from regional health officers and key provider informants, we have identified a base variable set as key to beginning a robust bio-surveillance program to support our regional health authorities.

In addition to the locally tracked measures, we will work with the ISDH State Registrar to obtain access to statewide vital records data for regional residents in order to complete health outcomes assessments and race/ethnicity records. Local coroner findings will also be sought from the County medical examiner’s offices to complete cause of death findings for incomplete records as well.
3. Remote Monitoring

Hospital readmissions can have negative consequences for patients and the hospitals at which they are treated and are as costly for Medicaid/Medicare as they are for private insurers. However, hospitals and health systems are increasingly being penalized Medicaid/Medicare reimbursement models for these readmissions.

3.1 Stroke

3.2 Total Joint Replacement

3.3 Congestive Heart Failure (CHF)

3.4 Other Chronic Condition

For example, according to the Healthcare Cost and Utilization Project (HCUP), in 2013 the most frequent and costly condition resulting in a 30-day hospital readmission was Congestive Heart Failure (CHF). With a 23.5% rate of all-cause readmission, CHF generated an aggregate hospital cost of almost $2.73B nationwide (HCUP 2015). In northern Indiana specifically, the death rate from heart disease is not only above the national average, but it is the leading cause of death, especially among the elderly population. For example, in Elkhart County in Indiana, the average rate of death from heart failure is 19.9 per 1,000 deaths. The prevalence of CHF continues to rise, and unfortunately, it is the most frequent reason for hospital readmission, since 50% of CHF patients are readmitted within six months of diagnosis, although it is frequently preventable.

In a similar vein, hip and knee replacements are the most common inpatient surgery for Medicare beneficiaries and can require lengthy recovery and rehabilitation periods. In 2014, there were more than 400,000 procedures, costing more than $7 billion for the hospitalizations alone. In addition, according to ISDH, stroke is the 3rd leading cause of death in the U.S. and the 4th leading cause of death in Indiana, with an estimated total cost (direct and indirect) to the State of over $84 million (http://www.in.gov/isdh/24970.htm). However, like CHF, the cost of care for these conditions rapidly increases (for the patient, hospital, and payer) if the patient readmits to the hospital within 30 days unexpectedly.

By collaborating with nurse case managers to take corrective action before the patient’s condition begins to degrade, MHIN is developing systems that use remote monitoring technology to predict imminent health events for patients and alert providers in time to prevent poor patient outcomes. The automatic reporting functionality of this technology, paired with our analytics-informed algorithms, ensures the relatively effortless compliance of the patient in data collection and transmission. Automatic submission of data from devices lessens the burden on the patient and makes data collection more reliable than traditional self-reporting. Home monitoring of patients following treatment using technology integrated with our HealtheIntent platform allows MHIN to capture data on all potential patients via the admission alerts in order to understand even more about the population. This data collection method is also helpful in circumventing the problem of physical or cognitive disabilities with a population that may be on course of medication which undermines compliance.

In the case of CHF, MHIN is focusing on improving health outcomes of patients from communities across northern Indiana and southern Michigan. In order to more effectively manage these chronic conditions, remote monitoring technology can be used by nurse case managers to take corrective action before the patient’s condition begins to decline. By using this data to predict this specific health outcome in patients, clinical staff can screen and treat patients once a risk threshold is achieved through warning signs of the onset of CHF, such as weight gain, in order to prevent readmission. Weight gain is an important risk factor for predicting CHF readmission because it typically occurs before the onset of other symptoms, such as blood pressure or heart rate changes, which indicate that a patient is already experiencing heart failure. Particular attention is being focused on reducing the instability of weight gain by giving participants a tool that will alert their caregiver when changes in weight occur. This will give patients immediate access to medical staff in order to prevent a potential readmission. Using remote monitoring-enabled scale to connect wirelessly to a MHIN interface and
directly into an EHR, will make this data viewable at any time by the nurse coordinator or care manager. The scale can transmit information via wireless internet and Bluetooth to iOS or Android enabled devices and can also connect to a personal computer.

Similar interventions are being developed for Total Joint Replacement and Stroke. In future assessments of this method of surveillance and intervention, other chronic conditions are being considered for remote monitoring and interventions, such as cancer and diabetes.

4. Regional Health Priorities

MHIN is developing the resources to use technology to address priority health items across the region. These items were identified based on findings from national and state reviews, as well as community health needs assessments from partner tax-exempt hospitals and health departments in the north central part of the state.

4.1 Fetal and Infant Health

4.2 Integrated Care and Behavioral Health

4.3 Transitions of Care

   4.3.1 Traditional (MU-supported)

   4.3.2 Non-Traditional (MU-ineligible)

4.1 Fetal and Infant Health

The infant mortality rate in Indiana is one of the worst in the United States, at 7.1 percent. That means on average a Hoosier infant dies every 13 hours. Comparatively, the national rate is 5.96 percent. In large part, Indiana's higher than average rate has been directly impacted by the alarming racial disparity. However, because the state has a significant rural/urban mix, communities are not uniformly affected across the region.

A recent data-driven analysis commissioned by the State of Indiana centered on infant mortality that unified information from previously unlinked sources across state agencies found that:

- Infant mortality risk in the state of Indiana is not randomly distributed, but exhibits statistically significant patterns that could be used for targeted investment of resources to improve outcomes

- While the identified high-risk subpopulations account for only 1.6% of all births in Indiana, they account for nearly 50% of infant deaths, suggesting that the identified subpopulations are not only significant, but could also be used as the basis for targeted interventions (KSM Consulting, 2014)

According to ISDH’s Division of Maternal and Child Health (2015), during the period from 2009-2013, the Northern Hospital Region of Indiana (LaPorte, St. Joseph, Marshall and Elkhart Counties) experienced the following conditions, fatalities, and disparities:

- Of the 594 Indiana infant deaths in 2013, 55 occurred in the Northern Hospital Region

- Black infants are 2.6 times more likely to die than white infants in Indiana and 3.5 times more likely in the Northern Hospital Region

- Lower percentage of women receiving prenatal care (PNC) in the first trimester

- Higher percentage of mothers on Medicaid
In 2015 the state of Indiana announced that funding for the prenatal care coordination for local communities in Elkhart and St. Joseph Counties will not be made available beginning on October 1, 2015, despite acknowledging the importance of prenatal services in a number of reports and studies.

In 2012, collaborating with local public health departments, MHIN evaluated and identified methods for aggregating the data gathered in hospitals that relates to established local perinatal risk indicators. In many cases, because any given hospital is not transmitting the data to the HIE, a patient’s independent EHR (the version that resides in the HIE, as opposed to the version in the hospitals system) may lack critical data if accessed from the HIE. This study identified two major problems with quality of the independent EHR residing in the HIE:

- There is a current inconsistency across hospitals as to what information they are transmitting to the HIE for any given patient’s EHR
- In many cases, because any given hospital is not transmitting all of the data to the HIE, a patient’s independent EHR (the version that resides in the HIE, as opposed to the version in the hospitals system) may lack critical data if accessed from the HIE by another hospital or health professional (this discrepancy is highlighted in several of the indicators that were compared between individual hospital EHRs and the version on record with the regional HIE).

Because prenatal care typically begins with a healthcare professional outside of the hospital, patient data is not readily or immediately entered into a hospital inpatient EHR. Historically, prenatal care records have been faxed or transmitted to the hospital as an image or scan rather than discrete data in formatted fields (as one would have in a database) at the time of the delivery. Most of the information critical to the hospital is re-keyed by unit staff at the hospital, and the scanned files or images of the original records are attached to the EHR in the hospital as image files. However, in many cases this is not transmitted via electronic interface to the HIE. In addition, even if the data is transmitted to the HIE, it is often as a scanned document. Since the data is not in a discrete field, it cannot be queried or searched. If this data was available as a discrete variable, it would increase access to improved quality of data for analysis for all populations, as identified in the 2014 KSM Consulting study (above).
In direct response to the most recent data provided by the ISDH Division of Maternal and Child Health and the KSM Consulting report commissioned by the Governor’s Office, MHIN will leverage its data and analytics resources to support ongoing partnerships and efforts with service providers, researchers, and public health officers focused on those most at-risk cases, to:

• Coordinate collaborations through provider and public health partners to receive the standard data elements from data contributors, with the goal of providing “early warning” to emerging trends
• Improve access to early and adequate prenatal care
• Reduce the overall fetal and infant mortality rate by focusing data quality improvement efforts (to support research and intervention design) on those sub-populations that disproportionately bear the burden of the great disparity (Black, low-income, uninsured, unmarried, socially-isolated, and homeless)

MHIN is collaborating with providers, social services, and public health partners by continuing to support expanding and enhanced efforts to help (particularly at-risk) women receive early and adequate prenatal care. We are actively exploring opportunities to integrate and enhance new technologies through the HIE to provide community providers with the information they need to deliver the best care possible.

In collaboration with local health departments and maternal health organizations, we continue actively seeking funding to provide needed prenatal care coordination to the region’s at-risk population.

In a separate effort in 2015, MHIN researchers, in collaboration with the researchers at the St. Mary’s College Nursing Program, initiated the second of two linked studies (the first in 2012) to improve the quality of discrete data available in the HIE for research to improve outcomes. Funded through the Indiana Clinical Translational Sciences Institute’s Community Health Engagement Program, this project has been documenting the different types of data collection workflows practiced by prenatal care provider in the region and recommending improvements to the continuity of care through discrete data exchange. The team is working with clinics in St. Joseph and Elkhart counties (initially) who care primarily for at-risk mothers to learn more about how patient data is documented and transmitted to the HIE (if at all).

As mentioned earlier in this section, the lack of discreet data diminishes the ability of researchers and local health officials to operationalize it in the effective use of informing risk indicators. By understanding the different types of provider workflows for documenting and tracking patient data, this research assists the regional HIE identify issues and assist providers in developing feasible methods to overcome concerns and recommendations for best practices. This will give clinical and hospital-based staff the knowledge necessary to utilize EHRs and data exchange to improve the quality of care given to at-risk mothers and address the perinatal risk indicators that affect infant mortality. At same time, the quality of timely data available to local health officers, epidemiologists, and community outreach program designers and implementers will be markedly improved in their ongoing efforts to improve fetal and infant health outcomes.

4.2 Integrated Care and Behavioral Health

People with mental and substance abuse disorders may die decades earlier than the average person — mostly from untreated but preventable chronic illnesses like hypertension, diabetes, obesity, and cardiovascular disease that are aggravated by poor health habits such as inadequate physical activity, poor nutrition, smoking, and substance abuse. Barriers to primary care — coupled with challenges in navigating complex healthcare systems and poor healthcare literacy — have been a major obstacle to care. According to the Health Resources and Services Administration (HRSA)- Substance Abuse and Mental Health Services Administration (SAMHSA, 2016) Center of Integrated Health Solutions, “people with mental illness die earlier than the general population and have more co-occurring health conditions” (www.integration.samhsa.gov). In addition, they report that nationally, 68% of adults with a mental illness have one or more chronic physical conditions, and
that more than 1 in 5 adults with mental illness have a co-occurring substance use disorder (ibid.).

At a state level:

- Indiana ranks among the 10 states with the worst substance abuse disorders among Medicaid expansion populations, with 21% of adults (Matrix Global Advisors, 2015).
- At the same time, primary care settings have become the gateway to the behavioral health system, and primary care providers need support and resources to screen and treat individuals with behavioral and general healthcare needs.

The solution lies in integrated care, the systematic coordination of general and behavioral healthcare. Integrating mental health, substance abuse, and primary care services produces the best outcomes and proves the most effective approach to caring for people with multiple healthcare needs. Integrated care models have shown the ability to decrease the risk of cardiovascular disease by 35-55% prompting reductions in the cost of care (SAMHSA-HRSA Center for Integrated Health Solutions, 2015):

- 35% reduction in inpatient costs
- 39% reduction in Emergency Department (ED) costs
- 26% in total medical costs
MHIN is a founding member of the Behavioral Health Committee of the St. Joseph County Health Improvement Alliance and is dedicated to helping local agencies and organizations improve both the physical and behavioral health of the population. We have developed SAMHSA-supported data segmentation for privacy technology for use by HIEs which would facilitate the protection of sensitive patient data beyond the scope of HIPAA and promote successful integrated care by removing the barrier of patient confidentiality of behavioral treatment data. Today MHIN is expanding and enhancing the current data segmentation architecture within the HIE to encourage greater exchange of data in an integrative healthcare model by:

- Collaborating with Federal and State behavioral health partners in promoting the development of technologies and standards to enable responsible interoperable exchange of behavioral health data
- Promoting the adoption of EHRs and other health information technology (HIT) tools with behavioral health functionality
- Integrating social and human services data crucial to the success of behavioral health and treatment programs
- Promoting the broad dissemination of technologies for improving behavioral healthcare, prevention, and wellness.

### 4.3 CARE COORDINATION & TRANSITIONS OF CARE

Upon leaving one setting for another, patients receive little information on how to care for themselves, when to resume activities, what medication side effects to look out for, and how to get answers to questions. In addition, care providers often are unaware or unclear of the appropriate need for follow-up. As a result, the conditions of many patients worsen and they may end up being readmitted to the hospital.

In 2013, through funding provided by ONC, MHIN successfully piloted a transition of care project with local SNFs that focused on utilizing Direct Messaging, access to the MHIN Clinical Data Repository, and CCD contribution.

MHIN is improving long-term and post-acute care transitions and promoting care coordination by:

- Extending query-based exchange services inaccessible to skilled nursing facilities (SNF) and Area Agencies on Aging. Work with post-acute care facilities and Area Agencies on Aging to focus on extending the use of secure, interoperable health IT tools and HIE services to improve the transition of care in the following scenarios:
  - Discharge to facility (SNFS)
  - Discharge to home

- Developing integrated monitoring solutions to improve ACO Quality Measures and Performance Standards. Quality data reporting and collection support of quality measurement will become a critical function of MHIN’s support to partner provider organizations as part of their participation in the Shared Savings Program. Before an ACO can share in any savings generated, it must demonstrate that it met the quality performance standard for that year. There are also interactions between ACO quality reporting and other CMS initiatives, particularly the Physician Quality Reporting System (PQRS) and Meaningful Use. MHIN will develop and provide monitoring resources related to the program's 33 quality measures, which span four quality domains:
  - Patient / Caregiver Experience
  - Care Coordination / Patient Safety
  - Preventive Health
  - At-Risk Populations
Summary

Over the previous two years, MHIN, its board of directors, and our collaborative partners from across the region have helped inform the development of this Plan. The priority areas of population health focus and activities that we are pursuing over the next three years are specifically designed to protect and improve the health and well-being of our local communities. We are working with academic researchers, industry experts, utilizing bleeding-edge technology, and evidence-based methodologies to identify, acquire, and operationalize a MHIN-specific Data Set of Social Determinants of Health.

Our intent is to integrate our Data Set of Social Determinants of Health into the regional exchange and analysis of health data, to improve the capacity of our provider and public health system partners to collaboratively engage with local communities and clinical and humans services stakeholders. By identifying and addressing the current and emerging health needs of our local communities, we will help foster and support innovation in population health practice in the following areas:

- Regional Analytics
- Bio-Surveillance
- Remote Monitoring of recently rec, and
- Our Regional Health Priority Areas (Fetal and Infant Health, Integrated Care and Behavioral Health, and Transitions of Care)

Today we are informing and empowering health professionals and other stakeholders within the region to deliver effective population health. Moving forward, MHIN will continue to collaboratively develop mechanisms with our clinical and community partners that will encourage residents to actively engage in the management and improvement of their own health and wellness.

mhin

Turning data into insights to improve health for our families, neighbors, and friends by connecting our healthcare community.
NOTES


Appendix I: Regional Analytics

The initial MHIN Data Set of Social Determinants of Health Data will be comprised of the following variables (as they become available):

- Race
- Ethnicity
- Refugee Status
- Country of Origin
- Residential address (for geocoding of various neighborhood and community determinants at the cluster level)
- Neighborhood median household income (obtained from residence)
- Neighborhood Conditions and Environment
- Households size
- Education attainment
- Child Care
- Employment Status (unemployed or underemployed)
- Income
- Insurance Status
- Workplace Conditions and Environment
- Migrant / Seasonal Farm Work
- Financial resource strain (income/debt load calculation)
- Food Insecurity
- Transportation (mode/number)
- Trouble Paying for Phone
- Trouble Paying Utilities
- Trouble Paying for Medicines or Medical Care
- Trouble Paying for Health Insurance
- Trouble Paying for Clothing
- Trouble Paying Rent / Mortgage
- Stress
- Depression
- Physical activity
- Social isolation
- Domestic / Intimate partner violence
- Tobacco use
- Alcohol use
- Veteran Status
- Homelessness
- Incarceration History
- Safety Issues
- Social Support (Loneliness)
- Deceased Indicator
- Date of Death
The Cerner HealtheIntent platform provides a solution for storing and analyzing patient health data from any source. We are leveraging the current clinical data and work towards enhancing the picture with social indicator data and potentially environmental data. Findings will be shared to support the mission of “Turning data into insights to improve health for our families, neighbors, and friends by connecting our healthcare community”.

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2015 – December 2015</td>
<td>Configure, build and implement the foundational elements of the Cerner HealtheIntent platform and integrate current HIE data. Implement HealtheRegistries component.</td>
</tr>
<tr>
<td>January 2016 – May 2016</td>
<td>Configure and test HealtheAnalytics tools. Identify first topic area to explore using the tools based on data available to analyze (current HIE data).</td>
</tr>
<tr>
<td>June 2016</td>
<td>Prepare initial reports. Determine next use cases to focus on based on data available to analyze.</td>
</tr>
<tr>
<td>2017-2018</td>
<td>Continue onboarding data sources needed to support the emerging needs of data analysis.</td>
</tr>
</tbody>
</table>
Appendix II: Bio-Surveillance

Based on input from regional health officers and key provider informants, we have identified a base variable set as key to beginning a robust bio-surveillance program to support our regional health authorities.

2.1 Identify Data Currently Available in Data Repository

<table>
<thead>
<tr>
<th>Measure</th>
<th>Reason for indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Screen On Baby Completed</td>
<td>Assessment of maternal drug use surveillance</td>
</tr>
<tr>
<td>Carbapenem-Resistant ENTERBACTERIAEAE (CRE)</td>
<td>Antibiotic resistance and adequacy of infection Prevention</td>
</tr>
<tr>
<td>Any ISDH Reportable Disease</td>
<td>Speed the detection of epidemics</td>
</tr>
<tr>
<td>Trichomonas</td>
<td>Sexually transmitted disease risk</td>
</tr>
</tbody>
</table>

2.2 Identify and Obtain Data Currently Not Being Received Local Governmental Sources

<table>
<thead>
<tr>
<th>Measure</th>
<th>Reason for indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Of Housing/Residence At Time Of Demise</td>
<td>Lead or asbestos</td>
</tr>
<tr>
<td>Primary Water Source</td>
<td>Community, well or bottled</td>
</tr>
<tr>
<td>Birth Certificate Data</td>
<td>Demographic genealogy and geography</td>
</tr>
<tr>
<td>Death Certificate Data</td>
<td>Cause characteristics of death</td>
</tr>
</tbody>
</table>

2.3 Identify and Obtain Data Currently Not Being Received from Hospitals

<table>
<thead>
<tr>
<th>Measure</th>
<th>Reason for indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Admission For Drug Intoxication Or Overdose</td>
<td>Substance abuse frequency</td>
</tr>
<tr>
<td>ER Visits For Frostbite Or Heat Stroke</td>
<td>Weather-related health risk</td>
</tr>
<tr>
<td>Hospital Admission Of Non-assigned Patients With Insurance Status</td>
<td>Healthcare access</td>
</tr>
<tr>
<td>Suspect Tuberculosis</td>
<td>Communicable disease</td>
</tr>
<tr>
<td>Suspect NEISSERIA Meningitis</td>
<td>Communicable disease</td>
</tr>
<tr>
<td>Administration Of Rabies Pep (HUMAN RABIES IMMUNE GLOBULIN (HRIG) And Rabies Vaccine)</td>
<td>Preventative Rx</td>
</tr>
<tr>
<td>Treatment Of Animal Bites</td>
<td>Understanding disease burden</td>
</tr>
</tbody>
</table>

2.4 Identify and Obtain OB Data Currently Not Being Received from Hospitals or Providers

<table>
<thead>
<tr>
<th>Measure</th>
<th>Reason for indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational Age At 1st OB Appointment</td>
<td>Access to care or lack of adequate prenatal care</td>
</tr>
<tr>
<td>Gestational Age At Birth</td>
<td>Infant prematurity</td>
</tr>
<tr>
<td>Birth Weight</td>
<td>Infant prematurity</td>
</tr>
<tr>
<td>Breast Feeding At Hospital Discharge</td>
<td>Maternal education and infant risk</td>
</tr>
<tr>
<td>ER Visits During Pregnancy And Etiology</td>
<td>Risk Factor determinations</td>
</tr>
<tr>
<td>Associated Urinary Tract Infections With Admission/Labor And Complications Thereof</td>
<td>UTI Associated complications</td>
</tr>
</tbody>
</table>
Appendix III: Remote Monitoring

Home monitoring of patients following treatment or discharge utilizing an HIE / HealtheIntent platform allows MHIN to capture data on all potential patients via the admission alerts in order to understand even more about the population. The data collection method is also helpful in circumventing the problem of physical or cognitive disabilities within the patient population. One of the difficulties that previous methods and programs encountered was that participants were not able to use the devices or needed to be retaught or coached through the process multiple times to use the devices appropriately. Automatic sending of data from devices, as well as having devices that operate themselves or are very simple to operate, lessens the burden on the cohort group and makes data collection more reliable.

3.1 Stroke

3.2 Total Joint Replacement

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2, 2015 – May 31, 2016</td>
<td>Initiated planning for Stroke and Total Joint Replacement monitoring project for patients discharged + 90 days utilizing secured mobile engagement technology solution.</td>
</tr>
<tr>
<td>February 1 – April 30, 2016</td>
<td>Identify, obtain and integrate secured mobile engagement technology solution into HIE.</td>
</tr>
<tr>
<td>June 1, 2016 – December 31, 2016</td>
<td>Launch and evaluate Stroke and Total Joint Replacement monitoring project for patients discharged + 90 days utilizing secured mobile engagement technology solution.</td>
</tr>
</tbody>
</table>

3.3 Congestive Heart Failure

3.4 Other Chronic Conditions (if requested)

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 28, 2015</td>
<td>Submitted funding proposal to the Anthem Foundation to monitor patients discharged from the SJRMC with CHF diagnosis and track weight change variance, with alerts going to Heart Failure Nurse Coordinator from Midwest Cardiology.</td>
</tr>
<tr>
<td>January 2016 – December 2016</td>
<td>Continue to seek funding opportunities</td>
</tr>
</tbody>
</table>
Appendix IV: Regional Health Priorities

4.1 Fetal and Infant Health

This data workflow study funded through the Indiana Clinical Translational Science Institute is an expansion of MHIN’s 2012 initial project focused on identifying perinatal risk indicators, and increasing their availability for research in the HealtheIntent platform. This project will go back to those original hospitals, in addition to the prenatal clinics, in order to understand how they are tracking those indicators. Researcher will observe and survey staff at the clinics and hospitals to understand their data collection, exchange and handling processes. The research design will produce current state workflows maps and develop a set of “best practice” recommendations to provide stakeholders with greater access to accurate and real-time infant mortality indicators for the region. This work has the potential to increase prenatal care participation in health information exchange and improve patient management and care coordination.

The goal is to understand as much as possible in the following areas:
1. What data is being collected and how?
2. What system is being used to collect the data?
3. How they communicate with/refer to another site during transitions of care?
4. Whether they are participating in Meaningful Use?
5. How they exchange patient data/information (Electronically/ Fax)?

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 1, 2015-</td>
<td>Initial outreach to St. Joseph County and Elkhart County Health Departments, and marketing and outreach to hospitals and prenatal clinics.</td>
</tr>
<tr>
<td>January 1, 2016</td>
<td></td>
</tr>
<tr>
<td>January 1- February 1,</td>
<td>Coordinate meeting times with participating hospitals and prenatal clinics and train nursing students on the correct protocol for observing and interviewing clinical staff and recording information.</td>
</tr>
<tr>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>February 1- May 1, 2016</td>
<td>Conduct workflow analysis in hospitals and prenatal clinics.</td>
</tr>
<tr>
<td>May 1- July 1, 2016</td>
<td>Conduct follow-up meetings with the sites.</td>
</tr>
<tr>
<td>July 1- September 1, 2016</td>
<td>Analyze findings and develop recommendations for best practices.</td>
</tr>
<tr>
<td>September 1-November,</td>
<td>Present findings to hospitals and prenatal clinics Disseminate results to the community and necessary stakeholders.</td>
</tr>
<tr>
<td>2016</td>
<td></td>
</tr>
</tbody>
</table>
4.2 Integrated Care and Behavioral Health

MHIN will expand and enhance the current data segmentation architecture within the HIE, to encourage greater exchange of data in an integrative healthcare model by collaborating with Federal and State behavioral health partners in promoting the development of technologies and standards to enable interoperable exchange of behavioral health data. We will also promote the adoption of EHRs and other health information technology (HIT) tools with behavioral health functionality, and collaborate with regional partners to promote the broad dissemination of technologies for improving behavioral healthcare, prevention, and wellness.

**The goals of this priority are:**
1. Greater exchange of data in an integrative healthcare model.
2. Develop health information technology (HIT) tools with behavioral health functionality.
3. Develop a comprehensive regional integrated health referral system.
4. Implement or develop evidence-based practices to engage frontline responders (PCPs, law enforcement, schools, UW 211, community agencies, faith community, etc.) to initiate appropriate referrals to treatment.

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>November 17, 2014- present</strong></td>
<td>Coordinate the Behavioral Health Workgroup of the St. Joseph County Health</td>
</tr>
<tr>
<td></td>
<td>Alliance as an advisory panel for use case development and project proposal</td>
</tr>
<tr>
<td></td>
<td>design.</td>
</tr>
<tr>
<td><strong>April 1- September 17, 2015</strong></td>
<td>Through SAMHSA Service Continuity Pilot I funding, developed data segmentation</td>
</tr>
<tr>
<td></td>
<td>for privacy technology for use by HIEs which would facilitate the protection</td>
</tr>
<tr>
<td></td>
<td>of sensitive patient data beyond the scope of HIPAA, and promote successful</td>
</tr>
<tr>
<td></td>
<td>integrated care by removing the barrier of patient confidentiality of behavioral</td>
</tr>
<tr>
<td></td>
<td>treatment data.</td>
</tr>
<tr>
<td><strong>December 20, 2015- December 31, 2016</strong></td>
<td>Developing an on-demand video screening and referral technology to be deployed</td>
</tr>
<tr>
<td></td>
<td>in regional PCP sites.</td>
</tr>
<tr>
<td><strong>May 1- September 17, 2016</strong></td>
<td>Conduct follow-up SAMHSA Service Continuity Pilot II to expand data segmentation</td>
</tr>
<tr>
<td></td>
<td>for privacy technology in a production environment.</td>
</tr>
<tr>
<td><strong>July 1, 2016- September 1, 2018</strong></td>
<td>Begin ongoing onboarding of segmented behavioral health data in the</td>
</tr>
<tr>
<td></td>
<td>HealtheInternet platform.</td>
</tr>
<tr>
<td><strong>January 1-December 31, 2016</strong></td>
<td>Research the development of an on-demand screening and referral smartphone</td>
</tr>
<tr>
<td></td>
<td>technology to be deployed by front line responders.</td>
</tr>
</tbody>
</table>
4.2 Integrated Care and Behavioral Health

MHIN will expand and enhance the current data segmentation architecture within the HIE, to encourage greater exchange of data in an integrative healthcare model by collaborating with Federal and State behavioral health partners in promoting the development of technologies and standards to enable interoperable exchange of behavioral health data. We will also promote the adoption of EHRs and other health information technology (HIT) tools with behavioral health functionality, and collaborate with regional partners to promote the broad dissemination of technologies for improving behavioral healthcare, prevention, and wellness.

The goals of this priority are:
1. Greater exchange of data in an integrative healthcare model.
2. Develop health information technology (HIT) tools with behavioral health functionality.
3. Develop a comprehensive regional integrated health referral system.
4. Implement or develop evidence-based practices to engage frontline responders (PCPs, law enforcement, schools, UW 211, community agencies, faith community, etc.) to initiate appropriate referrals to treatment.

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 17, 2014- present</td>
<td>Coordinate the Behavioral Health Workgroup of the St. Joseph County Health Alliance as an advisory panel for use case development and project proposal design.</td>
</tr>
<tr>
<td>April 1- September 17, 2015</td>
<td>Through SAMHSA Service Continuity Pilot I funding, developed data segmentation for privacy technology for use by HIEs which would facilitate the protection of sensitive patient data beyond the scope of HIPAA, and promote successful integrated care by removing the barrier of patient confidentiality of behavioral treatment data.</td>
</tr>
<tr>
<td>December 20, 2015- December 31, 2016</td>
<td>Developing an on-demand video screening and referral technology to be deployed in regional PCP sites.</td>
</tr>
<tr>
<td>May 1- September 17, 2016</td>
<td>Conduct follow-up SAMHSA Service Continuity Pilot II to expand data segmentation for privacy technology in a production environment.</td>
</tr>
<tr>
<td>July 1, 2016- September 1, 2018</td>
<td>Begin ongoing onboarding of segmented behavioral health data in the HealtheIntenet platform.</td>
</tr>
<tr>
<td>January 1-December 31, 2016</td>
<td>Research the development of an on-demand screening and referral smartphone technology to be deployed by front line responders.</td>
</tr>
</tbody>
</table>
4.3 Transitions of Care

MHIN will leverage HIE infrastructure to notify and/or exchange timely information between providers transferring and receiving patients to allow the receiving provider to effectively care for the patient. We will focus on the transfer of patients from hospitals to local SNFs and from local SNFs and/or hospitals to home. In order to accomplish this task, MHIN must be able to receive patient information from SNFs. Data contribution from non-eligible providers like SNFs is vital to MHIN’s overall goal of improving community and individual health and getting patient information into the hands of providers at the time of care. To achieve this goal, MHIN must obtain as much *real-time* patient data as possible to facilitate effective care coordination and clinical decision-making.

**The goals of this priority are:**

1. Greater exchange of data in a Transitions of Care healthcare model.
2. Develop query-based functionality for emergency physicians, primary care providers, and home health providers to view post-acute ToC data in the MHIN CEP.
3. Provide HIT interoperable support for ToC across the continuum of care into end-of-life.

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2013</strong></td>
<td>Pilot study with SNFs and providers who received custom messages via Direct that notified them of a patient’s encounter with other providers and hospitals in the community based on an electronic admissions, discharges, and transfers document (ADT) from the contributor source.</td>
</tr>
<tr>
<td>November 17, 2014-present</td>
<td>Develop projects to improve long-term and post-acute care transitions and promote care coordination by extending query-based exchange services inaccessible to skilled nursing facilities (SNF) and Area Agencies on Aging.</td>
</tr>
<tr>
<td>January 1-December 31, 2016</td>
<td>Develop an interface with post-acute facilities to receive their patient information in the form of an ADT and CCD, which will be produced out of the SNF’s EHR. Target PointClickCare (PCC) used by several SNFs, to be stored in MHIN’s query-based database, the Clinical Exchange Platform (CEP).</td>
</tr>
<tr>
<td>December 10, 2015-December 31, 2016</td>
<td>Develop projects to improve care transitions and promote care coordination by extending query-based exchange services for patients entering into palliative care scenarios.</td>
</tr>
</tbody>
</table>