# COMMMUNITY eHEALTH ASSESSMENT – EAST MERRIMACK

**REGION: Northeast** 

COMMUNITY: East Merrimack
PARTICIPATING ORGANIZATIONS:

Organization	Organization Type
Brightview Senior Living	Assisted Living
Elder Services of Merrimack Valley	Aging Service Access Point (ASAP)
Family Continuity	Behavioral Health and Social Services
HealthWyse	Vendor Services
Home Health VNA, Merrimack Valley Hospice, Homecare, Inc.	Home Health
Lahey Behavioral Health Services	Behavioral Health
Lawrence General Hospital	Hospital
Mary Immaculate Nursing and Restorative Care	Post-Acute Care
Methuen Health and Rehab	Long Term and Post-Acute Care
Nevins Family Services	Behavioral Health and Social Services
Northeast Rehabilitation Hospital Network	Post-Acute Care
Penacook Place	Long Term and Post-Acute Care
Pentucket Medical	Physicians Group
Shawsheen Medical Associates	Group Practice
Whittier Health Network	Post-Acute Care
Whittier Rehabilitation Hospital of Bradford	Post-Acute Care
Wingate Healthcare	Long Term and Post-Acute Care
Youth Villages	Behavioral Health Services

DATE REVIEWED / UPDATED: 5/22/15

### **EXECUTIVE SUMMARY**

# Overview & Methodology

In order to better understand the health information technology and health information exchange ecosystem at the state and local level – so as to inform Community and Statewide eHealth Plans, MeHI conducted a needs assessment of healthcare stakeholders throughout fifteen communities in Massachusetts. The assessment utilized the semi-structured interview methodology and data collection

process to gather information from participants. In addition to organizational and HIT environment information, the interview centered on four domains to better understand the clinical/business needs, internal challenges, external barriers and ideas for improvement. Responses were collected, codified into categories, and then ranked by frequency of reporting.

MeHI held roundtable meetings in each of the communities to present and discuss the interview findings. Through group discourse, categories and themes evolved. Based on feedback and comments from the roundtables, MeHI synthesized the findings to develop focus areas for the Community eHealth Plans.

In addition to shaping the focus areas, the goal of the assessment and group meetings was to identify eHealth priorities and develop actionable plans – at the Community level - that demonstrate value for each community. The assessment findings, interview and meeting feedback, and Community eHealth Plans will inform and be integrated into the Statewide eHealth Plan.

#### **Findings**

The primary need identified by stakeholders in the East Merrimack community is for timely hospital admission notifications and discharge summaries to flow from the acute care settings to the post-acute care providers. Specifically, the stakeholders identified the following areas as their eHealth priorities:

- 1. Alerts and notifications both around patient admissions and discharges from the Hospital or Emergency Department and patient status changes.
- 2. Inform post-acute care providers of patient's medications immediately upon discharge for medication reconciliation and patient education to avoid drug-to-drug adverse events and for patient medication management.
- 3. Policies and processes around timely completion of discharge information to inform post-acute care providers of what occurred during the hospital visit and of any follow up instructions post discharge in a timely manner.

<u>Identification of Internal Challenges and External Barriers:</u> The primary barriers identified by stakeholders to addressing these needs are as follows:

- 1. Lack of financial capital for staff resources, software purchases or optimization and training.
- 2. Insufficient awareness of health IT capabilities among clinical and business leadership to get everyone on a level IT playing field.
- 3. Lack of policies and standard regulations around the patient opt-in, opt-out model of consent for sharing information electronically and regulations about sharing sensitive information in a CCD with the patient's care team.
- 4. Policies and processes that delay information transfer coupled with lack of understanding of need for timely information downstream of hospital.

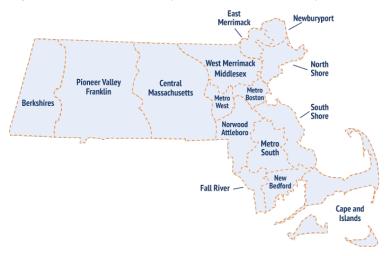
<u>Path Forward</u>: Community stakeholders identified a variety of ideas to address needs and barriers with the following ideas prioritized by the community:

- 1. Implement EHRs and/or Mass HIway webmail applications so that all healthcare providers may at least receive health information electronically.
- 2. Narrowly identify a clinical initiative such as "Improve Medication Reconciliation Across Care Settings." Use this clinical initiative to involve appropriate clinical, business, and IT resources in

each organization. Systematically address organization connectivity, technology, workflow process, and human resource components until there is functioning information flow among organizations.

The overall findings for the community are found in the *Report of Community Needs* section of this Community eHealth Plan.

Table 1: The fifteen communities comprise the foundational framework for the Connected Communities Program. These are aligned with the Health Policy Commission's Secondary Service Markets.



#### **COMMUNITY DEMOGRAPHIC**

The East Merrimack community consists of 8 towns within Essex County; Andover, Bradford, Georgetown, Groveland, Haverhill, Lawrence, Methuen and North Andover.

<u>Population</u> - Total population of the East Merrimack Community is 263,238 living in the 129.65 square mile area. The population density is estimated at 2,030.35 persons per square mile which is greater than the national average population density of 88.23 persons per square mile. Between 2000 and 2010 the population in East Merrimack grew by 14,042 persons, an increase of 5.69%.

<u>Income Per Capita</u> - For the East Merrimack Community the income per capita is \$31,492. This is lower than the Massachusetts statewide income per capita which is \$35,484.

<u>Poverty</u> - In the East Merrimack Community , 30.52% or 78,977 individuals are living in households with income below 200% of FPL, which is higher than the Massachusetts average and 14.14% or 36,586 individuals are living in households with income below 100% FPL. These percentage rates are higher than the Massachusetts state rates in the same categories.

<u>Linguistically Isolated Populations</u> – The East Merrimack Community has a significant percent of linguistically isolated populations at 9.11%. This indicator reports the percentage of the population aged five and older who live in a home in which no person 14 years old and over speaks only English, or in which no person 14 years and over speaks a non-English language and speak English "very well." The Massachusetts state percentage is 5.24%.

<u>Population with Limited English Proficiency</u> – This indicator reports the percentage of population

aged five and older who speak a language other than English at home and speak English less than "very well." In East Merrimack, this indicator is 15.32% compared to the Massachusetts state indicator of 8.84%.

<u>Population by Race Alone</u> - The racial make-up of East Merrimack County is 70.71% White, 3.6% Black, 4.13% Asian, 0.22% Native American, 0.02% Native Hawaiian, 19.12% Some Other Race and 2.21% Multiple Races:

Information acquired from Community Commons on April 6, 2015 <a href="http://www.communitycommons.org/">http://www.communitycommons.org/</a>

See Attachment-1 for information on Community Commons, reporting methodology and data sources.

### HEALTHCARE LANDSCAPE

Access to Primary Care –East Merrimack has 77.29 primary care physicians per 100,000 population. The Massachusetts state rate is 102.65 per 100,000 population. Doctors classified as "primary care physicians" by AMA include: General Family Medicine MDs and DOs, General Practice MDs and DOs, General Internal Medicine MDs and General Pediatrics MDs. Physicians age 75 and over and physicians practicing sub-specialties within listed specialties are excluded.

<u>Lack of a Consistent Source to Primary Care</u> – This indicator reports the percentage of adults aged 18 and older who self-report that they do not have at least one person who they think of as their personal doctor or health care provider. For East Merrimack, this indicator is 9.79%, or 16,489 people. This is slightly below the state indicator of 11.53%. This indicator is relevant because access to regular primary care is important to preventing major health issues and emergency department visits.

<u>Facilities Designated as Health Professional Shortage Areas (HPSA)</u> – East Merrimack has a total of three HPSA facility designations: one in primary care facilities, one in mental health care facilities and one in dental health care facilities. The state of Massachusetts has a total of 158 HPSA facility designations: 56 in primary care facilities, 51 in mental health care facilities and 51 in dental health care facilities.

<u>Population Receiving Medicaid</u> – In East Merrimack, the percent of insured population receiving Medicaid is 28.73%, or 71,048, of the total population for whom insurance status is determined. This indicator reports the percentage of the population with insurance enrolled in Medicaid (or other means-tested public health insurance). This indicator is higher than the Massachusetts state indicator of 20.53%.

Information acquired from Community Commons on April 6, 2015 <a href="http://www.communitycommons.org/">http://www.communitycommons.org/</a>

See **Attachment-1** for information on Community Commons, reporting methodology and data sources.

**Healthcare Organizations in the Community** 

The table below indicates the type and number of healthcare organizations known to MeHI. This is representative and not intended to be a complete inventory or count of healthcare organizations in the region.

Connected Community: East Merrimack (75 records)\*

# Organizations

Ambulatory, General	35
Behavioral Health	14
Community Health Centers	5
Hospital, General	2
IDN/Health System/Network	2
Lab/Pharm/Imaging	3
Long-Term Post-Acute Care	19

#### REPORT OF COMMUNITY NEEDS

Twelve interviews and two community roundtables, which included a total of twenty organizations, were completed within the East Merrimack community for the Connected Communities Program to inform the Community and Statewide eHealth Plan. These discussions included participants from multiple organization types – Hospitals, Long Term and Post-Acute Care, Behavioral Health, Home Health Care and large and small physician group practices. During the interviews and roundtables, organizations were asked to identify the top clinical and business needs that organizations are trying to solve with technology, top obstacles related to Health IT, and ideas for which technology may improve healthcare in Massachusetts. Obstacles related to Health IT were broken down into issues faced within the organization and barriers perceived in the external healthcare market.

#### **Reported Clinical-Business Needs**

What clinical or business needs are you trying to solve with technology?

### Reporting Area-Frequency

Clinical-Business Needs	East Merrimack	MA
Improve Internal Processes & Operations	23%	13%
Access to Clinical Information	20%	<b>21%</b>
Improve Care Quality and Patient Safety	20%	<mark>9%</mark>
Improve Population Health Analytics	9%	7%
Meet Regulatory/Incentive Requirements	6%	10%
Know Patients, where they are and their status	6%	2%
Improve Medication Reconciliation	<mark>3%</mark>	<b>14%</b>
Enhance Alternative Payment Model (APM)		
Reporting	3%	4%
Enhance Clinical Quality Reporting	3%	3%
Improve Interoperability and Exchange	3%	9%
Increase Public Health Reporting	3%	3%
Promote Patient- & Family-centered Care	2%	3%

Improve Care Management	0%	<mark>9%</mark>	
Enhance Remote Patient Management	0%	4%	
Improve Care Transitions	0%	<mark>2%</mark>	
Remain competitive and grow business	0%	2%	
Enable Interstate Exchange	0%	.81%	

\*Identified as a top priority need during community roundtable

At the East Merrimack community roundtables, contributing organizations reviewed statewide and community specific clinical and business needs identified through interviews with individual organizations. The results from the East Merrimack community interview findings were compared to the statewide findings for the clinical and business needs category. Priority themes identified through thoughtful discussion around the preliminary interview findings in the first roundtable are highlighted in blue in the table below. The identified themes are similar across the state and the East Merrimack community, with a notable exception for "Improve Care Quality & Patient Safety". While only 9% of statewide interviews revealed Improving Care Quality and Patient Safety as a top clinical need, 20% of East Merrimack noted this as a top need for their organization. This need was identified by staff at post-acute care organizations, who often don't have access to patients' full medical history, particularly hospital discharge information, which makes it difficult to provide a complete diagnosis and led to the identification of "Improving Care Quality and Patient Safety" as a top need for the post-acute sector. Multi-organization group roundtable discussions also focused on this theme along with additional themes of "Access to Clinical Information", "Improve Medication Reconciliation", "Improve Care Management" and "Improve Care Transitions".

The East Merrimack community has an active collaborative group that meets monthly to coordinate care strategies for shared patients and discuss technology adoption across the community. The goal of this group is to enhance interoperability and the sharing of data among organizations. The group is very solution focused and actively discussed ideas to meet the high priority needs of the community, identified through the interview process. The members of the established group participated in interviews as well as both community roundtable events. In the second community roundtable meeting the group dove in depth to the needs ascertained in the first community roundtable. The goal was to review what the group discussed and prioritize to sharpen community focus.

After review of the interview findings and the needs discussed in the first community round table, the group felt strongly that the priority need for the community was timely hospital and ED admission and discharge notifications from the acute care hospital setting. There is a need across post-acute care, behavioral health and primary care for alerts and ADT messages so care teams can track patients and assess risk for additional, time-sensitive care management support. Alerts can help with early intervention, enhance care transitions and help with the tracking of high risk patients.

The East Merrimack community feels care coordination around medication reconciliation is a top priority need. Post-acute care providers need to be notified of changes in a patient's medications immediately upon discharge for medication reconciliation and patient education to avoid drug-to-

drug adverse events and for patient medication management. This specific area of care coordination enhances patient safety and outcomes, reduces readmissions, and increases patient experience. Informing post-acute care providers of patient's medications immediately upon discharge for medication reconciliation and patient education is vital to patient care and reduced readmission rates. There is often confusion on the part of the patient as to why a medication was stopped or started while in the hospital. Patients will meet with post-acute or home care providers and raise concerns about changes and not fully understand or trust the medication change.

Another priority for the community is the timeliness of data and being able to exchange patient information in real time. Interoperability and sharing of data is currently limited to "pushing" information rather than "pulling" data when it is needed. The coordinating organization will call or send a request for information and it is sent via fax by the trading partner once the document is complete. Policies around timely completion of discharge summaries and hospital information can delay the delivery of the patient care plan to the post-acute providers. There was a discussion around reviewing and agreeing upon policies for timely completion of notes and discharge summaries to ensure providers will not have to wait up to a month to obtain the completed document. The organizations identified the need to pull data when it is needed and reduce the use of the phone as a method to track down necessary patient care data. With timely completion and sending of care summaries, the people who need the information could obtain or have it available at the point of care, when it is needed. Along with changing the timing of the data, the group also identified the need to review the content of the information exchanged. Each care partner needs a certain set of data and the information needed is not always the same across organization care types.

Finally, the group identified the need for increased adoption of EHR systems among skilled nursing facilities and some post-acute and behavioral health providers. As an alternate to full EHR implementation, the group noted that these organizations could implement a HIway webmail box to receive information electronically, even if they cannot send due to lack of adoption. There was also a need for positive patient identification through the creation of one patient identifier. Exchanging data is helpful but care givers and staff need to be able to easily match incoming data with patients in their electronic systems. This was not identified as one of the top three priorities but it was something that the group felt needed to be tackled by the state and community in the near future.

#### **Community Priority Needs**

The primary need identified by stakeholders in the East Merrimack region is for timely hospital admission notifications and discharge summaries to flow from the acute care settings to the post-acute care providers. Specifically the stakeholders would like the following:

- 1. Alerts and notifications both around patient admissions and discharges from the Hospital or Emergency Department and patient status changes.
- 2. Inform post-acute care providers of patient's medications immediately upon discharge for medication reconciliation and patient education to avoid drug-to-drug adverse events and for patient medication management.

3. Policies and processes around timely completion of discharge information to inform postacute care providers of what occurred during the hospital visit and of any follow up instructions post discharge in a timely manner.

#### **Reported Internal Challenges and External Barriers**

### **Internal Challenges**

What are your top HIT related challenges within your organization?

	East	MA
Internal Challenges	Merrimack	
Lack of Staffing Resources	38%	25%
Managing Workflow and Change	19%	14%
Lack of Financial Capital	19%	22%
Lack of Data Integration - Interoperability	4%	3%
Market Competition and Merger Activity	4%	1%
Meeting Operational and Training Needs	4%	15%
Technology Insufficient for Needs	4%	9%
Data Relevancy	4%	<1%
Leadership Priorities Conflict with IT Needs	<mark>4%</mark>	<mark>2%</mark>
Market Competition and Merger Activity	0%	1%
Internet Reliability	0%	1%
Improve Medication Reconciliation	0%	<1%

<sup>\*</sup>Identified as a top priority need during community roundtable

The internal challenges identified through interviews completed in the East Merrimack community were closely aligned with the challenges faced by the state of Massachusetts. Bubbling to the top of the list was a lack of staffing resources and financial capital. Staffing resources are important to organizations to continually train and optimize current technology and manage newly implemented workflows. Not only is there a need to obtain more staffing resources, but quality staffing that understands the current landscape, has training in Health IT and stays with the organization to allow the organization reap the benefits of on-boarding and training. This internal challenge ties closely to a lack of funding to continually invest in technology and training to remain current with the Health technology used by others in the community. Below is a table that details the internal challenges interview results for the East Merrimack community and how they align with the interview findings in the state of Massachusetts

In the first round table the group reviewed the interview findings noted in the table above. There was much discussion around the challenge of communication among clinical teams and technical teams within an organization. There needs to be a common goal and discussions between these two

groups, within a healthcare organization, to ensure needs and information is exchanged to facilitate streamlined and successful efforts. All team members need to understand Health IT initiatives, progress, timelines and how it affects their role in patient care. During continued discussion in the round table, the East Merrimack group focused on the challenge of leadership priorities conflicting with IT needs. The group noted there was a lack of education around the statewide HIE and interoperability in general among many IT leaders in the community. This makes adoption and buy in at a high level difficult for organizations. If leadership does not understand the benefits and details of the technology there will not be a strong top down push to move forward in the adoption of Health IT and HIE technology to get everyone on the same technical playing field.

In the second roundtable the group worked to further tease out the top internal challenges faced by organizations in the East Merrimack community. Through careful review of the feedback from the first roundtable, shown in the table below, and the interview data presented the group, the discussion began to sharpen the focus around the additional challenging internal barriers.

Lack of financial capital and insufficient awareness among clinical and business leadership around Health IT remained at the top of the list for internal challenges. One contributing organization stated "I could do anything if I had enough money."

#### **External Barriers**

What are your top environmental (external) HIT-related barriers impeding your progress?

	East	MA
External Barriers	Merrimack	
Lack of Interoperability and Exchange Standards	32%	23%
Lack of HIE / HIway Trading Partners & Production Use Cases	23%	23%
Lack of HIE / HIway Education	<mark>14%</mark>	<mark>6%</mark>
Market Competition & Merger Activity	14%	4%
Cost of Technology / Resources	9%	9%
Vendor Alignment	<mark>5%</mark>	<mark>4%</mark>
Meeting Regulatory Requirements	5%	19%
Lack of Reimbursement/Unreliable Payments	0%	2%
Lack of EHR Adoption	0%	<mark>1%</mark>
Market Confusion	0%	1%
External Attitudes and Perceptions	0%	1%
Sensitive Information Sharing and Consent	0%	6%

<sup>\*</sup>Identified as a top priority need during community roundtable

## **Community External Barriers**

Community organizations face many external challenges that often fracture focus and hinder progress towards Health IT adoption. Seven of the top external barriers identified through interviews

completed across the state are directly aligned with the top barriers discussed in the East Merrimack community interviews. The top two areas identified by this community were a lack of interoperability and exchange standards and a lack of HIE or HIway trading partners and use cases. The interview findings, noted in the table below, were leveraged to facilitate discussion in both roundtables around identifying additional barriers and pinpointing the most challenging external barriers for organizations.

The first roundtable focused on the barriers of a Lack of HIE and HIway education, a need for vendor alignment and a lack of EHR adoption among Skilled Nursing Facilities (SNF), Home Health organizations, Behavioral Health organizations and smaller organizations providing patient care. HIE education is important to the group because the technology is new and many leaders, staff and patients do not understand the technology or consent process to opt in. Organizations are reluctant to be early adopters of the technology because they do not fully understand the process, security or benefits of exchanging data securely through an HIE. This issue was noted as "the chicken and the egg" because without working use cases organizations do not fully see the benefit, but without organizations on the HIE it is a challenge to test and get high priority use cases tested and streamlined. Many smaller organizations as well as SNF and BH organizations are slow to adopt EHR technology and do not fully understand that the cost vs. the benefits of getting on board with technology to enhance sending data. HIE education could help this group as well to empower these organizations to obtain a webmail account to at least receive data electronically until they are able to fully adopt an EHR.

Another barrier discussed in the first roundtable was a lack of communication among community organization about what their needs are and where the gaps fall. The group felt that if community organizations had the resources available to get together to discuss implementation strategies, agree upon use cases for testing and share knowledge of what has worked or not worked around Health IT, collaboration would ensue and push forward a community wide adoption to get organizations on a level playing field. Coordination of this type often does not happen because organizations, particularly smaller organizations, do not have the resources to dedicate to this effort.

To continue discussion around the external barriers in the second roundtable, the group reviewed all the items discussed in roundtable one, shown below.

Discussion ultimately ended with an agreement among participating organizations that the external challenges of a lack of financial capital and insufficient awareness among clinical and business leadership around Health IT should remain at the top of the list. Another external challenge that presented itself during the second roundtable focused on patient consent for HIE opt-in. The group felt that this is a legal and logistic barrier that stemmed from the fact that organizations do not know enough about the technology or what it means to opt-in to make an informed process decision. The community as a whole needs to tackle this issue and further educate leadership and all patient facing staff to ensure a standard message and approach to consent. The group did note that there are a subset of items that will arise around this topic as Health IT, HIE technology and use cases mature.

#### **Community Priority Barriers**

The community group specified the following *priority barriers* to addressing needs;

- 1. Lack of financial capital for staff resources, software purchases or optimization and training.
- 2. Insufficient awareness of health IT capabilities among clinical and business leadership to get everyone on a level IT playing field.
- 3. Lack of policies and standard regulations around the patient opt-in, opt-out model of consent for sharing information electronically and regulations about sharing sensitive information in a CCD with the patient's care team.
- 4. Policies and processes that delay information transfer coupled with lack of understanding of need for timely information downstream of hospital.

### **Reported HIT Improvement Ideas**

What are your top ideas where technology (or technology related policy) may improve healthcare in Massachusetts?

	East	MA
HIT Improvement Ideas	Merrimack	
Enable Interoperability & Exchange	<mark>16%</mark>	<mark>28%</mark>
Improve Care Quality & Patient Safety	<mark>16%</mark>	<mark>6%</mark>
Improve Care Management	<mark>16%</mark>	<mark>6%</mark>
Promote Costs Savings	12%	3%
Access to Clinical Information	<mark>12%</mark>	<mark>8%</mark>
Increase Education & Awareness	<mark>8%</mark>	<mark>15%</mark>
Enable Population Health Analytics		4%
Expand Consumer Engagement Technologies 4%		3%
Provide Funding & Resources 4%		
Improve Care Transitions 4%		
Improve Vendor Cooperation 0%		3%
Enhance Reporting to State 0%		2%
Know Patients, where they are & their status	0%	1%
Enhance Alternative Payment Model (APM) Reporting	0%	<1%

\*Identified as a top priority need during community roundtable

#### **Community Prioritized HIT Improvement Ideas**

Discussion of HIT Improvement ideas focused on solutions that would address the priority needs of the East Merrimack Community. All of the ideas that were discussed during the East Merrimack Community Roundtables are included in the HIT Improvement Ideas section below, but the group agreed that the following ideas should be prioritized, because these ideas directly addressed the clinical and business needs of the community:

- Narrowly identify a clinical initiative such as "Improve Medication Reconciliation Across Care Setting." Use this clinical initiative to involve appropriate clinical, business, and IT resources in each organization. Systematically address organization connectivity, technology, workflow process, and human resource components until there is functioning information flow among organizations.
- 2. Implement EHRs among SNF and BH organizations and/or Mass HIway webmail applications

so that all healthcare providers may at least receive health information electronically.

	IDENTIFIED eHEALTH PRIORITY AREAS			
1	Alerts and notifications both around patient admissions and discharges from the Hospital or Emergency Department and patient status changes.			
2	Inform post-acute care providers of patient's medications immediately upon discharge for medication reconciliation and patient education to avoid drug-to-drug adverse events and for patient medication management.			
3	Policies and processes around timely completion of discharge information to inform post- acute care providers of what occurred during the hospital visit and of any follow up instructions post discharge in a timely manner.			

	HIT IMPROVEMENT IDEAS	
1	Implement EHRs among SNF and BH organizations and/or Mass HIway webmail applications so that all healthcare providers may at least receive health information electronically.	
2	Complete a capabilities assessment for the community organizations to assess short, mid and long-term goals to create a community wide strategic IT plan. Use this plan and timeline to guide grant application processes to push forward community wide initiatives.	
3	Narrowly identify a clinical initiative such as "Improve Medication Reconciliation Across Care Setting." Use this clinical initiative to involve appropriate clinical, business, and IT resources in each organization. Systematically address organization connectivity, technology, workflow process, and human resource components until there is functioning information flow among organizations.	
4	Deploy programmatic staff that can facilitate collaboration among leadership and staff of healthcare organizations. Collaboration is required to work through each need and barrier listed above.	
5	Deploy shared technical resources among organizations for efficient and focused interfacing support.	

#### **ATTACHMENT - 1**

#### Community Commons <a href="http://www.communitycommons.org/">http://www.communitycommons.org/</a>

Community Commons provides public access to multiple, public data sources and allows mapping and reporting capabilities to explore various demographic, social and economic and health indicators for defined areas and communities. Community Commons was specifically used to create custom, geographically defined report areas based on the zip codes within each of the **MeHI** Connected Community regions.

Community Commons generates custom area estimates for the selected indicators using population weighted allocations. These estimates are aggregates of every census tract which falls within the custom area, based on the proportion of the population from the tract which also falls within the area. Population proportions are determined for each census tract by dividing the sum of each census block's population by the total census tract population. In this way, when a custom area contains 50% of the area of a census tract, but contains 90% of that census tract's population, the figure for that census tract is weighted at 90% in the custom area tabulation.

Indicator data was assembled utilizing known, publicly available data sources identified in the table below;

#### Table - Data Source

Indicator	Data Source
Total Population	US Census Bureau, American Community Survey: 2008-12
Change in Total Population	US Census Bureau, Decennial Census: 2000 - 2010
Income Per Capita	US Census Bureau, American Community Survey: 2008-12
Population in Poverty - 100% FPL	US Census Bureau, American Community Survey: 2008-12
Population in Poverty - 200% FPL	US Census Bureau, American Community Survey: 2008-12
Children in Poverty	US Census Bureau, American Community Survey: 2008-12
Linguistically Isolated Population	US Census Bureau, American Community Survey: 2008-12
Population with Limited English Proficiency	US Census Bureau, American Community Survey: 2008-12
Population Receiving Medicaid	US Census Bureau, American Community Survey: 2008-12
Access to Primary Care	US Department of Health & Human Services, Health Resources and Services Administration, Area Health Resource File: 2012
Facilities Designated as Health Professional Shortage Areas	US Department of Health & Human Services, Health Resources and Services Administration, Health Professional Shortage Areas: April 2014
Federally Qualified Health Centers	US Department of Health & Human Services, Center for Medicare & Medicaid Services, Provider of Services File: June 2014