



THE ROLE OF HEALTH TECHNOLOGY IN MICHIGAN

**FINDINGS AND LESSONS FROM
OUR INVESTMENTS SINCE 2015**

MAY 2019



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EXECUTIVE SUMMARY

The Michigan Health Endowment Fund is committed to supporting innovative approaches to address the complex health issues facing our state. One way we do this is by supporting projects that incorporate technology into interventions to improve health and wellness.

This report provides an overview of the \$12,835,798 in grants provided to 46 technology projects made by the Health Fund between 2015 and April of 2019, highlights the impact these grants have had, and shares our thoughts on the potential for the Health Fund to maximize our impact in health technology going forward. To accomplish this, we grouped grantees based on how they employed health-related technology and profiled interventions that have been particularly innovative and impactful, allowing us to provide a nuanced view across all of the investments made in this space.

These grants have achieved outcomes that exceed their initial investments. Further, many programs are in various stages of regional or statewide expansions, some of which we have funded through subsequent Special Projects and Emerging Ideas grants. These findings helped to shed light on four lessons that stem from the successes and challenges faced by the programs included in this report. These are that:

- 1. **TECHNOLOGY-BASED INTERVENTIONS AREN'T A CURE-ALL...**
- 2. **...BUT TECHNOLOGY CAN BE A GAME-CHANGER WHEN APPLIED STRATEGICALLY**
- 3. **UNDERSTANDING DYNAMICS BETWEEN INVOLVED STAKEHOLDERS IS CRITICAL**
- 4. **TECHNOLOGY-BASED APPROACHES ADDRESS A WIDE VARIETY OF BARRIERS TO ACCESS**

These lessons are in part a product of the nature of the Health Fund's grantmaking practices. As a funder that provides grants which last a maximum of three years, this report provides insight into the ability of technology-based interventions to have a large impact in the short-term, when implemented effectively. Based on this potential, as well as statewide and national trends, two spaces appear to be particularly well-positioned for further integration into health, both generally and from our perspective as a funder that funds interventions for one to three years. Based on our findings and analysis, these spaces are **mobile technology** and approaches to **health information storage and exchange**.

A recurring theme in this analysis is that, despite technology's potential to achieve short-term successes in health, there is a gap between development of novel tools and approaches and their implementation. Narrowing this gap requires commitment to innovation and willingness by policymakers, funders, and stakeholders throughout the health arena to take strategic risks. These qualities lie at the heart of the Health Fund's grantmaking strategy to-date and will continue to play a prominent role in the growth of health-related technology in Michigan.

TECHNOLOGY REPORT
INTRODUCTION

Technology’s role in the health landscape is rapidly evolving. This evolution brings potential: the internet, smartphones, and innovative approaches to exchanging health information provide opportunities to deliver care more effectively and efficiently than ever before. However, pervasive obstacles to realizing this potential remain. Studies show a lag of approximately *seventeen years* between the discovery of new approaches in patient care and their integration into everyday health practice.¹ Technology-based approaches face this same delay.

17 YEARS FROM
INNOVATION TO
IMPLEMENTATION

To understand this, we must take a wide view of the stakeholders involved throughout the process of integrating health technology. Organizations developing the technology itself require the support and vision to produce innovative, effective tools. Policymakers, large and small health entities, and funders all must embrace the challenges that come with incorporating novel technology into existing processes. In other words, integrating technology-based approaches to health requires commitment at many levels, and obtaining that commitment takes time.

The Health Fund has a unique perspective on identifying these challenges, as well as how to overcome them. As a funder who supports initiatives statewide and in a variety of health arenas, our scope is broad enough that we can account for a range of dynamics and trends at play. Technology enhancements represent one of the Health Fund’s eight focus areas, a prioritization stemming from the demand for solutions that mitigate widespread care delivery barriers throughout the state. These barriers are born out of pervasive gaps in capacity throughout the healthcare landscape, and exacerbated by the lag between innovation of new approaches

and their integration into the care continuum. These factors impact the Health Fund’s target populations, children and older adults, and we’re playing a prominent role in mitigating and eliminating them.

Since 2015, the Health Fund has invested just under \$13 million in 46 programs supporting technology-based interventions. The successes and challenges these programs experience provide valuable insight into how care delivery can be improved using technology. With over half of these grants completed, many programs have fueled sustainable changes to the care continuum using new approaches to how patients access care and how providers collaborate. The adaptability and replicability of these solutions have allowed these programs to realize impacts beyond their original scope.

This report identifies how health-related technology can achieve this kind of outsize impact, as well as how that impact can be hindered. Grounded in the Health Fund’s perspective on technology’s impact, it serves as a guide to what we’ve funded, what those programs have achieved, and, most of all, what that means for technology’s role in Michigan’s healthcare landscape going forward.

NUMBER OF FUNDED
TECHNOLOGY GRANTEES – 46

NUMBER OF COMPLETED
TECHNOLOGY GRANTS – 29

TOTAL AMOUNT INVESTED -
\$12,835,798

REPORT
METHODOLOGY

To gauge the impact of the Health Fund’s investments in health-related technology, our evaluation team conducted a comprehensive assessment of our grants made between the start of 2015 and the end of April 2019 (each cohort included is listed in Table A).¹ This required thorough reviews of grant proposals and reports while consulting with program officers in each of the Health Fund’s three proactive grantmaking programs: Behavioral Health, Healthy Aging, and Nutrition & Healthy Lifestyles. Grants identified as technology-based were then grouped and analyzed by various indicators, including grant size, who primarily interacted with the intervention’s technology, and whether they addressed the Health Fund’s cross-cutting goals of integrated care and workforce development.

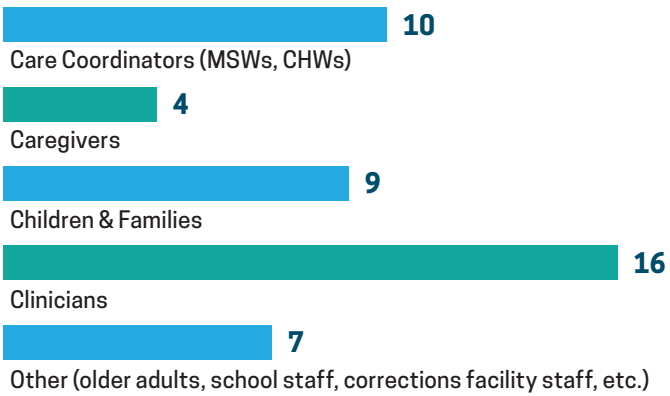
Next, we established eight categories drawn from two publications that classified technology-based health interventions. These categories allowed us to group each grantee based on their primary function within the care continuum. Additionally, the evaluation team collaborated with program staff to identify seven particularly successful and innovative grantees whose experience could be instructive or insightful. To understand and capture these seven stories, we supplemented our internal analyses through interviews with each of those grantees.

This process aimed to achieve two primary goals. First, we sought to understand what we had funded to-date, with a particular focus on what drove the successes and challenges experienced across all 46 grantees. Second, we wanted to gather insight into how we could improve our own support of technology-based programs, and how we might evolve our approach going forward. These goals provided the basis for our process of articulating the impact and lessons learned from the Health Fund’s investment in technology.

TABLE A: Grant rounds included in this report

2015 Community Foundation
2015 Local Impact
Behavioral Health (2016, 2017, 2018)
Nutrition & Healthy Lifestyles (2017, 2018)
Healthy Aging (2016, 2017, 2018)
Special Projects & Emerging Ideas (2016, 2017, 2018)
Community Health Impact (2016, 2017, 2018)

PRIMARY USERS OF TECHNOLOGY GRANTS
(by # of programs)



¹ As a result of this range, 16 of the grants analyzed in this report have not concluded, and therefore are listed as such within each category overview.



CATEGORY
OVERVIEWS

The Health Fund’s technology-based grantees can be categorized in the eight following categories (outlined with their sources in Table B). Borrowed from two separate publications describing technological approaches in health, the categories provide a glimpse at how we have strategically invested in an innovative, evolving space.

TABLE B: Categories, Sources, and Number of Grants

Category Label	Source	Number of Grants
Client Education and Behavior Change Communication (BCC)	Labrique et. al, <i>mHealth Innovations as Health System Strengthening Tools: 12 common applications and a visual framework</i>	11
Provider Training and Education	Labrique et. al, <i>mHealth Innovations as Health System Strengthening Tools: 12 common applications and a visual framework</i>	9
Telemedicine	World Health Organization (WHO), <i>Classifications of Digital Health Interventions v1.0</i>	6
Data Interchange, Interoperability, and Accessibility	World Health Organization (WHO), <i>Classifications of Digital Health Interventions v1.0</i>	3
Provider-to-Provider Communication	World Health Organization (WHO), <i>Classifications of Digital Health Interventions v1.0</i>	3
Resource Coordination	World Health Organization (WHO), <i>Classifications of Digital Health Interventions v1.0</i>	5
Sensors and Point-of-Care Diagnostics	Labrique et. al, <i>mHealth Innovations as Health System Strengthening Tools: 12 common applications and a visual framework</i>	3
Data Collection and Reporting	Labrique et. al, <i>mHealth Innovations as Health System Strengthening Tools: 12 common applications and a visual framework</i>	6
TOTAL		46

CLIENT EDUCATION AND BEHAVIOR CHANGE COMMUNICATION

11 GRANTS TOTALING \$1,832,154

Integrating technology into patients’ daily lives can facilitate more frequent and effective interaction with providers, whether through the quick delivery of information or direct access to otherwise hard-to-reach patient populations. Consequently, client education and behavior change communication interventions represent some of the most common ways health entities employ technology. Client education and behavior change communication is defined as “[t]argeted, timely health education and actionable health information” delivered through text, automated voice technology, and video that is aimed at influencing specific health behaviors among participants. These interventions often involve developing a mobile application that provides evidence-based health information to a target population.

The prevalence of client education and behavior change communication in the healthcare landscape hints at a growing demand for mechanisms to improve patient outreach. Whether a health organization seeks to spread awareness of community resources or incentivize patients to engage in a set of specific health behaviors, these goals stem from inefficiencies in delivering information to patients and caregivers.

For example, take a University of Michigan program aimed at increasing perinatal service delivery and decreasing risk factors for infant mortality. Noting a link between perinatal health and the extent to which new fathers are involved in the birthing and child care process, researchers developed a texting platform that informed them of available resources, upcoming appointments, and infant health. Given that most people have access to a mobile device or internet connection, this initiative provided a convenient and effective link to a population considered hard-to-reach and disengaged from perinatal care.

This example touches on numerous aspects of client education and behavior change communication technology’s potential for diverse application across the health landscape. The Health Fund has supported more programs in this category than any other: interventions in this space account for over a quarter of technology-based programs we have funded to-date. Barriers to access manifest in many different ways across Michigan, and we’re only beginning to discover the ways this type of technology can be employed to account for them.

Organization	Program Title	Status
Area Agency on Aging 1-B	dCare	Completed 8/15/2017
Cadillac Area YMCA	Developing Habits of Healthy Activity	Completed 9/30/2017
Eastern Michigan University	Supporting the Health and Mental Health of Toddlers in Foster Care	Ends 12/20/2019
Grand Traverse Regional Community Foundation	Supporting Families and Healthy Communities through Infant-Maternal Health	Completed 1/1/2018
Greater Flint Health Coalition	Commit to Fit Prescription for Health Program	Completed 4/15/2017
Michigan Department of Health and Human Services	Statewide Perinatal Prevention & Response: Regional Perinatal Quality Collaboratives	Ends 11/30/2020
MI Recreation & Park Association	MercyMotion: An Integrated Approach to Public Health and Public Spaces	Completed 3/31/2018
MidMichigan Health	MidMichigan Health – A technology based innovation to prevent type 2 diabetes	Completed 3/31/2019
Rethinking Dementia: Accelerating Change	mHealth Dementia Project	Completed 3/30/2018
The Regents of the University of Michigan	Healthy Start Engaged Father Program: Enhancing Perinatal Father Engagement in Health Care Settings	Completed 9/30/2017
Wayne State University	High Tough – High Tech (HT2)	Ends 7/31/2020

PROVIDER TRAINING AND EDUCATION

9 GRANTS TOTALING \$3,385,149

As the healthcare landscape evolves so must provider norms and best practices; however, a gap between innovation and changes in care exists throughout healthcare. Provider training and education to narrow this gap is one of the most common applications of technology in health. These interventions employ technology by providing “continued training support to [providers’]...access to educational videos [and] interactive exercises that reinforce skills provided during in-person training.” By delivering trainings and monitoring performance using webinars and face-to-face online resources, as well as housing training materials in online portals, these interventions allow larger groups of providers across wider areas to grow their expertise and provide more evidence-based services to their patient population.

Many provider training and education programs seek to improve access to care by improving and building the capacity of existing resources and systems already in place. Barriers to access stemming from poverty, geographic isolation, or being unaware of available resources exist statewide. While addressing these barriers appears to call for resource-intensive interventions, provider education and training can improve workforce capacity and narrow gaps in certain regions and communities.

The University of Michigan’s *TRAILS to Behavioral Health* initiative highlights provider training and education’s ability to impact health through resources and non-traditional providers that students interact with most on a daily basis.

TRAILS is building a network of 150 school staff, including school psychologists, social workers, nurses, and counselors, and equipping them to provide evidence-based mental health training to education professionals at 25 schools across 10 counties. As a result of its success, the program received \$2 million in state funding (out of the \$30 million FY19 state budget for school mental health initiatives) while making significant progress toward Michigan Medicaid defining coaching as a billable service.

Whether training community members to direct expectant mothers toward supportive resources or training clinicians to manage mental health crises more effectively, technological approaches to provider education provide a flexible and convenient way to build the capacity of the existing health workforce. As a result, the nine grants to Provider Training and Education programs represent the largest financial investment by the Health Fund in any category of technology interventions.

Organization	Program Title	Status
Altarum Institute	Breaking Down Barriers to Sharing Behavioral Health Information	Ends 11/18/2020
Health Net of West Michigan	FitKids 360 Expansion & Infrastructure	Completed 3/31/2018
Michigan Breastfeeding Network	MIBFN Breastfeeding Community Leadership Training	Completed 3/31/2018
Michigan Council for Maternal and Child Health	Michigan Model for Health Online	Ends 6/31/2020
Michigan Health Council	Geriatric Workforce Resource Center	Ends 6/30/2019
The Regents of the University of Michigan	TRAILS to Behavioral Health: Translating Research into Action to Improve the Lives of Students	Completed 3/29/2019
St. John Providence	Mother Nurture Lactation College 2.0	Completed 5/31/2018
Upper Peninsula Health Care Solutions	Make a Plan, Share a Plan	Ends 10/31/2019
Western Michigan University	Michigan Crisis Intervention System (MI-CIS)	Completed 11/30/2018

TELEMEDICINE

6 GRANTS TOTALING \$1,559,247

Telemedicine is defined as the “delivery of health care services, where patients and providers are separated by distance.” In other words, telemedicine allows patients or their caregivers to speak face-to-face with health providers remotely from their homes, school, or community health clinic. These approaches are particularly useful in Health Professional Shortage Areas (HPSAs), defined by the Health Resources and Services Administration as areas that have “shortages of primary care, dental care, or mental health providers and may be geographic (a county or service area) [or] population (low income or Medicaid eligible).”ⁱⁱ By allowing patients to speak with their providers without having to drive hours to an appointment, telemedicine allows for access to otherwise hard-to-reach populations.

For this reason, telemedicine’s integration into Michigan’s healthcare landscape has provided an effective solution statewide, especially for individuals seeking mental health care. According to an environmental scan conducted as part of the Health Fund’s Behavioral Health Access Study, there are 58 full county HPSAs for mental health statewide, 84% of which are rural. These geographic obstacles are exacerbated for hard-to-reach populations, such as children in the foster care system.

Organization	Program Title	Status
Family Medical Center of Michigan	<i>Using School-Based Telemedicine to Improve Behavioral Health Outcomes in Rural Southeastern Michigan</i>	Completed 8/31/2017
Judson Center	<i>Tele-Psych implementation technology enhancement to increase access to care of foster and adoptive children in Macomb County, Michigan</i>	Completed 7/31/2017
Judson Center	<i>Establish psychiatric services through a Tele-Psychiatry program in Wayne County, Michigan</i>	Completed 3/31/2018
Otsego County Commission on Aging (OCCOA)	<i>OCCOA Community Connect: Expansion of innovative “technology and aging” program to additional Michigan communities</i>	Ends 11/14/2019
Pine Rest Christian Mental Health Services	<i>Improving Post-Discharge Follow-Up with Telehealth</i>	Ends 4/8/2020
Wayne State University	<i>Team-Based Telemedicine</i>	Ends 8/31/2020

The Health Fund has made four grants to initiatives that employed telemedicine to combat these obstacles to care. Three were focused on addressing child and adolescent mental health in their respective regions, while the fourth sought to expand a platform for older adults to access supportive resources, including consultations with providers using telemedicine. One notable similarity between these programs is their success in integrating telemedicine into existing workflows to access target populations that would otherwise be difficult to reach.

For example, the Otsego County Commission on Aging (OCCOA) is currently expanding an app centralizing supportive community resources by integrating telemedicine components for patients in Otsego County, with plans to replicate the model in Flint and Traverse City. As a predominantly rural HPSA in the Michigan’s northern lower peninsula, Otsego County is the type of community where telemedicine can most effectively improve access to resources and care for older adults and their families.

DATA INTERCHANGE, INTEROPERABILITY, AND ACCESSIBILITY

3 GRANTS TOTALING \$592,382

The flow of patient information throughout the healthcare landscape requires coordination and tools that are employed by a wide range of caregivers, both formal and informal. This is a tall order, largely due to the variety of ways patient data is gathered, stored, and transferred along each step of the care continuum. For this data to capture the full picture of a patient’s health and allow for providers to deliver care most effectively, care providers of all types need mechanisms that allow smooth and timely flow of information between them.

Data interchange, interoperability, and accessibility (DIIA) interventions provide this by improving the “capability of two or more systems to communicate and exchange data through specified data formats and communication protocols.” This definition accounts for a range of applications, but put more simply, DIIA interventions streamline the exchange of medical information between care providers where gaps in technological capacity may exist.

Michigan is home to a diverse array of providers, with a corresponding variety of technological capacities, software systems, and institutional practices. As a result, we see significant differences in how patient information is stored and delivered between health-related entities. This can lead to gaps in care coordination and problems like duplicate prescriptions or missed diagnoses. To avoid these gaps, health systems, clinics, schools, and every provider in between need to communicate patient information efficiently and effectively.

In other words, it is vital that providers possess both the capacity and the proper mechanisms to translate data in ways that allow it to be used when and where it is needed. DIIA interventions have proven to be important components in improving and coordinating care delivery throughout Michigan, and the Health Fund will continue to support these interventions going forward.

Organization	Program Title	Status
Altarum Institute	<i>Leveraging Technology to Improve Outcomes for Michigan’s Children in Foster Care</i>	Completed 7/31/2017
Michigan Health Council	<i>Michigan Advance Care Planning</i>	Completed 3/31/2019
Washtenaw County Community Mental Health	<i>Correctional Care Integration Project</i>	Completed 11/30/2017

PROVIDER-TO-PROVIDER COMMUNICATION

3 GRANTS TOTALING \$937,769

In a world where patients seek care from a variety of providers, interventions that improve communication between those providers can improve care and health outcomes alike. Provider-to-provider communication is defined as technology that allows health professionals to “communicate with one another across hierarchies of technical expertise.” In other words, these technological approaches to communication allow for consultations when patients require care outside of the expertise or capacity of their provider. In these cases, ‘providers’ can be community health workers, social workers, and informal caregivers (e.g. relatives), in addition to clinical health professionals like doctors and nurses. Additionally, this category refers to ‘communication’ solely as consultations between providers using technology that enables them to speak face-to-face.

Initiatives streamlining provider-to-provider communication stem from differences in access to specific patient populations, as well as disparities in expertise of the providers themselves. For many patients in the Health Fund’s two focus populations, children and older adults, providers with the greatest access are often informal caregivers, such as family members or community health workers, rather than clinicians.

Organization	Program Title	Status
Michigan Department of Health and Human Services	Statewide Directory and Consumer Relationship Management (CRM) Tools for Care Coordinators	Ends 11/5/2019
Region 3B Area Agency on Aging	Care Connection Health Intervention Program	Completed 3/31/2019
Saginaw Valley State University	The GRACE Project: Gaining Recovery in Addiction for Community Elders	Ends 8/31/2020

For example, Region 3B Area Agency on Aging’s *Care Connection Health Intervention Program* recognized that informal caregivers could provide more direct support to older adults. Their intervention provided in-home care management for older adults via an onsite community health worker that communicated with the patient’s primary care physician using telehealth software-equipped tablets.

For patients who contend with poverty and have inadequate insurance coverage or limited access to specialized care, communication between traditional and nontraditional care structures can be critical. Accounting for nontraditional care delivery systems provides a unique opportunity to employ technology that allows health professionals with more specialized skillsets to access patients through providers they interact with more regularly.

RESOURCE COORDINATION

5 GRANTS TOTALING \$1,499,987

From the time a patient accesses the healthcare continuum to when they exit it, that patient might see a wide range of care providers. Often, an individual’s entry point when initially seeking care is their local urgent care, clinic, or emergency room, requiring additional resources or a referral to a provider with more specialized expertise. This process can present its own obstacles, particularly for the Health Fund’s two target populations: older adults and children. Older adults can present with a variety of conditions that require the expertise of disparate care providers, while children receiving behavioral health services may also come into contact with a range of specialists.

Technology can play a valuable role in streamlining how patients move between providers. Resource coordination initiatives “support communication and coordination mechanisms to facilitate referrals, both with the health sector and to other health-related sectors.” This can include providing patients with knowledge about existing resources, as well as streamlined processes that allow

providers to refer patients between one another. Put more simply, these interventions allow providers to seamlessly direct pertinent information to other clinicians or staff to connect patients with the supportive resources they need, when they need them.

Health Fund grantees employ this approach in a variety of interesting ways. MDHHS did so on a statewide scale in two separate grants by redesigning the application for its assistance programs while developing an online integrated service delivery (ISD) portal to house supportive MDHHS and community resources in one place. While providing a centralized resource for patients to understand where and how to seek care, the ISD portal also allows area staff and providers at community organizations to make referrals once a patient is deemed eligible.

Organization	Program Title	Status
Michigan 2-1-1	Michigan 2-1-1 Database Access Project	Completed 9/30/2017
Michigan Department of Health and Human Services	Michigan Pediatric Behavioral Health Acute Inpatient Access Improvement	Ends 10/31/2019
Michigan Department of Health and Human Services	Integrated Service Delivery Portal	Completed 11/30/2017
Michigan Department of Health and Human Services	RE:Imaging Integrative Service Delivery	Ends 9/30/2019
Wayne State University	BusMe: An e-health Platform to Reduce Pediatric Health Disparities by Improving Public Transportation Access in Detroit	Completed 3/31/2018

SENSORS AND POINT-OF-CARE DIAGNOSTICS

3 GRANTS TOTALING \$699,181

In the not so distant past, most health monitoring and testing was only possible in a clinical setting. Health data could only be obtained in person, while test results required separate medical laboratories for processing. Today, new sensor and diagnostic technologies make monitoring patients and performing tests possible at novel points of care.

The Health Fund has supported three grants funding sensors and point-of-care diagnostics, defined as technology designed to “conduct, store, transmit, and evaluate diagnostic tests through mobile phones, from relatively simple tests...in situations where the patient and provider are far removed from one another.” These programs allow for more rapid results and timely care, all while allowing the healthcare system to shift away from reactive approaches to medicine and toward predictive, preventative approaches that can save time and lives.

Health Fund grantees employing this approach are using sensors and diagnostic technologies paired with mobile, web-based platforms to interact with patients beyond clinical settings. In both cases, this facilitates real-time, in-home monitoring to help patients stay in their homes and out of the emergency department (ED). These kinds of in-home and other remote monitoring options enabled by advances in sensors and other digital diagnostic tools can be especially critical for older adults.

Organization	Program Title	Status
Battle Creek Community Foundation	T.E.C.H. - To Ensure they Come Home	Completed 4/1/2019
PACE Southeast Michigan	Remote Care Management Platform Program	Completed 2/28/2019
The Regents of the University of Michigan	Home-based team transitional telecare to optimize mobility and physical activity in recently hospitalized older Veterans	Completed 2/28/2019

In their effort to reduce preventable ED visits and hospitalizations, PACE Southeast Michigan medical staff monitor their older adult patients through a remote care management platform. Seniors access the platform via a tablet they keep for use in their homes, and receive reminders to take medicine and for upcoming medical appointments, increasing compliance and reducing complications.

The platform also allows PACE Southeast Michigan medical staff to remotely monitor a variety of health indicators, including glucose levels, weight, oxygen, and blood pressure. When these levels reach certain thresholds, the system can trigger an alert to PACE staff that an intervention may be needed. Patient health issues can then be addressed before a condition reaches an emergency level. Beyond preventing costly ED visits, these technologies also have a long-term benefit: helping seniors age in place. Evidence suggests that aging in place has health and emotional benefits, and yields costs savings for families, health systems, and the Medicare and Medicaid programs.

DATA COLLECTION AND REPORTING

6 GRANTS TOTALING \$2,329,929

Technology can streamline and improve time- and labor-intensive tasks like compiling and reporting health data. Significant gaps exist in technological capacity between care providers, as many continue to compile health data using paper and pen rather than storing it electronically. This makes it difficult to collect and report patient data efficiently. Data collection and reporting initiatives narrow this gap in technological capacity by allowing health systems “to move from paper-based systems of ledgers, rosters, and aggregated reports to the near-instantaneous reporting of survey or patient data.” Building the capacity and efficiency of a system to store health information represents an opportunity for significant improvements to care delivery.

Improved data collection and reporting benefits most health providers. However, it’s especially useful for those whose care delivery hinges on data gathered from a variety of separate entities working together to support a specific population, such as older adults (who benefit the most from support provided by disparate community resources). Providing this kind of support requires high levels of collaboration between providers, which can take a lot of time and resources to execute effectively. As a result, this category of interventions represents the largest Health Fund investment per grantee, with each grant averaging just under \$550,000.²

One example of this dilemma and its solution comes from Oakland Livingston Human Service Agency’s *Integrated Care Readiness Project*. This project highlights how the ability to accurately gather and report data provides valuable insight into care delivery. According to a needs assessment Wayne State University conducted as part of this initiative, the number of older adults in Oakland, Macomb, and Wayne counties is predicted to double within the next two decades.ⁱⁱⁱ To account for this growing elderly population, the Oakland Livingston Human Service Agency gathered data using the Quality Aging Metrics tool to analyze and report the health status of seniors living in those three counties. This data allowed community organizations to more effectively deliver care by providing a clearer understanding of where resources were needed and how member agencies could collaborate to reach older adults.

Organization	Program Title	Status
Fair Food Network	Innovating Technology and Expanding Geographies for Double Up Healthy Food Incentives	Completed 4/30/2018
Food Bank Council of Michigan	Defining the Needs of Michigan’s Emergency Response Network	Completed 3/31/2018
Grand Rapids Community Foundation	Partnership for Improved Access to Care	Completed 1/1/2018
Michigan Health Improvement Alliance	Healthy Communities	Ends 3/29/2020
Oakland Livingston Human Service Agency	Integrated Care Readiness Project	Ends 5/31/2019
Wayne State University	Real Time Nursing Home Quality Control	Ends 4/1/2020

² Since the implementation of the Health Fund’s Strategic Plan beginning in 2016, our maximum award to a single grantee has been \$500,000. The average investment per grantee in this category exceeds that because the grant made to the Grant Rapids Community Foundation (\$829,500) occurred as part of the 2015 Community Foundation cohort, which was in progress as the Strategic Plan was being developed.



STORIES FROM THE FIELD

The following pages highlight seven projects whose approaches to technology were especially successful and innovative. The Health Fund evaluation and program teams worked together to identify these stories, and we collaborated with our grant partners to shape their story and articulate their impacts. Each profile provides insights and lessons that apply to many of the projects featured in this report.

DOUBLING DOWN ON DOUBLE UP FOOD BUCKS

FAIR FOOD NETWORK | 2017 NUTRITION & HEALTHY LIFESTYLES

Nearly one in five Michiganders are food insecure—that is, they lack access to sufficient, safe and nutritious food that meets their dietary needs. Research shows that making food security programs more easily accessible can improve rates of food insecurity, particularly for kids.^{iv} And emerging research links these programs to improved health outcomes and lower healthcare costs. By streamlining the payment system for a popular food assistance program, the Fair Food Network leveraged technology to transform the consumer experience, helping people more easily purchase fresh, healthy foods.

The popular food assistance program, Double Up Food Bucks, provides a dollar-to-dollar match when SNAP (Supplemental Nutrition Assistance Program) enrollees purchase fruits and vegetables. With the support of a 2017 Health Fund grant, the Fair Food Network expanded Double Up Food Bucks electronic payment technology in grocery stores and farmers markets in five regions across Michigan, including Flint, Grand Rapids, Kalamazoo, and communities in Southeast and Southwest Michigan.

Until recently, many participating Double Up Food Bucks retailers like farmers markets used old-fashioned tokens to provide SNAP users with their matched incentive. These tokens needed to be collected, stored, and counted by retailers, and remembered by users. The Fair Food Network replaced this labor-intensive system with an electronic loyalty card. First developed and launched in Flint, the loyalty card allows consumers to use their incentive benefits and the purchasing power afforded by the program more easily.

Incentive credits are now stored on a card with magnetic strip. Rather than having to use tokens specific to one vendor or company, participating customers can use their card at multiple vendors, and can use an online portal to check their incentive balance and find participating sites. Vendors benefit, too; rather than counting tokens, vendors can now process transactions via the card on a hard-wired device.

Beyond streamlining the purchase of healthy food, the technology has proved useful to food retailers enrolled in the program. In addition to deploying equipment and software to sites, Fair Food Network provided retailers with in-person and online trainings, and in some cases, technical assistance to vendors, market managers, and store owners to troubleshoot problems and ensure the system was operating smoothly and efficiently. They found that many smaller retailers benefitted from the technology in unexpected ways, as the tablet technology used to process payments helped them complete other store functions.

The electronic payment technology has a second key benefit: interoperability. Unlike the token model, SNAP users can now earn Double Up Food Bucks at one site and redeem them at a different location. By enabling benefits to be used at different types of retail locations, this technology has dramatically increased their fruit and vegetable purchasing power. As a result, Double Up is now reaching approximately 40% of SNAP households in Flint, up from 9% before the launch of the technology.

The enhanced convenience of the electronic loyalty card helps SNAP users more effectively manage their household budgets. “They’re able to do more planning with their family budget, especially with saving credits for important times like the holidays,” said Holly Parker, senior director of programs at Fair Food Network. “This technology isn’t a silver bullet, but given that technology can often be a way that low-income families are left behind, this is a case where technology is being used to improve access.”

Finally, this technology is closing critical feedback loops to help Fair Food Network further improve the Double Up Food Bucks program. By going electronic, Fair Food Network now has programmatic data for users and their network of vendors. This enables new reporting structures and more consistent and reliable data reporting—just another benefit for users and vendors accomplished by incorporating existing, relatively simple technology.

BETTER BEHAVIORAL HEALTHCARE FOR STUDENTS

FAMILY MEDICAL CENTER OF MI, INC. | 2016 BEHAVIORAL HEALTH

Improving behavioral health services for children and adolescents creates a ripple effect of positive health outcomes, but more than 40,000 Michigan children aren’t getting the treatment they need.^v In rural regions, two factors have a major impact on access to behavioral health services. First, a widely identified shortage of psychiatrists in rural communities contributes to significantly higher rates of mental health disorders among children when compared with indicators from urban areas.^{vi} Second, the majority of children only access mental health services through their school systems.

The Family Medical Center of MI, Inc. (FMC) sought to address these obstacles by providing resources for ADHD, depression, anxiety, and substance use disorders using telemedicine in ten schools throughout rural Southeast Michigan. The program equipped each school with mobile carts housing software and technology required for remote consultations with off-site FMC behavioral health staff. To provide additional flexibility, the telehealth platform used in this initiative can be used on devices other than the mobile carts. Additionally, FMC has staffed each school with a licensed social worker trained to facilitate the telehealth sessions. Students exhibiting “red flags” indicating possible behavioral health issues were referred by school counselors, teachers, and principals to the school nurse for screenings.

If the screening revealed the need for further support, nurses coordinated scheduling with FMC behavioral health staff. By the end of the funding period, these staff were credentialed with all Medicaid and commercial health plans covering the students within the target region, so a student’s insurance could cover the cost of the treatment. Additionally, FMC employed a sliding fee scale to account for families covered by high-deductible commercial insurance, allowing every student in need of behavioral health services access to them.

MORE THAN 40,000 MICHIGAN STUDENTS AREN’T GETTING THE BEHAVIORAL HEALTHCARE THEY NEED. AN ADAPTABLE TELEMEDICINE PROJECT CAN HELP SCHOOLS PROVIDE CARE BY MEETING STUDENTS WHERE THEY ARE.

Recognizing the central role school systems already play in delivering behavioral health services, FMC provided an adaptable framework that was easy to integrate into each school’s existing processes. This provided school staff with ownership over the program’s success and helped generate broad buy-in for the program. The program’s adaptable design is also promising for expansion efforts: five months into the grant period, FMC was able to adapt the program for an additional school that demonstrated need and readiness.

During the grant period 308 students received behavioral health services, which largely addressed undiagnosed attention deficit disorders, depressive disorders, and anxiety. Providing these services through schools enabled students to receive care they otherwise would not have sought, while minimizing absenteeism and time outside of the classroom. The initiative’s success sparked interest from surrounding communities, and FMC is currently expanding the program to more schools in rural Southeast Michigan as well as Metro Detroit.

COMMUNITY CONNECTIONS FOR OLDER ADULTS

OTSEGO COUNTY COMMISSION ON AGING | 2017 NUTRITION & HEALTHY LIFESTYLES

Social isolation can cause a range of health issues, from inadequate nutrition to depression and substance use disorders.^{vii} Further exacerbating these conditions in Michigan is the combination of a growing population of older adults at the same time that the direct care workforce is shrinking.^{viii} In 2017, the Otsego County Commission on Aging (OCCOA) received a Health Fund grant to address social isolation among older adults through a telehealth and community engagement application called Community Oxygen, or CommunO2.

OCCOA’s project built on the existing CommunO2 capability, adding services typically found in other apps to produce a “Super App” version that they piloted in Otsego County, Traverse City, and Flint. The app is designed for easy use by older adults: simple icons help individuals connect with supportive resources throughout the community and even participate in events from their home. For example, through CommunO2 users can talk clinicians remotely and receive multilingual caregiving-specific education.

The simple interface played a critical role in the project’s success. However, CommunO2’s potential to improve the older adults’ health hinges on its widespread uptake by a range of stakeholders in each target area. To that end, OCCOA is partnering with community-based organizations, health systems, and stakeholders in the three target regions. These wide-ranging partnerships provide a foundation for integrating telehealth services into the daily workflow of informal and formal caregivers, clinicians, and any other stakeholders in the three program-funded communities. Ultimately, the app could effectively narrow the gap between the needs of Michigan’s aging population and the thinly spread direct care workforce.

The project could address another gap: data. We have relatively little data on the healthcare cost savings from employing telemedicine broadly throughout a community, and CommunO2 is an opportunity to build that evidence base.

Along these lines, OCCOA’s challenges provide valuable lessons applicable to other place-based telehealth initiatives. Specifically, despite the widespread integration in each community, larger health systems were slower to integrate CommunO2 into their existing workflow than smaller organizations and clinics.

The program leaders attributed this trend to a few things. First, while smaller health entities can pivot quickly and integrate new services or practices like telehealth, larger health systems are subject to slow-moving decision-making processes. They might also be less motivated to collaborate with other large systems or with smaller stakeholders, presenting an obstacle for a program that relies on caregivers’ willingness and ability to communicate with one another.

Despite these challenges, the program has facilitated collaboration among diverse stakeholders and community leaders, while configuration of the technology platform and new features are continually integrated and tested by participants. The program has garnered widespread attention for its innovation and effectiveness, and OCCOA has delivered presentations on the project at a number of national conferences, including Aging in America and the International Gerontechnology Society Conference. The CommunO2 SuperApp is currently available for Android devices through the Play Store and is in the process of becoming available for Apple products.

CommunO2’s flexible approach allows for its integration into different settings without sacrificing its ability to impact a given health issue. By enabling more effective support of caregivers and improved care coordination, it continues to tangibly impact care for older adults in its three target communities while providing the potential for replication elsewhere.

MEDICATION MANAGEMENT MADE EASY

REGION 3B AREA AGENCY ON AGING | 2017 COMMUNITY HEALTH IMPACT

For many older adults with chronic health conditions, taking multiple medications is a daily affair. Unfortunately, studies have shown that nearly three-quarters of older adults do not take their medications at the right time or in the right amount. Overwhelmed by the number of medications they’re prescribed, the number of providers they see, and other physical and cognitive challenges, many elderly patients end up skipping doses or stopping medications entirely, leading to poor health outcomes and increased healthcare costs.

Through a collaborative partnership, Region 3B Area Agency on Aging and Oaklawn Hospital set out to address medication nonadherence by using web-based technology to serve as “eyes in the home” for medical professionals working with older adults in mostly rural areas of Calhoun County. This patient-centered approach brings together a variety of health professionals, including pharmacists, medication management specialists, community health workers (CHWs), and physicians to improve the healthcare of at-risk seniors.

To deliver on their goal of patient-centered care, a Region 3B AAA CHW visits older adult patients at home. Using an iPad and HIPAA-compliant Zoom video conferencing technology, the CHW guides the older adult through a virtual meeting with a pharmacist to conduct an interactive medication review.

These medication inventories have prevented a number of medication management issues, including duplicate medications, situations with people sharing medications, and reconciling confusion about dosages. The CHW and the pharmacist can then submit information collected electronically to the patient’s primary care physician, improving communication across providers and moving the patient toward medication self-efficacy.

The program also helps with other health-related challenges that can be assessed and addressed through the in-home visit, such as nutrition or mobility issues. Using the tablet technology, clinicians from Oaklawn Hospital can conduct an immediate evaluation of in-home issues, and the CHW, while still in the home, can make arrangements through an automated referral network to get the patient the help they need via vetted home and community-based services, such as Meals on Wheels.

By combining this relatively simple technology with in-home care strategies, this project has proven to be a patient-centered intervention that is more cost effective than alternatives like hospital admission, an emergency department visit, or even a trip to the doctor’s office. The infrastructure established through this project is now part of larger conversations to expand telehealth and telepharmacy in other parts of Calhoun County.

RELATIVELY SIMPLE TECHNOLOGY CAN HELP OLDER ADULTS MANAGE MEDICATIONS, PREVENTING HOSPITAL ADMISSIONS AND EMERGENCY DEPARTMENT VISITS.

² Since the implementation of the Health Fund’s Strategic Plan beginning in 2016, our maximum award to a single grantee has been \$500,000. The average investment per grantee in this category exceeds that because the grant made to the Grant Rapids Community Foundation (\$829,500) occurred as part of the 2015 Community Foundation cohort, which was in progress as the Strategic Plan was being developed.

VIRTUAL CARE FOR VETERANS

UNIVERSITY OF MICHIGAN | 2016 HEALTHY AGING

Returning home from the hospital after a medical emergency can be a challenging time, especially for older adults. Many find themselves relieved to be home but daunted by the lengthy recovery process. Given these challenges, older adults often end up back in the hospital. In fact, according to the National Institutes of Health, nearly one-fifth of Medicare patients are readmitted within 30 days. These readmissions are often less the result of their initial illness than the deficits that accrue during and immediately following the hospital stay, often referred to as post-hospital syndrome.

The issues that many older adults face after hospitalization are especially tough on older veterans. While a network of services is provided to Michigan's older veterans through the VA, their service to their country means that they often face complex medical conditions and social situations in their everyday lives—issues that demand more aggressive approaches to post-hospital care.

One Health Fund grantee is addressing readmission rates among Michigan's 314,000 aging veterans³ by using technology to help them avoid and ameliorate post-hospital deficits in cognitive and physical functioning. The team at the University of Michigan (U-M) leading the *Home-Based Transitional Telecare* project is helping recently discharged older veterans address medication issues, avoid in-home risks, and return to their pre-hospital-stay selves, while demonstrating important findings about how clinicians can effectively use telehealth-enabled tablets and wearable sensors with this population.

Research demonstrates the importance of communication after a hospital stay. Unfortunately, traditional home care personnel often lack knowledge of the medical history of a patient and have limited communication with the discharging hospital physician and primary care provider. The U-M project leverages an experienced consultation team, called the Link Team, to serve as a connection between the patient, their caregiver, the home care staff, as well as VA Ann Arbor Healthcare System (VAAHS) providers.

This person-centered approach leverages virtual video technology, such as with a tablet or cell phone, to give the Link Team another set of “eyes and ears” once the Veteran is home. For example, the Link Team's clinical pharmacist asks patients to see all of their pill bottles, bottle by bottle, allowing the pharmacist to identify medication errors and adherence problems.

Seeing inside the home helps the care team do more than manage medications; they can see other factors that may be complicating the recovery process and preventing the patient from getting enough physical activity at home. The Link Team includes a social worker who has identified potential fall risk situations, such as where a pet in the home may be causing a problematic interaction. The social worker assists with caregiver support, education, and connecting the older adult to resources in the community.

“The virtual video interface in the home helps problem solving for caregivers and patients that you can't do on the phone,” explains Co-Principal Investigator Christine Cigolle MD, U-M faculty and physician scientist at the VAAHS Geriatric Research, Education and Clinical Center (GRECC). “This technology helps the patient, helps caregivers, and helps clinicians see the context in which they are operating.”

Beyond successfully using video technology to improve communication, this project investigates how wearable sensors can support post-hospital care. Based on evaluation at the time of home discharge, patients with potential to improve their mobility and physical activity are provided a plan and coaching that is beyond standard home healthcare. The U-M team, under the direction of Co-Principal Investigator U-M faculty and VAAHS GRECC Director Neil Alexander MD, uses the video technology to implement a home-based physical activity plan designed to enhance mobility gains at home.



A key part of the home program was to evaluate standard consumer technology used to improve physical activity, including a pedometer and wrist-based devices such as the Garmin Vivofit. Early results suggest that these consumer devices are not appropriate for this very frail and disabled patient group. “This population is very sedentary, and they often walk more slowly and differently than the more healthy,” says Alexander. “Wrist-based devices in particular did not work very well.”

Instead, a more sensitive and reliable tool, a research-grade device called the ActivPal, is placed on the thigh and worn 24/7. This provides a method for veterans to focus on improving their lifestyle without having to focus on the technology being used to provide feedback for their physical activity. Although consumer devices are less expensive, the project team made the important discovery that the more advanced activePAL is necessary to provide the quality of physical activity data useful for with more disabled and sedentary veterans. This finding is critical ensure future veterans heading back home from the hospital get the care they need.

“**THIS TECHNOLOGY HELPS THE PATIENT, HELPS CAREGIVERS, AND HELPS CLINICIANS SEE THE CONTEXT IN WHICH THEY ARE OPERATING.”**

CHRISTINE CIGOLLE MD,
CO-PRINCIPAL INVESTIGATOR
U-M FACULTY AND PHYSICIAN

COORDINATING CARE IN THE CORRECTIONS SYSTEM

WASHTENAW COUNTY COMMUNITY MENTAL HEALTH | 2016 SPECIAL PROJECTS AND EMERGING IDEAS

Children in the correctional system are a hard-to-reach and marginalized population in Michigan’s health landscape. Lack of coordination with health systems exacerbates the health dilemmas facing this group, and health initiatives serving this population are relatively scarce. Due in part to these inefficiencies, children and adolescents in the correctional system exhibit disproportionate prevalence of psychiatric illnesses, substance use disorders, and chronic disease. In other words, the obstacles that prevent corrections systems from storing and exchanging health information with external caregivers efficiently have profound consequences for this population’s health.

MAKING COMPLEX SYSTEMS MORE EFFICIENT TO HELP ONE OF MICHIGAN’S MOST VULNERABLE, UNDERSERVED POPULATIONS

In 2016, Washtenaw County Community Mental Health’s (WCCMH) Correctional Care Integration Project (CCIP) sought to improve health outcomes by integrating a Health Information Exchange (HIE) into adult and youth correctional facilities in Washtenaw County. To successfully implement the HIE, WCCMH had to bring on board a variety of stakeholders throughout Washtenaw county, who in turn had to amend their existing workflows.

In order to understand how their target population’s health information was stored and transferred using existing processes, WCCMH worked with Altarum Institute’s Michigan Center for Effective IT Adoption (M-CEITA) to conduct a workflow analysis at the program’s outset. Changing workflows is a delicate process even in traditional settings, and integrating an HIE into a correctional facility with no centralized location for patient data raises additional obstacles. This meant conducting the workflow analysis prior to implementation was critical to achieving buy-in from clinicians, law

enforcement, and all other involved stakeholders.

In addition to having to tailor each stakeholder’s workflow to account for integrating a new HIE, the electronic health records (EHRs) used by providers presented an additional obstacle. Since Washtenaw County’s providers used different EHRs from one another, WCCMH had to work with four different vendors whose software was in place at behavioral and physical health centers in the target region. Building on established partnerships and relationships meant that from the start, vendors understood the community, organizations, and systems in which they’d be working.

Specifically, WCCMH partnered with Great Lakes Health Connect to integrate the HIE, and with Correct Care Solutions to revise existing processes at Washtenaw’s corrections system. These dual efforts enabled more efficient storage and exchange of health information belonging to children and adolescents in the corrections system. Additionally, allowing electronic management of consents to exchange behavioral health information was key to establishing continuity of care within the corrections system.

Revisions to each stakeholder’s workflow along the care continuum allowed for a more centralized, fluid coordination of patient data, resulting in better identification of medication-seeking behaviors and individuals with duplicate prescriptions. These revisions directly resulted in more effective care coordination for this hard-to-reach population.

CCIP’s success exemplifies how technology can correct inefficiencies even in complex systems that involve multiple partners with potentially divergent interests. It also demonstrates certain technology fixes have built-in sustainability—fixing the system once pays dividends for years. This is especially relevant for underserved populations like incarcerated individuals, who might also see the greatest benefit from such a simple fix.

SIMPLE SCREENINGS FOR MATERNAL HEALTH

WAYNE STATE UNIVERSITY | 2017 BEHAVIORAL HEALTH

Examining how pregnant women use behavioral health services provides a telling glimpse into how barriers to care manifest. While financial or geographic obstacles often prevent patients from accessing resources, these aren’t the only factors. Research shows that individuals suffering from mental health or substance use disorders frequently avoid seeking services due to attitudinal barriers, such as public, perceived, and self-stigmatizing attitudes about seeking help.^{ix} This raises important questions about how to provide mental health services to vulnerable people, beyond simply providing access.

Wayne State University (WSU) provides an answer to these questions with their High Touch High Tech (HT2) initiative. HT2 uses a tablet-administered tool, the Mommy Checkup app, to screen expectant mothers for mental health and substance use-related risk. Patients in two rural prenatal clinics in Grayling and Alpena would go through the screening while in the waiting room prior to an appointment. Designed for easy uptake by clinics and intuitive use by patients, Mommy Checkup sends data directly to clinicians without any additional time spent in the clinic. Following prenatal checkups, providers can use the app to send text messages providing additional insight into a patient’s unique needs and encourage them to seek additional treatment if necessary.

About halfway through the funding period, HT2 has succeeded in increasing behavioral health service use among a population that was previously hesitant to seek it out. This success is attributable to a range of factors. First, Mommy Checkup is easily integrated into existing workflows at each clinic, thanks in part to the app’s simplicity and WSU’s decision to provide brief motivational information versus a complex intervention. Because it’s universally and proactively administered, the tool is reaching a high proportion of at-risk women, rather than only reaching those who self-identify or are otherwise flagged through less systematic means.

AN APP FOR HEALTHIER MOMS AND HEALTHIER BABIES, FROM DETROIT TO THE UPPER PENINSULA

Along with emphasizing ease-of-use for patients and providers, the implementation approach allowed clinic staff to take more direct ownership for its uptake and success. By administering the screening tool in the clinic waiting rooms, front desk staff had the opportunity to participate directly in care, allowing direct collaboration with clinicians and more effective integration of the technology into existing practices.

WSU’s success integrating Mommy Checkup was bolstered by the relatively small clinics they chose for the pilot, as smaller entities can be quicker to revise their workflows. However, the model does appeal to larger health systems, as evidenced by Munson Healthcare’s commitment to use Mommy Checkup in each of its prenatal clinics.

After seeing the project’s success and replicability, the Health Fund is providing additional funding to support regional expansion. Part of MDHHS’s efforts to reduce infant mortality, the expansion will bring HT2’s model into prenatal clinics throughout the Upper Peninsula and counties in Michigan’s thumb.

THEMES AND FINDINGS

Our analysis revealed four important lessons rooted in the successes and challenges faced by the Health Fund’s technology-based programs. The insight reflected in these four points is based on the constraints of the Health Fund’s funding cycles, which last a maximum of 3 years. In this context, we can examine how technology-based tools and approaches could be best applied both within that timeframe and as a component of a longer-term intervention.

THE MOST SUCCESSFUL INTERVENTIONS WERE NOT AS INTRICATE OR CUTTING-EDGE AS THEY WERE ADAPTABLE, ENABLING THEM TO ADDRESS COMPLEX PROBLEMS.

1. **TECHNOLOGY-BASED INTERVENTIONS AREN’T A CURE-ALL...**

On one hand, integrating technology in health settings provides the opportunity for more innovative and effective approaches to care. However, this potential can also lead those implementing them to misunderstand their application. Most often, this takes two forms: (1) health entities overestimate technology’s role in addressing a given issue, and (2) the technology itself is seen as a rigid tool that cannot be adapted as obstacles arise and changes to workflows occur.

These misconceptions create their own challenges, especially in contexts where technology has not been used at all or in a particular way prior to implementation. With these points in mind, two main parallels emerged among successful technologically-based interventions:

- A. Regardless of their category, programs that saw their various technologies as a tool rather than a ‘cure-all’ are less likely to rely on them excessively.
- B. Often the most successful interventions were not as intricate or cutting-edge as they were adaptable, enabling them to address complex problems. As a result, we consistently saw trade-offs between an intervention’s complexity and the extent to which it was adopted.

When an organization updates a decades-old process or brings in a promising new tool, it can feel like the change will be transformative. But technology’s effectiveness is not automatic; it requires traditional resources like staff training, maintenance, and a strategy. This hints at the root of the gap in time between technology’s development and when its benefits are realized. Maintaining a clear understanding of a technology-based approach, as well as a realistic perspective on how it fits into an intervention, play a large role in ensuring its success.

2. **...BUT TECHNOLOGY CAN BE A GAME-CHANGER WHEN APPLIED STRATEGICALLY**

While misconceptions about technology-based tools can hinder their effectiveness, these tools can have a transformative impact on healthcare. Realizing this impact requires providers and communities to understand the scope and capacity of the technology they seek to employ. Rather than thinking of technology generally as a problem-solver, the most successful projects used technology to respond to specific challenges where it made the most sense. Furthermore, they recognized that technology isn’t a substitute for or shortcut to all the traditional analog components of success: partnerships, planning, or patient-centered care.

For example, effectively using a tablet-based tool to screen for mental health risk hinges on understanding that the screening alone will not automatically yield profound insights into a patient’s health. Instead, the tool must be supplemented by other measures, such as working with clinicians and administrative staff who will be using it, the vendor who maintains the software for you, and the patients it is administered to.

This example highlights a key insight: simple models for incorporating new technology can be the most effective for addressing complex challenges, especially in the short term. At its core, the intervention is simply a screening tool which, when integrated into the workflow properly, supplements the care being delivered while shedding light on how that delivery may be improved.

Simple doesn’t necessarily mean easy, as revising existing workflows involving many disparate staff and processes is very difficult. It’s important to account for that difficulty in order to maximize a new technology’s potential impact on a given issue. In the example cited above, the screening tool’s effectiveness largely relies on how it is administered to

patients, as well as its design. This shows that anticipating necessary changes to an existing workflow during a tool or approach’s development can increase its chances of positively influencing the target population.

The complexity of a given challenge or health issue can obscure how simple the solution might be, especially when considering how transformative a new tool or approach is in many contexts. Of course, there are cases where the most effective approach is not necessarily straightforward. However, approaching technology-based solutions as an important part of a larger strategy, rather than the strategy itself, could be a critical step towards more effective care delivery.

3. **UNDERSTANDING DYNAMICS BETWEEN INVOLVED STAKEHOLDERS IS CRUCIAL**

The diversity of contexts, tools, and applications among Health Fund grantees doing technology-based work sheds light on the range of potential settings and populations it can impact. The staff and patient populations of health systems, schools, community-based clinics, and every entity in between have different needs, which sometimes conflict. Both the design of the program and the technology being used should account for these different audiences and the dynamics among them.

One consistent theme we observed was how new technology influenced existing workflows and, as a result, how relevant stakeholders interact and communicate. Having a plan for how technology can change existing processes within and between different groups does not guarantee its buy-in and uptake by individuals themselves. For example, if an organization seeks to implement a novel screening tool in a clinical setting, without the buy-in of doctors, nurses, and all other hospital staff, the intervention’s impact will be severely constrained. In other words, revising existing practices and workflows is a delicate process that requires deliberate, intentional approaches, both to the rollout of new technology and in the design of the technology itself.

THEMES AND FINDINGS

CONTINUED

This produced two main findings:

- A. Small clinics, organizations, and practices tended to be quicker to adopt and integrate new tools into existing processes.
- B. The project’s audience or “end user” included patients and clinicians but also all staff and stakeholders who would be expected to use or accommodate the technology, such as nurses and hospital administrative staff.

The implications of these findings can be interpreted in multiple ways. Fewer administrative obstacles might allow for quicker uptake of new approaches, or a smaller footprint might equate to fewer stakeholders to get on board. This is not to say that smooth integration of new technology into workflows is unattainable, or even unlikely, in larger organizations or health systems. However, awareness of a given intervention’s timeline relative to the dynamics between involved stakeholders is arguably as important as the tools being implemented.

With this in mind, Michigan possesses a robust set of resources to help organizations address these obstacles. For more information, links to the Michigan Health Information Technology (HIT) Commission’s 2017 annual report and the Michigan Health Information Network’s (MiHIN) Use Case Factory can be found in the Additional Resources section following this report’s conclusion.

4. TECHNOLOGY-BASED APPROACHES ADDRESS A WIDE VARIETY OF BARRIERS TO ACCESS

An individual’s access to care—where and when they need it—is affected by a wide range of barriers, from inefficiencies in the healthcare system to geography to provider shortages. Technological approaches allow providers to overcome some of these barriers. Whether streamlining patient data exchange between disparate caregiving entities, allowing patients to consult with a provider face-to-face using their computer, or connecting individuals with existing resources in their

communities, almost every application of technology narrows access gaps in some way.

This theme was reflected by almost every grantee included in this report. However, successful attempts to improve access using technology also highlight widespread inefficiencies. One telemedicine grantee noted that “[the] demand for telemedicine is evidence of a failure by the system to adequately reach patients.” This idea hints at an important lesson: technology-based approaches to health are tools (albeit very useful ones) that bridge gaps in access, rather than narrowing or eliminating them.

The causes of upstream obstacles that prevent individuals from obtaining the timely and appropriate care demand coordinated commitments from stakeholders within and outside of health. Individuals seeking mental health care in certain regions of Michigan need to travel hundreds of miles to see a specialist, and while we’ve shown that telemedicine bridges this gap, it does not address the root cause of why that approach is necessary in the first place.

This is not to understate technology’s impact on health to date or going forward. Rather, these barriers to access can be addressed today more cheaply and effectively than ever before thanks to innovative approaches discussed throughout this report. However, the Health Fund’s technology investments highlight wide ranging inefficiencies in Michigan’s care continuum, and it is important to maintain perspective on those—as well as what technology’s role can and should be in addressing them.

REPORT CONCLUSION

The Health Fund’s diverse investments in health technology throughout Michigan provide us with a unique perspective on the value of technology-based approaches. As previously mentioned, the lessons we’ve drawn are effected by the time-limited nature of our investments; our support lasts no longer than three years for each grantee included in this report. While this may appear to be a constraint on our perspective, instead it reinforces just how quickly technology-based approaches can yield significant outcomes when designed and implemented effectively.

Our analysis has shown that, even within short windows of time, technology-based programs can be adaptable, straightforward, and have significant positive impacts on health, so long as they are seen as tools rather than the solution itself. The gap between development of a technology-based approach and its integration remains an obstacle, though we’ve attempted to shed light on how it can be overcome. This hints at an important question: How might technology continue becoming integrated into Michigan’s health landscape?

One way is through the continued the development and integration of innovative mobile technology. Internet access is rapidly becoming less of an obstacle for populations where this was once the case. For example, between 2016 and 2018, statistics show that smartphone ownership reached 86% of adult Medicaid beneficiaries, a 15% rise.^x Additionally, the only source of internet connection for approximately 20% of Americans is via smartphone, something that disproportionately impacts individuals with lower incomes.^{xi} These trends in mobile technology’s integration into daily life hint at the potential for its continued growth as a platform to provide targeted health information directly to the populations that need it.

Another important shift is occurring in technology’s growing influence on health information storage and exchange. National regulations proposed in May of 2018 and February of 2019 have aimed to increase access to patient data by streamlining how it is stored, accessed, and exchanged by providers.^{xii} The technology needed to enable these changes exists, and these national policy commitments provide an opportunity for significant system-level changes in care delivery and coordination.

These two examples underscore this recurring theme: the development of a given tool or approach is only one step in its integration into the health system. Whether through national policies streamlining how patient data is exchanged, or in achieving buy-in from community members for a new mobile application, there are many steps between developing a technology-based intervention and realizing health improvements. To speed up the process, funders and health entities alike must take calculated risks and be willing to try innovative ideas.

The Health Fund is well-positioned to lead here—innovation and calculated risk-taking are central to our grantmaking. As a funder, we have a broad view of the moving parts: communities’ needs, emerging best practices, and the policy landscape. And as this report highlights, we’re already supporting creative solutions that use existing technology to improve care access, delivery, and coordination relatively rapidly.

Moving forward, we’ll continue to invest in technology-based projects with the potential for system-wide improvement. We’ll work with grant partners to ensure promising ideas are built on realistic assumptions and supported by thoughtful implementation strategies. Perhaps most importantly, we’ll direct our resources to collaborative efforts that account for the needs of both those who will use the technology, and the residents of Michigan who will ultimately benefit.

APPENDIX

- **Altarum Institute | Leveraging Technology to Improve Outcomes for Michigan’s Children in Foster Care; Breaking Down Barriers to Sharing Behavioral Health Information**
Ann Arbor, MI (Headquarters)
3520 Green Court, Suite 300
Ann Arbor, MI 48105
(734) 302-4600
- **Area Agency on Aging 1-B | dCare – Improving the Health of Care Managers**
Area Agency on Aging 1-B Central Office
29100 Northwestern Hwy., Suite 400
Southfield, MI 48034
(248) 357-2255
- **Battle Creek Community Foundation | T.E.C.H. – To Ensure They Come Home**
<https://www.bccfoundation.org/staff>
32 W Michigan Ave #1
Battle Creek, MI 49017
(296) 962-2181
- **Cadillac Area YMCA | Developing Habits of Healthy Activity**
info@cadillacareaymca.org
9845 Campus Drive
Cadillac, MI 49601
(231) 775-3369
- **Eastern Michigan University | Supporting the Health and Mental Health of Infants and Toddlers in Foster Care**
School of Social Work
317 Everett L. Marshall Building
Ypsilanti, MI 48197
(734) 487-0393
- **Fair Food Network | Innovating Technology and Expanding Geographies for Double-Up Healthy Food Incentives**
info@fairfoodnetwork.org
1250 North Main Street, North Suite
Ann Arbor, MI 48104
(734) 213-3999
- **Family Medical Center of Michigan | Using School-based Telemedicine to Improve Behavioral Health Outcomes in Rural Southeastern MI**
info@familymedical.org
Temperance Clinic
8765 Lewis Avenue
Temperance, MI 48182
(734) 654-2169
- **Food Bank Council | Defining the Needs of Michigan’s Emergency Response Network**
<https://www.fbcmich.org/contact/>
330 Marshall Street
Lansing, MI 48912
(517) 485-1202
- **Grand Rapids Community Foundation | Partnership for Improved Access to Care**
<https://www.grfoundation.org/connect>
185 Oakes Street SW
Grand Rapids, MI 49503
(616) 454-1751
- **Grand Traverse Regional Community Foundation | Supporting Families and Healthy Communities through Infant-Maternal Health**
info@gtrfc.org
223 Lake Avenue, Suite B
Traverse City, MI 49684
(231) 935-4066
- **Greater Flint Health Coalition | Commit to Fit Prescription for Health Program**
gfhc@flint.org
519 Saginaw Street #306
Flint, MI 48502
(810) 232-2228
- **Health Net of West Michigan | FitKids 360 Expansion and Infrastructure**
<https://healthnetwm.org/contact/>
620 Century Avenue SW, #210
Grand Rapids, MI 49503
(616) 726-8204
- **Judson Center | Establish Psychiatric Services through a Tele-Psychiatry Program in Wayne County, MI; Tele-Psych Implementation Technology Enhancement to Increase Access to Care of Foster and Adoptive Children in Macomb County, MI**
<https://www.judsoncenter.org/contact-us/>
2810 W Grand River Avenue, #700
Howell, MI 48843
(517) 545-0540
- **Michigan Breastfeeding Network | MIBFN Breastfeeding Community Leadership Training**
info@mibreastfeeding.org
503 Mall Ct
Lansing, MI 48912
(734) 365-6559
- **Michigan 2-1-1 | Michigan 2-1-1 Database Access Project**
info@uwmich.org
330 Marshall Street
Suite 211
Lansing, MI 48912
(517) 371-5860
- **Michigan Council for Maternal and Child Health | Michigan Model for Health Online**
info@mcmch.org
110 West Lenawee Street
Lansing, MI 48933
(517) 482-5807
- **Michigan Department of Health and Human Services | Integrated Service Delivery Portal; RE:Imagining Integrative Service Delivery; Statewide Perinatal Prevention & Response: Regional Perinatal Quality Collaboratives; Statewide Directory and Consumer Relationship Management (CRM) Tools for Care Coordinators**
<https://www.michigan.gov/>
320 South Walnut Street
Lansing, MI 48933
(517) 373-3740
- **Michigan Health Council | Geriatric Workforce Resource Center; Michigan Advance Care Planning**
<https://mhc.org/contact-us/>
2121 University Park Drive
Okemos, MI 48864
(517) 347-3332
- **Michigan Health Improvement Alliance | Healthy Communities**
admin@mihia.org
(989) 391-4211
- **Michigan Recreation and Parks Association | MercyMotion: An Integrated Approach to Public Health and Public Spaces**
<https://www.mparks.org/general/?type=CONTACT>
1213 Center Street b
Lansing, MI 488906
(517) 485-9888
- **MidMichigan Health | MidMichigan Health – A Technology-Based Innovation to Prevent Type 2 Diabetes**
<https://www.midmichigan.org/contact/index/>
4011 Orchard Drive
Midland, MI 48670
(989) 463-6699

APPENDIX

CONTINUED

- **Oakland Livingston Human Service Agency | Integrated Care Readiness Project**
Central Office
info@olhsa.org
196 Cesar Chavez Avenue
P.O. Box 430598
Pontiac, MI 48343-0598
(248) 209-2600
- **PACE Southeast Michigan | Remote Care Management Platform**
<http://www.pacesemi.org/contact-us>
24463 West 10 Mile Road
Southfield, MI 48033
(855) 445-4554
- **Carewell Services Southwest | Care Connection Health Intervention Program**
info@carewellservices.org
200 West Michigan Ave #102
Battle Creek, MI 49017
(269) 966-2450
- **Rethinking Dementia: Accelerating Change | mHealth Dementia Project**
<https://rethinkingdementiami.org/contact>
1551 Franklin Street SE
Grand Rapids, MI 49506
(616) 247-9630
- **Saginaw Valley State University | The GRACE Project: Gaining Recovery in Addiction for Community Elders**
7400 Bay Road
University Center, MI 48710
(989) 964-4000
- **St. John Providence | Mother Nurture Lactation College 2.0**
205 W Grand River Ave #200
Brighton, MI 48116
(866) 501-3627

- **The Regents of the University of Michigan | Healthy Start Engaged Father Program**
University of Michigan School of Social Work
1080 South University Avenue
Ann Arbor, MI 48109-1106
(734) 764-3309
- **Home-Based Team Transitional Telecare to Optimize Mobility and Physical Activity in Recently Hospitalized Older Veterans**
East Ann Arbor Health and Geriatrics Center Floor 1
4260 Plymouth Rd
Ann Arbor, MI 48109
(734) 764-6831
- **TRAILS to Behavioral Health**
University of Michigan Department of Psychiatry
1500 E Medical Center Dr
Ann Arbor, MI 48109
(734) 936-4960
- **Washtenaw County Community Mental Health | Correctional Care Integration Project**
555 Towner St
Ypsilanti, MI 48198
(734) 544-3000
- **Upper Peninsula Health Care Solutions | Make a Plan, Share a Plan**
<https://www.uphcs.org/contact-us/>
853 West Washington Street
Marquette, MI 49855
(906) 225-3146
(313) 577-1466

- **Wayne State University | BusMe: An E-Health Platform to Reduce Pediatric Health Disparities by Improving Public Transportation Access in Detroit; Real Time Nursing Home Quality Control; High Touch – High Tech (HT2)**
540 East Canfield Street
Detroit, MI 48201
(313) 577-1466
- **Western Michigan University | Michigan Crisis Intervention System (MI-CIS)**
<http://med.wmich.edu/node/341>
1000 Oakland Drive
Kalamazoo, MI 49008-8000
(269) 337-4400

ADDITIONAL RESOURCES & REFERENCES

- **Michigan Health Information Network (MiHIN) Use Case Factory:**
<https://mihin.org/use-case-factory/>
- **Michigan Health Information Technology Commission 2017 Annual Report:**
https://www.michigan.gov/documents/mdhhs/2017_Annual_Report_-_Final_Draft_616989_7.pdf

ⁱ <https://www.universityaffairs.ca/opinion/in-my-opinion/closing-17-year-gap-scientific-evidence-patient-care/>

ⁱⁱ <https://bhw.hrsa.gov/shortage-designation/hpsas>

^{iv} <https://www.fns.usda.gov/pressrelease/2013/fns-001113>

^v https://www.michiganradio.org/post/study-more-40000-michigan-teens-and-kids-dont-get-needed-mental-health-treatment?fbclid=IwAR2GWFvTFbHp_MnAOAg7MYKCKnoN8fgwEyXls24NV_ON1srAAw1E8dnSnvQ

^{vi} Smiley, M.; Young, D.; Udow-Phillips, M.; Riba, M.; Traylor, J. (2013, December 3). Access to Mental Health Care in Michigan. Accessed from: <https://www.chrt.org/publication/access-mental-health-care-michigan/>

^{vii} Cornwell EY, Waite LJ. Social disconnectedness, perceived isolation, and health among older adults. J Health Soc Behav. 2009;50(1):31-48.

^{viii} <https://mcac.memberclicks.net/assets/docs/State%20of%20Michigan%20Caregiver%20Report.pdf> (State Michigan Caregiver Report, 9/2018)

^{ix} Gulliver A, Griffiths KM, Christensen H. Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. BMC Psychiatry. 2010;10:113. Published 2010 Dec 30. doi:10.1186/1471-244X-10-113

^x <https://www2.deloitte.com/insights/us/en/industry/public-sector/mobile-health-care-app-features-for-patients.html>

^{xi} Ibid.



📍 330 MARSHALL STREET
LANSING, MI 48912

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