Digital Health Sandbox Challenge
Innovations to Support Advancing Health Equity in Massachusetts

The Massachusetts eHealth Institute (MeHI) seeks startups and entrepreneurs who are developing and validating digital health-based solutions that support the goals of the Healey-Driscoll Administration's Advancing Health Equity in Massachusetts (AHEM) Initiative to compete in the third Massachusetts Digital Health Sandbox Challenge.

This Challenge is divided into four tracks, all aimed at meeting AHEM's goals of eliminating racial, economic, and regional disparities in health outcomes:

1. Addressing Social Determinants of Health (SDOH) for Cardiometabolic Diseases;
2. Artificial Intelligence (AI) for Health Equity;
3. Maternal and Infant Health; and
4. Medicaid Pilot Track (MPT).

Three companies will be selected as finalists to compete in each of the four tracks. Finalists in the AI for Health Equity, SDOH for Cardiometabolic Diseases, and Maternal and Infant Health tracks will compete for the opportunity to complete validation projects at one of MeHI's Digital Health Sandboxes, which are valued at a total of $150,000. Finalists in the MPT will compete for the opportunity to conduct a pilot of their solution designed and executed by one of MeHI's Digital Heatlh Sandboxes, UMass Chan Medical School (UMCMS), with members of Community Care Cooperative (C3), a Primary Care Accountable Care Organization (ACO) operating in Massachusetts. The MPT pilot is valued at $100,000. All grant funding is provided to the Digital Health Sandboxes or ACO to conduct the validation projects or pilots. **No funding is awarded to the digital health companies.** More information about each of the tracks is included on page five.

While Massachusetts consistently ranks as the top state for health care,[1] significant racial and socioeconomic disparities remain. Across the country, a person's zip code has a larger impact on their health outcomes than their genetic code. A 2023 report from the Boston Public Health Commission found that the life expectancy gap between two Boston neighborhoods separated by only two miles, Roxbury and Back Bay, is 23 years.[2] According to a December 2021 report from the Blue Cross Blue Shield of Massachusetts Foundation, Hispanic people in Massachusetts were more than twice as likely as White people in Massachusetts to report "fair or poor" health.[3] When it comes to maternal health, a 2023 report from the Massachusetts Department of Public Health found that the rates of severe maternal morbidity (SMM) among Black birthing people were consistently higher than the rates among White non-Hispanic birthing people. The inequities are also worsening, with the gap in SMM between those groups increasing by 25% between 2011 and 2020.[4]

Health inequities also have a significantly negative impact on the economy of Massachusetts. According to a 2023 report from the Blue Cross Blue Shield of Massachusetts Foundation produced in collaboration with the Health Equity Compact, the economic burden due to health inequities experienced by people of color in Massachusetts adds up to nearly $6 billion annually. About one-

[1] https://www.commonwealthfund.org/publications/scorecard/2023/jun/2023-scorecard-state-health-system-performance

[2] https://www.boston.gov/sites/default/files/file/2023/05/HoB%20Exec%20Summary%20-%20First%20Five%20Reports%20(5).pdf

[3] https://www.bluecrossmafoundation.org/sites/g/files/csphws2101/files/2024-07/Health_Equity_Primer_Nov2021_v08_FINAL%207.2.24.pdf

[4] https://www.mass.gov/doc/an-assessment-of-severe-maternal-morbidity-in-massachusetts-2011-2020/download

quarter of the burden is due to avoidable health care spending, another quarter is due to lost labor productivity, and just over half is associated with the cost of premature death.[5] These staggering disparities led the Executive Office of Health and Human Services (EOHHS) to launch AHEM, a place-based initiative aimed at “eliminating racial, economic, and regional disparities in health outcomes.” The initiative is starting with two key focuses: maternal health and social determinants of health for cardiometabolic diseases. In addition, EOHHS has identified ten areas of the state with the most extreme health disparities to pilot innovative strategies to serve as a starting point for greater change.

There are many factors leading to these persistent health disparities, including the impacts of the historical and ongoing structural racism in not only our health care system but also the social systems that impact health, such as housing, education, employment, and criminal justice. Just as the causes of these health disparities are varied, the solutions that can potentially address them will need to be too. Digital health innovations can play a role in lowering barriers to accessing health care, providing culturally competent care, connecting patients to wrap-around services and supports, reducing bias in evaluating test results, and more. MeHI launched this challenge to build on the work of AHEM and to identify digital health products that can be part of the answer to eliminating disparities in health outcomes and reducing the number of lives lost to preventable causes. We take a broad view in our definition of digital health and are looking for solutions at the intersection of health care and technology. Applicants must propose a new solution that is not yet widely commercially available.

[5] https://www.bluecrossmafoundation.org/sites/g/files/csphws2101/files/2023-06/Econ_Cost_Inequities_ExecSumm_FINAL_0.pdf

Program Overview

The Massachusetts Digital Health Sandbox Challenge Program is designed to accelerate the development of digital health solutions that address key health care challenges in Massachusetts. The program is funded and administered by the Massachusetts eHealth Institute (MeHI) at the Massachusetts Technology Collaborative.

MeHI puts out an annual call for applications to source, support, and validate solutions in defined areas. The first two challenges were *Innovations to Support Healthy Aging* and *Innovations to Support Women+ Health*. Through these two challenges, 17 companies from across the nation were provided access to cutting-edge research institutions, industry leaders, and funding opportunities. This third Challenge seeks solutions to achieve the goals of the Advancing Health Equity in Massachusetts (AHEM) initiative.

Applicants from across the country can apply. A group of external expert reviewers will evaluate applicants and recommend three companies to participate in the program in each of the four tracks mentioned on page one, for a total of twelve companies. Reviewers will evaluate applications on the proposed solution’s uniqueness in the market, potential commercial viability, alignment with their selected track focus area, and ability to support the goals of the AHEM initiative. Selected companies will participate in MeHI’s Mass Digital Health Connects, a three-month series of informative and interactive virtual workshops featuring prominent voices from across the ecosystem, including venture capitalists, state and federal policymakers, and leading researchers. Workshops include topics like secure clinical data exchange, mitigating bias and responsibly adopting AI, conversations with a venture capitalist, working with payers, information about Massachusetts Department of Public Health programs for children and families, and more. Learn more about Mass Digital Health Connects here.

During this three-month program, participants in the AI for Health Equity, SDOH for Cardiometabolic Diseases, and Maternal and Infant Health tracks, or the “Sandbox Tracks,” will be matched with Sandboxes, cutting-edge research and development organizations from the Massachusetts Digital Health Sandbox Network. The Sandboxes will assist participants in scoping projects to test and validate their solutions to help bring them to market faster. MeHI will support participants in preparing detailed project plans outlining how the award funding would be used to complete the scoped Sandbox project. Participants in the Medicaid Pilot Track (MPT) will meet with representatives of the Community Care Cooperative (C3) Primary Care ACO and the UMass Chan Medical School (UMCMS) Sandbox to better understand their goals for the Medicaid pilot and to discuss how their solution can meet those goals.

The program will culminate in an in-person, judged competition in May 2025 where participants in the Sandbox Tracks will pitch both their product and their proposed Sandbox project. Expert judges will recommend to MeHI one winner per Sandbox Track. Each winner’s Sandbox project will be completed by their Sandbox partner with input and participation from the company. The projects are valued at **$50,000** each and the funding for each project will be paid directly to the Sandbox and **must be used to cover the Sandbox partner’s fees**. This level of funding can typically cover user experience testing, access to cutting-edge lab facilities and subject matter

experts, or a small pilot in a health care setting. **No funding will be provided directly to the winners of the Sandbox Tracks.**

Participants in the MPT will participate in the same in-person event and pitch their product to expert judges including representatives from UMCMS and C3. The judges will recommend one winner in the MPT to MeHI. That winner will work with UMCMS to pilot their solution with members of the C3 Primary Care ACO plan. Funding for the pilot will be paid directly from MeHI to UMCMS and C3 to cover their fees for conducting the pilot. **No funding will be provided directly to the MPT winner.**

Challenge Areas and Solutions Sought

Applicants may apply to one of the following four tracks in the AHEM Challenge. These tracks cover key challenge areas in the broader AHEM Initiative that we believe can be positively affected by digital health solutions. Each track includes examples of challenges and opportunities within the focus area, but these are not exhaustive lists, and any applicants with solutions that support one of the tracks are encouraged to apply. Applicants may only apply for one track and should select the track that best aligns with their solution.

Sandbox Track One: Addressing Social Determinants Of Health (SDOH) for Cardiometabolic Diseases

SDOH are the environmental conditions that affect one's health. The U.S. Department of Health and Human Services groups these into five major domains: economic stability; education access and quality; health care access and quality; neighborhood and built environment; and social and community context.[6] These social drivers play a critical role in cardiometabolic health, and many of them disproportionately impact communities of color. Digital health solutions can help address the root causes of these disparities, improve health outcomes, and reduce premature deaths. Key opportunities include:

- Improving access to testing, diagnostics, and care for all;
- Improving connections for patients to services that address the increased risk of cardiometabolic issues associated with food insecurity, unclean environment, and unequal access to health care;
- Providing solutions for cardiometabolic diseases that are tailored to underrepresented communities.

Sandbox Track Two: AI for Health Equity

AI-powered digital health solutions can address bias in testing, diagnosis, and delivery of care and improve access to high-quality health care in underserved communities. However, AI solutions must be properly trained, vetted, and updated to ensure they are not perpetuating existing biases in the health care delivery system. Key opportunities include:

- Expanding access to cutting-edge medical interventions in chronically underserved communities, including those that are economically disadvantaged and communities of color;
- Alleviating racial and gender bias in the health care delivery system;
- Increasing the capacity of the health care workforce to improve access to high-quality, personalized care.

Sandbox Track Three: Maternal and Infant Health

Over the past ten years, the rate of severe maternal morbidity in Massachusetts has nearly doubled. More alarmingly, these complications have been increasingly concentrated among Black birthing people. Remaining healthy during pregnancy and after birth positively affects long-term

[6] https://health.gov/healthypeople/priority-areas/social-determinants-health

health outcomes for both the birthing parent and their child. Digital health solutions can be a critical tool in improving maternal and infant health outcomes. Key opportunities include:

- Improving access to high-quality, culturally competent prenatal and postpartum care to help reduce the rate of severe maternal health complications for all birthing people;
- Decreasing the rate of maternal death, of which 84% of cases are preventable;
- Improving care postpartum to ensure new mothers receive the support they need;
- Addressing inequities and maternal complications for women of color, who are two times

Track Four: Medicaid Pilot Track

This track is distinct from the three Sandbox tracks. Applicants will compete for the opportunity to partner with Community Care Cooperative (C3) and UMass Chan Medical School (UMCMS) to conduct a pilot focused on reducing cardiometabolic and cardiopulmonary-related readmissions or unplanned admissions. C3 is a primary care accountable care organization in Massachusetts founded in 2016 by Federally Qualified Health Centers (FQHCs). They are governed by 23 member FQHCs and serve 192,000 MassHealth members across the state. C3 is Massachusetts' largest Medicaid ACO and has ACO contracts for Medicare and commercial lines of business as well.

Through this pilot, C3 is specifically looking to identify digital health solutions for asthma, COPD, and/or heart failure. Solutions do not need to address all three conditions. These diseases are both costly and deadly, and there are significant inequities in the prevalence and outcomes among different economic groups in Massachusetts. Cardiovascular disease was the second leading cause of death for all residents in Massachusetts in 2014, but adults in Massachusetts with less than $25,000 per year in household income reported being diagnosed with coronary artery disease or angina at over three times the rate of residents with more than $75,000 in household income.[7] Similarly, 15.9% of adults with COPD in Massachusetts have a household income of less than $15,000, compared with 5% of adults without COPD.[8] Costs for these diseases are also rising. For example, the cost of asthma related hospitalizations in Massachusetts rose to $104 million in 2013, increasing 82.5% from 2002. During this time, public insurance was the expected payer for 66.6% of all asthma related hospitalizations.[9]

C3 is looking for digital health solutions to help them support their members with asthma, COPD, and/or heart failure to help reduce the prevalence of these diseases and the outsized impact they have on FQHC patients, many of whom experience co-morbidities, complex social needs, and are from historically underserved communities. Solutions should offer patients personalized digital health tools and services, such as clinical support, medication adherence, and connected devices, to aid disease management and rehabilitation, hence improving health outcomes and quality of life. C3's member FQHCs use several electronic health records, with Epic, Nextgen, and Athena being the most common. They are looking for a solution that is straightforward to implement and easy to adopt by both care teams and patients in their FQHC population. A single customizable

[7] https://www.mass.gov/info-details/chronic-disease-hospitalization-data
[8] https://www.lung.org/getmedia/f10c9ddc-a946-4d0f-8c2f-840ed92e0533/2023-COPD-State-Briefs-Massachusetts.pdf
[9] https://www.mass.gov/info-details/statistics-about-asthma

platform is preferred though interoperability capabilities can be discussed.

Solutions to the challenge areas in all four tracks may include the following, but all applicants with relevant solutions are encouraged to apply:

- Remote monitoring devices
- Wearable tech solutions (e.g. biometric devices and sensors)
- Ambient intelligence
- Mental and behavioral health platforms
- Therapeutic platforms
- Telehealth solutions
- Care coordination tools
- Assistive technology devices
- Virtual reality (VR) / Augmented Reality (AR) tools
- Mobile applications
- Virtual programming and services

Benefits to Participants

While only the top solution in each track of this Challenge will receive grant funding to complete their Sandbox projects, all participants will benefit from the program. Benefits include:

- Connecting with key partners in the Massachusetts digital health ecosystem through Mass Digital Health Connects
    - Understand the digital health funding landscape in Massachusetts
    - Learn about and connect with leaders in key industries
    - Hear from federal and state policymakers on fundamental issues and innovation priorities
    - Learn about cybersecurity and legal considerations for digital health startups
    - Hear from experts about how to navigate and work with health systems and payers
    - Gain an understanding of other programs and resources in Massachusetts that are aimed at supporting digital health startups
    - Learn more about Mass Digital Health Connects here

- Accelerate time from R&D to production
    - Benefit from cohort learning
    - Work with experts to assess your testing needs
    - Meet with Sandboxes to understand the research and testing opportunities
    - Partner with a Sandbox to scope a detailed validation project

- Gain Funding Access
    - Sandbox validation projects valued at $50,000 each for the winner of each Sandbox Track
    - A pilot opportunity with UMCMS and C3 valued at $100,000 for the winner of the Medicaid Pilot Track
    - Be prepared for investor meetings

Timeline

RFA Release: Wednesday, October 23, 2024
Information Session/Launch Event: Wednesday, October 30, 2024
Early Application deadline: Friday, November 22, 2024
Final Application deadline: Thursday, December 19, 2024
Finalists selected: Friday, January 24, 2025

Kickoff meeting: Friday, February 7, 2024
Mass Digital Health Connects Speaker Series: February - May 2024
Pitch Prep: April – May 2024
Final Pitch Event: Mid to late May; date to be finalized

The kickoff meeting and Mass Digital Health Connects will be virtual events hosted over Zoom. The final pitch event will be an in-person event in Massachusetts. All finalists must be prepared to attend the event in person. The date for the final event is subject to finalization.

Early Application Opportunity: Applications submitted by midnight on November 22, 2024, will be reviewed by MassTech staff and will receive initial feedback by December 12, 2024. Early applicants may incorporate the feedback and resubmit their application by the final deadline of December 19, 2024. **Please note this opportunity is applicable only to applications received by midnight on November 22, 2024. Those received after November 22, 2024, will be reviewed through the normal application process.**

Eligibility

- Applicants must propose a new solution that is not yet widely commercially available.
- Applicants do not need to meet a minimum requirement of revenue or investment to participate in the program, however, this program is aimed at companies that have at least a minimum viable product that is ready to be validated with a Sandbox organization. Companies that have participated in an accelerator program previously will receive preference.
- Applicants may be located anywhere in the US. MeHI has set a goal of 50% of the participating companies having a presence in Massachusetts.
- Mass Digital Health Connects will be virtual, however, participants must be willing to participate in a live pitch event at the end of the program. The pitch event will take place in Massachusetts in May 2025.
- Participants must agree to participate in annual follow-up surveys for at least five years after the end of the program. The online survey will ask about company metrics, including, but not limited to:
    - Number of jobs created at your company
    - Number of jobs at your company based in Massachusetts
    - Number of new customers gained
    - Number of new patents, copyrights, or trademarks obtained
    - Amount of capital and non-dilutive funding raised
    - In-kind funding and resources provided to support your Sandbox project for companies selected as Challenge winners
    - Diversity of your board members and/or executive team

How to Apply

Click here to apply

For more information visit: mehi.masstech.org/ahem

Contact: Ben Stevens, Program Associate: stevens@masstech.org; 617.371.3999 X212

Terms

Applicants are cautioned to read this application carefully and to conform to its requirements. Failure to comply with the requirements may serve as grounds for rejection of an application.

Any and all responses, applications, data, materials, information and documentation submitted to MassTech in response to this application shall become MassTech’s property and shall be subject to public disclosure. As a public entity, MassTech is subject to the Massachusetts Public Records Law (set forth at Massachusetts General Laws Chapter 66). There are very limited and narrow exceptions to disclosure under the Public Records Law. If an applicant wishes to have MassTech treat certain information or documentation as confidential, the applicant must submit a written request to MassTech’s General Counsel before submitting the materials. The request must precisely identify the information and/or documentation that is the subject of the request and provide a detailed explanation supporting the application of the statutory exemption(s) from the public records cited by the Respondent. If the General Counsel approves the request, the applicant shall clearly label the relevant information and/or documentation as “CONFIDENTIAL” in the application. Any statements in an application reserving any confidentiality or privacy rights that is inconsistent with these requirements and procedures will be disregarded.

This application, as may be amended from time to time by MassTech, does not commit MassTech to select any applicant, award any contracts, or pay any costs incurred in submitting this application. MassTech reserves the right, in its sole discretion, to withdraw the application, to engage in preliminary discussions with prospective applicants, to accept or reject any or all applications received, to request supplemental or clarifying information, to negotiate with any or all qualified applicants, and to request modifications to applications in accordance with negotiations.

MassTech may provide reasonable accommodations, including the provision of materials in an alternative format, for applicants with disabilities or other hardships. Applicants requiring accommodations shall submit requests in writing, with supporting documentation justifying the accommodations, to the Program Associate. MassTech reserves the right to grant or reject any request for accommodations.

About the Massachusetts eHealth Institute at the Massachusetts Technology Collaborative

The MassTech Collaborative is an economic development agency that strengthens the competitiveness of the tech and innovation economy by driving strategic investments, partnerships, and insights that harness the talent of Massachusetts. MeHI is a division of MassTech and the Commonwealth’s entity for health care innovation, technology, and competitiveness. MeHI partners with industry, government, and health care organizations to support the Massachusetts Digital Health Initiative. MeHI also helps all the Commonwealth’s providers harness the benefits of electronic health records and the Mass HIway, the statewide health information exchange. For more information, please visit https://mehi.masstech.org and follow @MassEHealth.

About the Massachusetts Digital Health Sandbox Network

The Digital Health Sandbox Network and Grant Program was launched in 2019 and is administered by the Massachusetts eHealth Institute at MassTech. The program is designed to support digital health companies in their product development and expand the user base for cutting-edge research and development facilities. There are currently twelve Sandboxes in the Network offering a variety of real-world and simulated environments, state-of-the-art equipment, subject matter expertise, and consulting services to digital health companies to support their clinical, technical, and user product validation.