



**Health Information Technology Council
Report to the Massachusetts Legislature**

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by the Health Information Technology Council

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EXECUTIVE SUMMARY

The Massachusetts Health Information Highway ([Mass HIway](#)) is a health information exchange program within the Commonwealth of Massachusetts's Executive Office of Health and Human Services (EOHHS) and is advised by the Health Information Technology (HIT) Council. The HIT Council is composed of consumer, provider, legal, policy, and technology stakeholders.

The Mass HIway's main objective is to promote and coordinate health information exchange (HIE) throughout Massachusetts. To achieve this, the Mass HIway utilizes various policy and technical strategies, offering services and resources to support healthcare providers and stakeholders in leveraging HIE. The Mass HIway has over 600 participants and processes over 450 million transactions per year which enables public health reporting, COVID-19 queries, provider-to-provider exchanges, and quality data exchanges.

Below are the Mass HIway program activity highlights for 2023:

- Mass HIway Operations: In 2023, the Mass HIway advanced its infrastructure for improved public health reporting and provider engagement, supporting over 600 organizations with Direct Messaging services for seamless health data exchange. This underscores the Mass HIway's commitment to enhancing healthcare coordination and quality across Massachusetts.
- HIE Connections & Utilization: The Mass HIway processed over 450 million message transactions in 2023, predominantly for public health reporting, including substantial volumes for Massachusetts Immunization Information System (MIIS) and Syndromic Surveillance reporting. This also includes over 5 million provider-to-provider messages, illustrating a robust utilization of the HIE for public health and care coordination.
- Clinical Gateway & Technical Updates: The Mass HIway maintained its Clinical Gateway, enhancing connections to seven public health registries, increasing adoption and use of new APIs, demonstrating strides toward improving health data interoperability and real-time access.
- Provider Engagement & Provider Directory Updates: The report highlights the addition of new Direct Messaging connections, significant efforts to update the Provider Directory, and proactive outreach to ensure accurate and up-to-date provider listings, enhancing care coordination capabilities.

- Event Notification Service Framework: The Statewide Event Notification Service Framework saw increased ADT notifications, emphasizing the Mass HIway's role in facilitating timely health event notifications across care settings, improving care delivery and coordination.
- Federal Developments & Compliance: The Mass HIway aligns with federal health IT initiatives and rules, particularly focusing on interoperability, patient data access, and compliance with the Information Blocking rule, highlighting its commitment to national health information exchange standards.
- In-flight Initiatives: The report outlines Mass HIway support for ongoing EOHHS initiatives like the Behavioral Health Treatment and Referral Platform and direct oversight of the development of an ePOLST Registry, showcasing efforts to support care coordination and patient preferences for end-of-life care.

EOHHS has a multi-disciplinary and dedicated team to manage the policy, business, operational and strategic direction of the Mass HIway and other technology programming to support EOHHS objectives. EOHHS currently utilizes a combination of staff and vendor contracts to operate and maintain the Mass HIway programs and Clinical Gateway services.

EOHHS and the Mass HIway would like to acknowledge our partners, Orion Health and the Massachusetts eHealth Institute (MeHI), for their valuable contributions and efforts to support the Mass HIway operations and other EOHHS initiatives.

A. INTRODUCTION

Pursuant to M.G.L. c. 118I, the Massachusetts Legislature authorized the Executive Office of Health and Human Services (EOHHS) to coordinate and promote the development of a statewide health information exchange (HIE). EOHHS created the Massachusetts Health Information Highway (Mass HIway) program to embody those HIE coordination and promotion efforts. The same enabling statute also created the Health Information Technology Council (HIT Council) to serve as an advisory body to EOHHS and the Mass HIway program.

This HIT Council Report to the Massachusetts Legislature fulfills the statutory requirement under M.G.L. Chapter 118I, Section 15, for the HIT Council to file an annual report that: (a) describes the activities of the HIT Council; and (b) describes the progress made in developing statewide health information exchange and recommending legislative action, if deemed appropriate.

This report provides an update on notable accomplishments and activities of the HIT Council related to the state's HIE that occurred between January 1, 2023, and December 31, 2023. This report follows the HIT Council's previous report, which covered activities through December 31, 2022.

Under the advisement of the HIT Council, the Mass HIway promotes the adoption of HIE through a variety of policy and technical levers. The Mass HIway's activities aim to increase the Commonwealth's adoption of health information exchange and technology to improve care coordination, quality, patient satisfaction, and public health reporting, while containing costs. Currently, it operates a [Direct Messaging](#) network (HIway Direct Messaging) and [Provider Directory](#) to enable the exchange of vital health data electronically in a secure and seamless fashion, regardless of differences in affiliation, location, or technology across users. The Mass HIway operates a Clinical Gateway designed to accept and transform [Public Health Reporting](#) data submitted by providers to seven (7) of the state's public health registries. Additionally, the Mass HIway facilitates a [Statewide Event Notification Service \(ENS\) Framework](#), leveraging existing market-based solutions to deliver admit, discharge and transfer notifications to providers throughout the Commonwealth.

B. MASS HIWAY OPERATIONS

In 2023, the Mass HIway continued to enhance the technical infrastructure to improve public health reporting access and data processing and various engagement activities to address provider health information exchange needs and improve utilization. The Mass HIway maintained critical operations and continued to monitor and support connections, enhance services and improve programs, such as the Statewide ENS Framework.

B.1 HIE CONNECTIONS

Who is using the Mass HIway?

The Mass HIway continues to provide Direct Messaging services to providers of all sizes, types and capabilities across the care continuum. Currently, there are over 600 organizations in the Commonwealth using the Mass HIway for public health and care coordination exchanges.

The Mass HIway Direct Messaging service enables the directed “push” exchange of clinical data between parties for care coordination, case management, quality improvement and public health reporting. Direct Messaging facilitates a secure and reliable exchange of patient health information from one provider to another provider or healthcare entity.

Existing use cases include the following:

- Exchange of a referral from a primary care provider to a specialist.
- Exchange of a clinical summary record between facilities including medication lists, visit notes, treatment plans and other data critical to care coordination and case management.
- Discharge summaries transmitted to nursing homes and skilled nursing facilities upon patient release from the hospital.
- Public Health data exchanges and reporting with state registries.

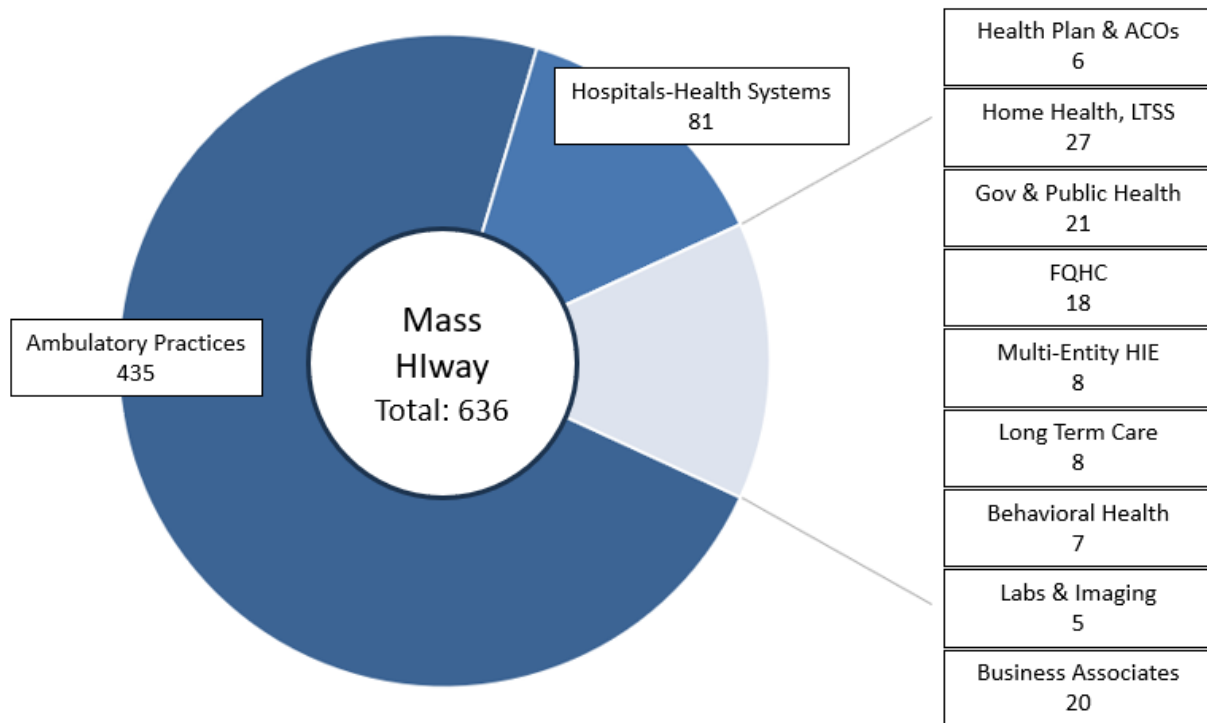
Direct Messaging remains a fundamental method for securely sharing information and a reliable alternative to faxing or using more complex and costly interfaces. For context, approximately 570,000 provider-to-provider care coordination transactions were conducted through the Mass HIway in December 2023 alone. Direct Messaging is also an integral component of every certified EHR system.

While APIs and FHIR have the potential to replace some workflows currently supported by Direct Messaging, a “mixed” environment is expected to persist for some time, where Direct

Messaging remains a viable alternative to fax and a primary delivery option for transitions of care, referrals and event notifications. Directories will play a crucial role in identifying endpoint exchange preferences and capabilities. Since Direct Messaging is expected to remain a predominant mode of data transport, the Mass Hlway is committed to offering Direct Messaging services as a secure and cost-effective option for health information exchange.

The Mass Hlway is utilized by the largest hospitals and health systems in the Commonwealth, yet it notably serves a significant number of smaller provider organizations. Over 55% of the connected organizations are ambulatory practices with fewer than ten licensed providers, alongside 18 Federally Qualified Health Centers (FQHCs) and 27 Home Health, Long-term Services, and Supports agencies. This diversity underscores the Mass Hlway's crucial role in supporting smaller provider organizations across the Commonwealth, affirming its value in facilitating comprehensive care coordination and information exchange.

Figure-1 Mass Hlway Participant Organizations



B.2 HIE UTILIZATION DATA

Why are providers using the Mass Hlway?

The Mass Hlway processed more than 450 million message transactions in 2023. A vast majority of those messages were for public health reporting purposes, with over 288 million for the Massachusetts Immunization Information System (MIIS) and over 150 million messages dedicated to Syndromic Surveillance reporting.

Figure-2 HIE Utilization-Use Cases: 2023 Transactions

HIE Use Case	2023 Transactions
Public Health Reporting	442,337,449
Massachusetts Immunization Information System (MIIS)	288,381,756
Syndromic Surveillance (Syndromic)	152,874,980
Electronic Case Reporting (eCR)	456,862
Intake Enrollment and Assessment Transfer Service (IEATS) for Opioid Treatment Program (OTP)	424,182
Massachusetts Cancer Registry (MCR)	66,662
Children’s Behavioral Health Initiative (CBHI)	58,279
Electronic Lab Reporting (ELR)	55,888
Childhood Lead Poisoning Prevention Program (CLPPP) and the Occupational Lead Poisoning Program (Adult Lead)	18,840
Care Coordination Exchange	5,829,059
Provider to Provider Exchanges	5,829,059
Quality Data Exchange	2,550,611
Provider to Payer Exchanges	2,550,611
Grand Total	450,717,119

Figure-3 MIIS & Syndromic Monthly Volume - 2023

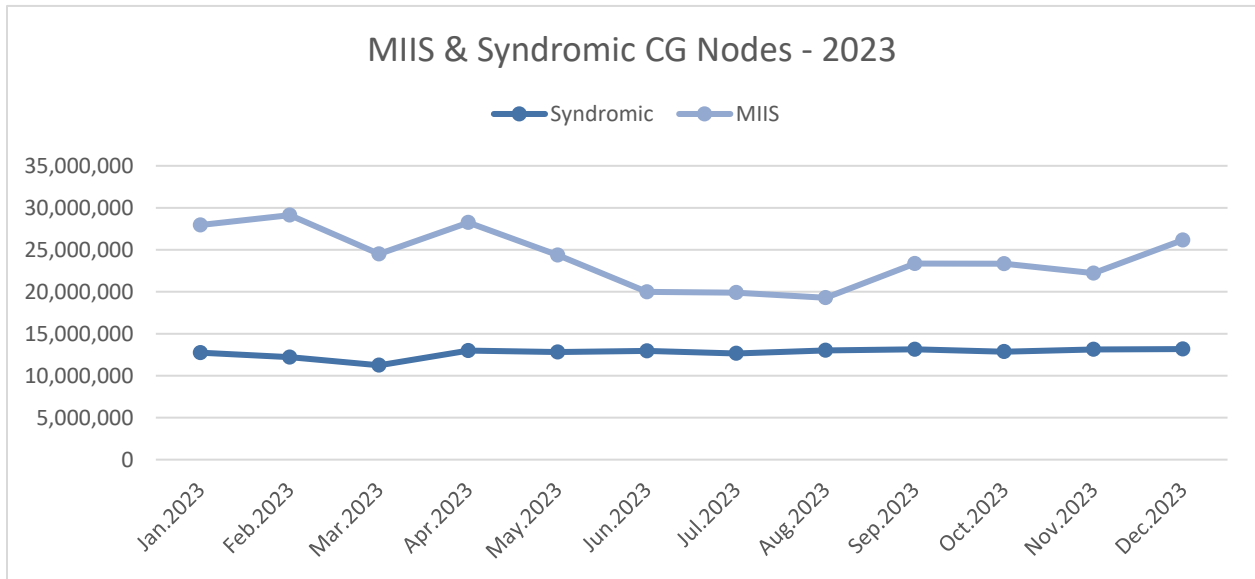
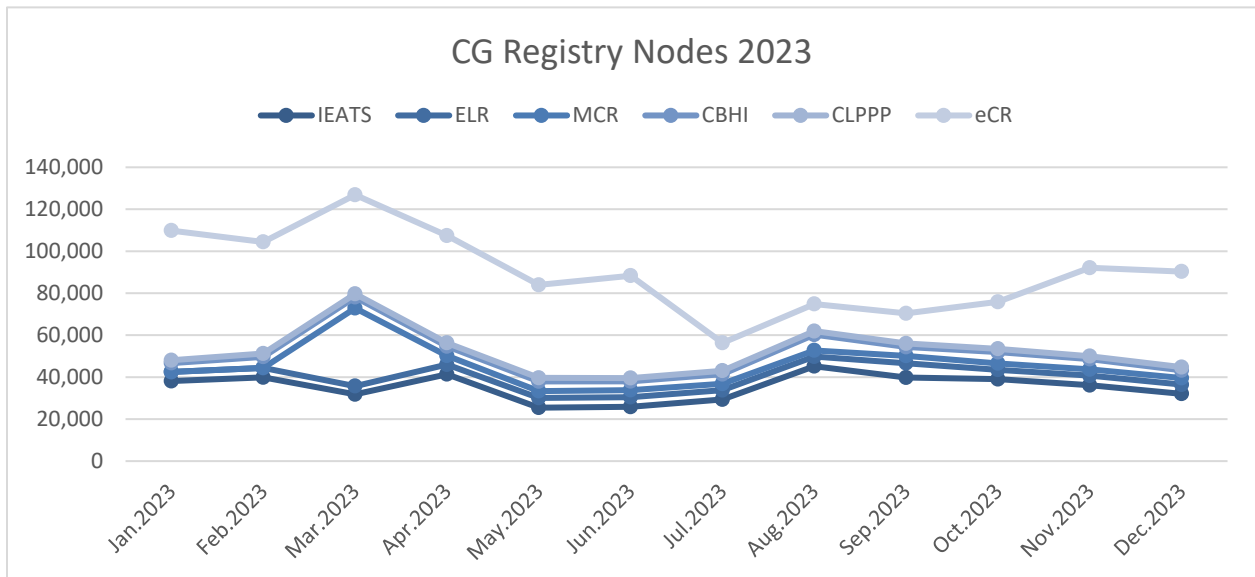


Figure-4 CG Registry Nodes Monthly Volume - 2023

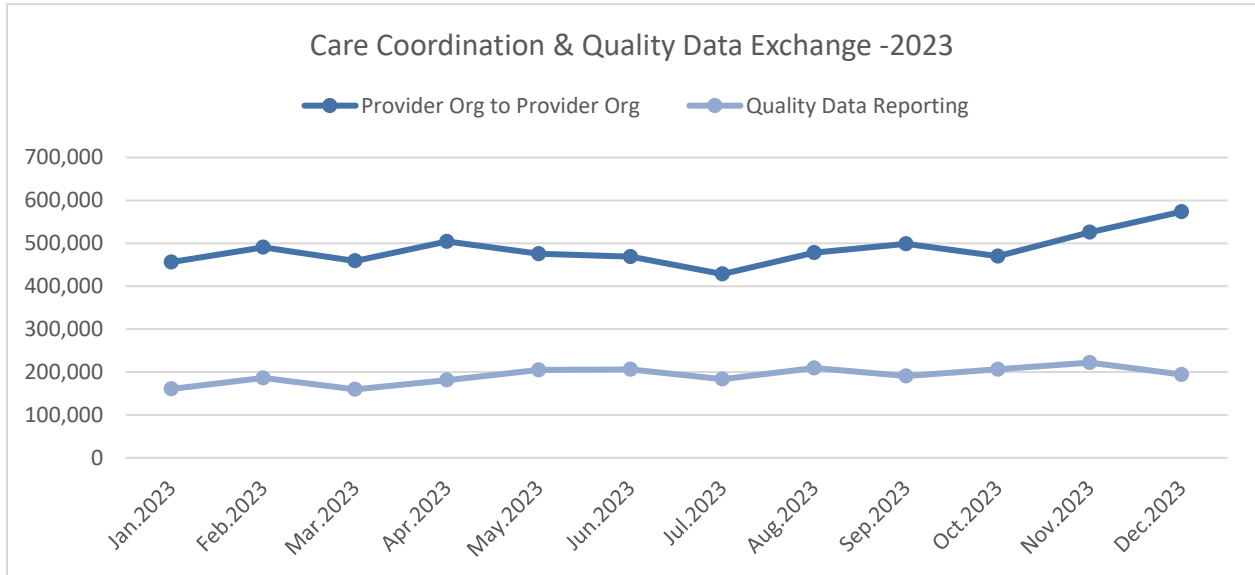


Additionally, the Mass Hlway saw a significant volume of messages for **Electronic Case Reporting (eCR)**, which is a newly mandated public health reporting requirement per the CDC’s Data Modernization Initiative (DMI) which was spurred by the COVID-19 pandemic.

Though most of the transactions coming through the Mass Hlway are for public health reporting purposes, in 2023 there were over 5.8 million provider-to-provider messages

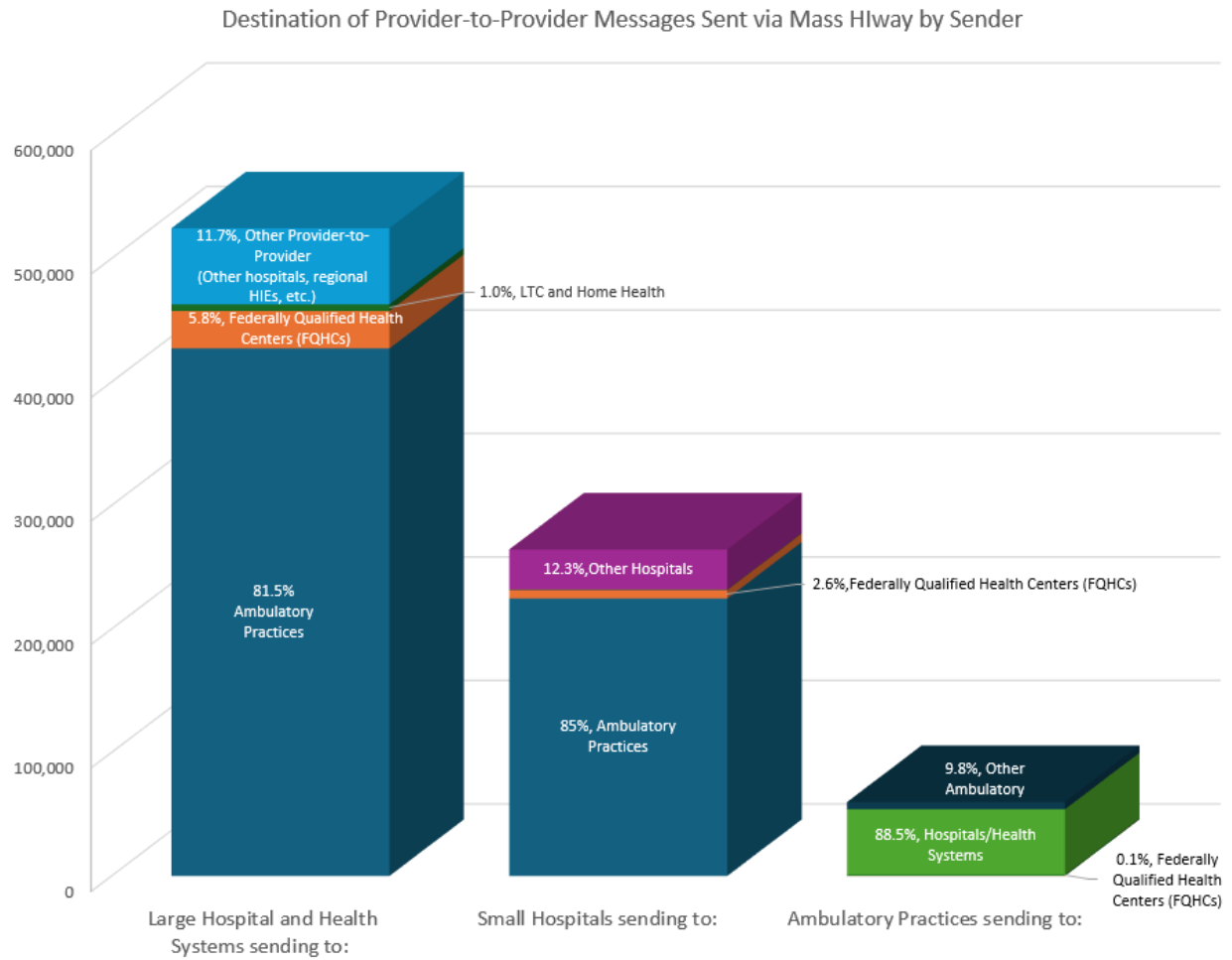
exchanged to support care coordination and over 2.5 million messages supporting quality data reporting annually.

Figure-5 Care Coordination and Quality Data Exchanges - 2023



Taking a closer look at the provider-to-provider exchanges, during a six-month period in 2023, (February-July), over 80% of the messages sent by large hospitals and health systems for care coordination are being sent to ambulatory practices. Similarly, 85% of the provider-to-provider messages from small hospitals are also being sent to ambulatory care providers. These messages for care coordination represent transition of care, such as a primary care physician referring a patient for specialty care, or a hospital sending a discharge summary to a patient’s primary care physician.

Figure-6 Destination of Provider-to-Provider Messages by Sender



*Messages sent between February 2023 and July 2023

The Mass HIway will continue to monitor and report on the utilization of direct messaging. Changes in transaction volume will be reviewed and any notable observations and findings will be reported to the HIT Council. Any future regulations for new use cases or new provider type connection requirements will include a new attestation web-form and process.

C. MASS HIWAY CLINICAL GATEWAY

The Mass HIway continued to support the Clinical Gateway (CG) nodes as a single, consolidated application. The core application and a suite of supporting applications are run on Amazon Web Services (AWS). All critical components and changes were addressed as needed, and additional functional changes and enhancements requested by the backend application teams were prioritized and have been incorporated into the consolidated Clinical Gateway application.

The Mass HIway continued to support the state's COVID response and data needs, operating technology which enables providers to electronically transmit data to the Department of Public Health (DPH) and the State Public Health Laboratory (State Lab) systems through Mass HIway Direct Messaging and the Clinical Gateway Nodes (CG Nodes). Data submitted via the Syndromic Surveillance (Syndromic) and Electronic Lab Reporting (ELR) CG nodes is used by DPH and the State Lab to produce public daily dashboards and data sets. COVID vaccinations are tracked through the Massachusetts Immunization Information System (MIIS) and the MIIS Query by Parameter (MIIS QBP) CG Node allows payers and large provider groups access to retrieve patient vaccination status to help facilitate efforts aimed at increasing vaccination rates. Throughout 2023, MIIS QBP averaged over 12 million transactions per month.

C.1 CG BACKGROUND

The Mass HIway Consolidated Clinical Gateway (CCG) is comprised of unique software applications referred to as Clinical Gateway (CG) nodes, which connect providers securely to the Department of Public Health (DPH) and other state agencies for public health reporting. Providers send public health reports via Direct Message or new Application Programming Interface (API) to the CG nodes, where messages are transformed into a format usable by the agency's systems. The CG node transformation processes include decryption of the original message, validation to ensure that the data is correctly submitted, and transformation of the message into a format acceptable to the receiving system. Reporting providers and state agencies benefit by allowing each group to keep their existing technology infrastructure while the CG node does the transformation work to allow for the seamless exchange of information.

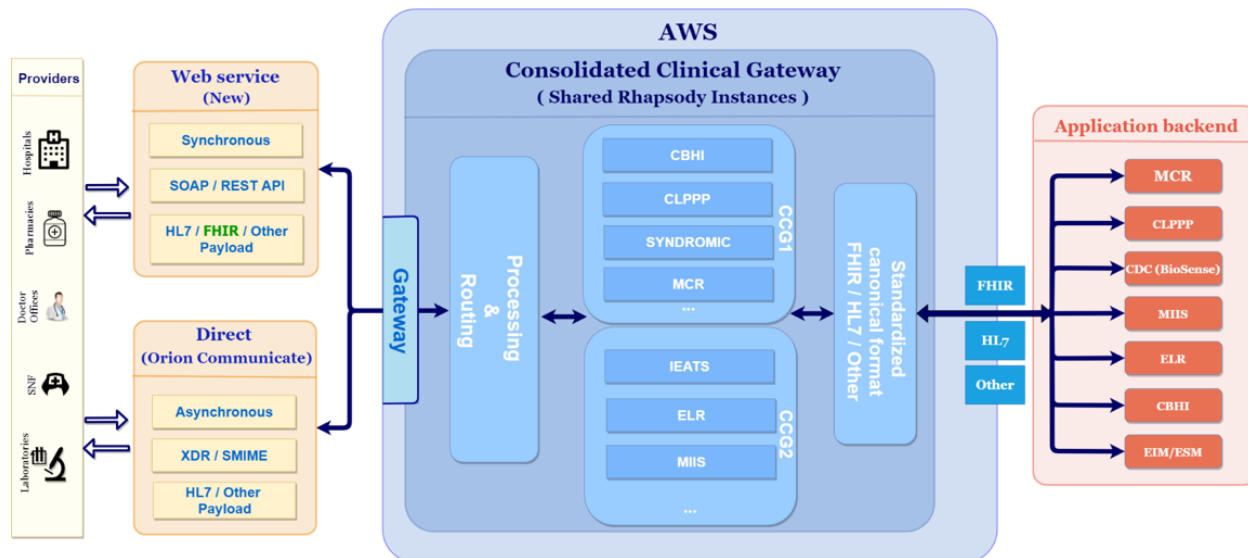
Each of the following Clinical Gateway nodes is a separate application that supports a corresponding public health reporting back-end application:

- **Syndromic Surveillance (Syndromic):** A secure, automated mechanism for detecting, evaluating, and reporting suspicious events that may signify disease outbreak.

- **Massachusetts Immunization Information System (MIIS):** A state-wide immunization registry and vaccine management system. Includes the MIIS Query by Parameter (QBP) & MIIS Demographic Nodes to support COVID related data exchange, allowing payers and large provider groups access to retrieve patient vaccination status to help facilitate efforts aimed at increasing vaccination rates.
- **Electronic Lab Reporting (ELR):** A secure, automated mechanism for the reporting of laboratory and patient information by hospitals and commercial laboratories.
- **Children’s Behavioral Health Initiative (CBHI):** A secure, automated mechanism for the reporting of a standardized assessment tool (Child Adolescent Needs and Strengths (CANS)) to enable primary care providers to screen for behavioral health conditions and best develop and implement treatment plans.
- **Childhood Lead Poisoning Prevention Program (CLPPP) and the Occupational Lead Poisoning Program (Adult Lead):** A secure, automated means to collect and analyze lead exposure data in order to help prevent exposure and improve prevention and intervention programs.
- **Intake Enrollment and Assessment Transfer Service (IEATS) for Opioid Treatment Program (OTP):** A secure, automated means to collect provider data to evaluate client outcomes and assure program effectiveness for opioid treatment services.
- **Massachusetts Cancer Registry (MCR):** A secure, automated means to collect information on all newly diagnosed cases of cancer in the state to monitor the impact of environmental and occupational hazards as well as inform the design and evaluation of prevention and control programs.

The figure below depicts the architecture of the Mass Hlway Clinical Gateway services environment which provides processing and routing to the public health registry systems.

Figure-7 Mass Hlway Clinical Gateway High-Level Architecture



C.2 CG MAINTENANCE AND ENHANCEMENT ACTIVITIES

Throughout 2023, the Mass Hlway's Technical Maintenance and Enhancement (M&E) team dedicated efforts to ensuring the operational excellence of the Clinical Gateway (CG) nodes and associated business applications. This team, encompassing project managers, analysts, developers, and testers, collaborates closely with both business and technical units supporting the clinical gateway and health information exchange.

Key Activities and Achievements:

- Technical Support and Management:** The M&E team managed the Clinical Gateway nodes hosted on AWS, including database administration, security updates, and the deployment of new releases. They also acted as the primary contact for any infrastructure or security incidents, available around the clock.
- Continuous Improvement:** The team worked on identifying and implementing necessary adjustments, upgrades, or new features to the CG nodes and business applications in response to evolving needs, ensuring seamless integration and functionality across development, quality assurance, and production environments. This includes adherence to rigorous Software Development Life Cycle (SDLC) protocols.

- **Enhancements:** The team facilitated the integration of enhancements and new functionalities requested by the Department of Public Health (DPH) and MassHealth, ranging from minor adjustments to significant updates, into the scheduled software releases.
- **Business Application Support:** Beyond the clinical gateway nodes, the team also maintained and improved several critical business applications essential for the Mass Hlway's operations:
 - Customer Relationship Manager (CRM) system and database
 - Mass Hlway public website
 - Audit and Reporting tools
 - Monitoring tools
 - Dashboards for DPH message integrity

This comprehensive approach to maintenance and enhancement has been pivotal in ensuring the reliability and efficiency of the Mass Hlway's infrastructure and services, thereby supporting the broader goal of enhancing health information exchange across Massachusetts. Below are the number of Maintenance and Enhancement projects and activities that were completed during the calendar year 2023 for each Mass Hlway application.

Figure-8 Maintenance and Enhancement Projects Completed in 2023

CG Node / Application	Projects & Major Enhancements	Maintenance & Support Activities
Childhood Lead Poisoning Prevention Program (CLPPP)	1	9
Syndromic Surveillance (Syndromic)	4	8
Children’s Behavioral Health Initiative (CBHI)	2	21
Massachusetts Cancer Registry (MCR)	2	2
Electronic Lab Reporting (ELR)	1	4
Massachusetts Immunization Information System (MIIS)	3	6
Intake Enrollment and Assessment Transfer Service (IEATS) for Opioid Treatment Program (OTP)	12	11
Mass Hlway CRM (Sugar CRM)	4	15
Mass Hlway Web	5	19
Health Check Application	1	2
Infrastructure (including Gateway updates)	3	15
CG Node Common Changes & Report Generation	4	14
Total	42	126

C.3 CG API-FHIR 2023 TECHNICAL UPDATE

In 2023, the Clinical Gateway APIs within the Mass HIway achieved full operational status, marking a significant development in the state's healthcare technology infrastructure. This effort aligns with the latest healthcare IT standards and regulatory requirements from the Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC), integrating APIs and the emerging Fast Healthcare Interoperability Resources (FHIR) standards. Despite building FHIR integration capabilities into the Clinical Gateway, a public health use case for FHIR is still being sought, highlighting the ongoing journey towards fully leveraging this technology for healthcare interoperability.

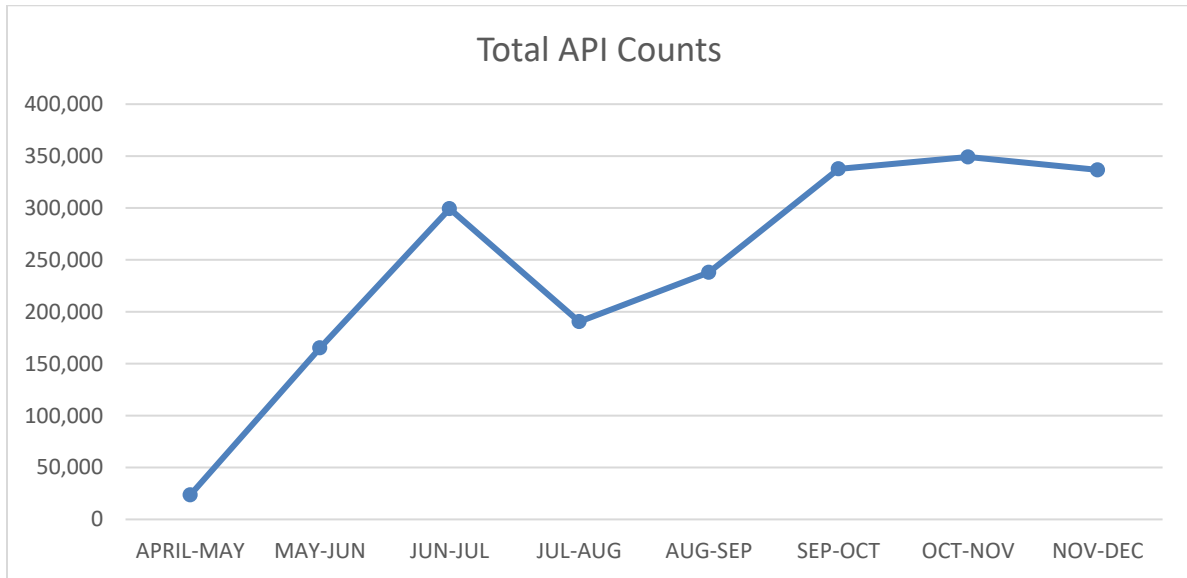
Over the past decade, the shift towards FHIR and API technologies represents a proactive response to the need for more efficient and secure methods of clinical information exchange. The completion of foundational API services, including OAuth 2.0 security enhancements, marks a key step forward. However, the search for a fitting application of FHIR for public health reporting illustrates the complexities involved in transitioning to new health IT standards. As the Mass HIway continues to refine and expand its capabilities, it remains engaged with healthcare providers and stakeholders across Massachusetts to identify and implement effective use cases for FHIR, underlining a commitment to advancing the state's healthcare system through improved data interoperability and access.

C.4 CG API-FHIR 2023 PROVIDER ENGAGEMENT UPDATE

The Mass HIway successfully connected **Advocates, Inc.**, a large behavioral health organization, to submit its Child and Adolescent Needs and Strengths (CANS) reports via a RESTful API in January of 2023. **Tenet New England Vanguard**, which includes **St. Vincent's Medical Center** and **MetroWest Medical Center**, connected to the Syndromic Surveillance RESTful API endpoint in May 2023. **Baystate Health Care Alliance**, a not-for-profit integrated health system serving Western Massachusetts, also went live with sending Syndromic Surveillance data to the Mass HIway RESTful API in June of 2023.

The onboarding of these organizations to the Mass HIway APIs in 2023 has led to a significant increase in the volume of messages via API as seen below:

Figure-9 API Transaction Volume



Trinity Healthcare, on behalf of **Mercy Medical Center**, continues to be engaged with testing against the Syndromic Surveillance RESTful API endpoint after their EHR migration was rescheduled several times, postponing their go live. **Tufts Medicine** also continues to be a collaborative partner through their testing against the Syndromic Surveillance endpoint, identifying several enhancements to the Mass HIway RESTful APIs. The Mass HIway team coordinated a knowledge sharing call with the development teams at both organizations, and they are slated to go live in 2024.

D. MASS HIWAY ACCOUNT MANAGEMENT

A core function of the Mass HIway program is to support health information exchange (HIE) and advance care coordination objectives among Massachusetts providers and the healthcare system more broadly. Engagement and account management activities are oriented to improve the HIE operating environment and address barriers and gaps for providers, state agencies and other healthcare stakeholders.

D.1 PROVIDER DIRECTORY AND DIRECTTRUST OUTREACH

Accurate and up-to-date provider directory listings ensure providers and other care team members can exchange patient information for care coordination purposes. It is a foundational element of any health information exchange. Incorrect or outdated provider directory information can impede efforts to identify and share healthcare data with the intended and authorized recipients.

Over the past year, the Mass HIway made significant strides in enhancing the provider directory through collaboration with key healthcare organizations. The Mass HIway team has successfully worked with several organizations, including **Atrius**, **Reliant Medical Group**, and the **Pediatric Physicians Organization at Children's Hospital**, to update their Provider Directory listings into a 'sub-organization' format. The 'sub-organization' format organizes providers by location, facility, and/or department, providing more granular searching capabilities when a provider is part of a larger healthcare system or network. This collaborative approach improves data accuracy and accessibility for our users.

The Mass HIway team has also proactively engaged with healthcare organizations that have not submitted provider updates in more than a year. This initiative ensures that our users have access to the latest address and contact information, promoting the highest quality of patient care. The team successfully ensured that all outstanding Provider Organizations updated their Provider Directories.

To ensure that patient data is flowing securely and easily across the care continuum regardless of the technology being used, the Mass HIway publishes and distributes a Provider Directory to Mass HIway participants every month which includes an additional 16,000 Direct addresses of providers in Massachusetts. These records include critical information such as provider types, specialties, credentials, demographics, and service locations, providing several data points for users to identify the destination to which they need to send patient information.

In addition to the collaborative work with provider organizations who use the Mass HIway as their Health Information Service Provider (HISP) for care coordination, the team supported more than twenty other provider organizations who utilize other vendors, with updating their provider directory listings in the national DirectTrust Provider Directory. These efforts included education related to how the directories work, insight into how their data is stored and updated, and direct communication with their vendors to get information corrected. Through these efforts we have built meaningful relationships with EHR and other HISP vendors to support the effort toward accurate and timely DirectTrust Provider Directory information.

Lastly, the Mass HIway team continues to be actively engaged with the DirectTrust national provider directory workgroup, collaborating with vendors, providers, and patient advocates to address data integrity issues on a larger scale. With significant input from the team, DirectTrust has released several validation measures and expanded definitions for users of directory information, to provide a more refined and user-friendly national provider directory.

D.2 PROVIDER ENGAGEMENT

In 2023, the Mass HIway added twenty-one new Mass HIway Direct Messaging connections, ten of which are being leveraged for care coordination purposes, and eleven of which are dedicated to public health reporting. Six of these connections are supporting small to medium ambulatory practices, two for large ambulatory practices, two for small hospitals, and one for home health, long-term services and supports (LTSS). Of additional note, six of the new care coordination connections are being leveraged by innovative digital health companies who are playing an increasingly important role in the care of patients and need to communicate with other providers of care in a secure fashion.

Some notable onboarding accomplishments over this past year include:

- **Beth Israel Lahey Health (BILH):** Ahead of a massive effort to consolidate all large facilities within the BILH system, including, but not limited to BIDMC, New England Baptist, Joslin, and all community BID hospitals, to one instance of Epic EHR, the Mass HIway team worked closely with stakeholders to migrate from their existing Direct vendor to the Mass HIway for care coordination Direct Messaging services. This work included evaluating all existing connections and public health reporting requirements for the entities migrating and establishing the provider directory infrastructure to support these disparate entities leveraging the same connection.

- **Optum/Reliant Medical Group:** Reliant Medical Group was a long-time user of the Mass HIway for Direct messaging services, but recently underwent a reorganization under Optum Care to bring another large provider group on their instance of Epic EHR. This required the migration to a new Mass HIway connection and corresponding provider directory data to support the new organizational structure.
- **Beyond Lucid Technologies (BLT):** As a technology vendor supporting emergency medical service (EMS) providers, BLT did not have a certified EHR technology to “plug into” the Mass HIway for Direct Messaging services. The Mass HIway team worked with technical resources from BLT to develop custom Direct Messaging services for their existing platform, providing a path for EMS providers to electronically share patient information from the ambulance at the time of drop-off at the Emergency Room.

In addition to coordinating various onboarding processes, the Mass HIway Account Management team handled continuous inquiries from both existing and prospective participants. This involved a substantial number of phone calls and emails with the public, aimed at providing information on various HIE services, options and procedures for accessing and sharing health information. Communications also included engagement with non-HIway Participants to educate them on leveraging different HIE technology, enrolling for Direct messaging through their existing vendor relationships, and/or how to access the national Provider Directory. The team also engaged with several graduate researchers to educate on general health information exchange principles and the specifics related to the Mass HIway. This included a “Mass HIway 101” presentation to the Masters and Doctorate nursing informatics class at Salem State University.

D.3 ENGAGEMENT WITH THE MASSACHUSETTS CANCER REGISTRY (MCR)

The Mass HIway supports the reporting to multiple departments of public health destinations, however additional support was provided to the Massachusetts Cancer Registry (MCR) in 2023. The team worked particularly closely with the MCR staff to develop and document workflows for former paper submitters to submit their cancer cases electronically. This includes the establishment of new technology through the implementation of Mass HIway Webmail accounts to support the submission of backlogged cases from organizations and enhancements of existing technology, allowing MCR coordinators to receive additional forms of data. The team created a reference guide for organizations to clearly understand the various means in which they need to send current or backlogged cancer cases to the registry. This work has alleviated the burden of the MCR staff processing paper submissions of case reports, allowing more timely and accurate cancer reporting in Massachusetts.

E. STATEWIDE EVENT NOTIFICATION SERVICE FRAMEWORK

Event Notification Services (ENS) are a mechanism for hospitals to notify Health Care Providers of events (admissions, discharges, transfers – ADTs) related to their patients. The Massachusetts Statewide ENS Framework developed by EOHHS and the Mass HIway in 2021 constitutes an interoperable ENS network consisting of Certified ENS Vendors who have interconnected their ENS systems to serve care providers in Massachusetts. Prior to the implementation of the statewide system, Providers only received notifications if they subscribed to the same ENS vendor as the hospital sending the event.

The Statewide ENS Framework was implemented by regulations that require all Acute Care Hospitals in Massachusetts to subscribe and submit ADT messages to at least one Certified ENS Vendor (see 101 CMR 20.08(4)). The framework thereby ensures that all Massachusetts care providers who subscribe to any of the Certified ENS Vendors can receive ADT alert notifications from all Acute Care Hospitals in the Commonwealth. In addition, the statewide system requires MA state certified vendors to share notifications with other certified vendors so that vendors who do not directly receive the original notification can transmit it to their subscribers as needed.

ENS Vendors were certified by the Mass HIway to meet specific functional, data security, data sharing, and business criteria focused on ensuring Statewide ENS access, delivery, reliability, and integrity. Certified ENS vendors are required to submit quarterly reports to the Mass HIway pursuant to the reporting obligations set forth in the contracts between EOHHS and the Certified ENS Vendors. The Statewide ENS Framework went live on April 1, 2021.

As stated in the prior report, the goal and guiding principles for the Statewide ENS Framework are as follows:

Statewide ENS Framework Goal: Supporting timely statewide Event Notification Services (ENS) across the Commonwealth to improve health care delivery, quality, and coordination.

Statewide ENS Framework Guiding Principles

- **Universal access** - Promoting data sharing within an ENS framework to increase accessibility to ENS for providers of all sizes.
- **Streamline provider experience** - Crafting the ENS framework to allow single point of submission and single point of reception of ADT data.
- **Improve notification timing** - Improving timing for flow of data (real/near-real time)

E.1 ENS PROGRAM 2023 ACTIVITY UPDATE

The Statewide Event Notification Service (ENS) Framework has been operational for three years. The Executive Office of Health and Human Services (EOHHS) extended contracts with the two Certified ENS Vendors for an additional year in early 2023. The extension mirrored the original agreement with some enhancements to reporting requirements. Plans to potentially open procurement for new and existing vendors to become certified are slated for late 2024.

Key 2023 ENS Program Highlights:

- **Progress Updates:** The Mass HIway team regularly shared ENS project advancements at the Health Information Technology Council (HIT Council) quarterly meetings, with further details available on the State's website for public access.
- **Vendor Collaboration:** Worked closely with vendors to refine reporting metrics, address discrepancies in data reflection, and tackle challenges related to missing data in Admission, Discharge, and Transfer (ADT) messages that could affect their utility for healthcare providers.
- **Expertise Sharing:** Acted as subject matter experts, notably contributing to initiatives like the Behavioral Health Treatment and Referral Platform that intersect with the ENS Framework's goals.

The Mass HIway continues to focus on strategic efforts to enhance the ENS Framework's functionality and reliability, aiming to improve healthcare delivery and coordination across Massachusetts.

E.2 ENS/ADT REPORTING METRICS

As noted above, Certified ENS Vendors are required to submit quarterly reports to the Mass HIway pursuant to the reporting obligations set forth in the contracts between EOHHS and the Certified ENS Vendors. The 2023 ENS Vendor Contract Amendment made significant updates to the ENS Vendor Quarterly Reporting Template, so that the data reported is more comprehensive and provides the Mass HIway with greater insight into the Massachusetts ENS landscape. The 2023 Quarter 4 reporting provided data highlighting the value add of the Massachusetts ENS Framework. During Quarter 4 (10/1/2023 – 12/31/2023) an additional 538,266 ADTs were available to Certified ENS Vendor subscribers as a direct result of the framework model and the reflection of ADTs between the two Certified ENS Vendors.

The updated ENS Vendor Quarterly Reporting Template has given the Mass HIway insight into the quality of ADT data sent to the Certified ENS Vendors by acute care hospitals. The Mass HIway has heard feedback from subscribers that ADTs are often missing important clinical information, like diagnosis. The Mass HIway can now monitor the fill rate of data points like demographics and clinical information at the acute care hospital level. See below for the average acute care hospital fill rate for various demographic and clinical data points.

Figure-10 ENS Quarterly Reporting Quality Metrics

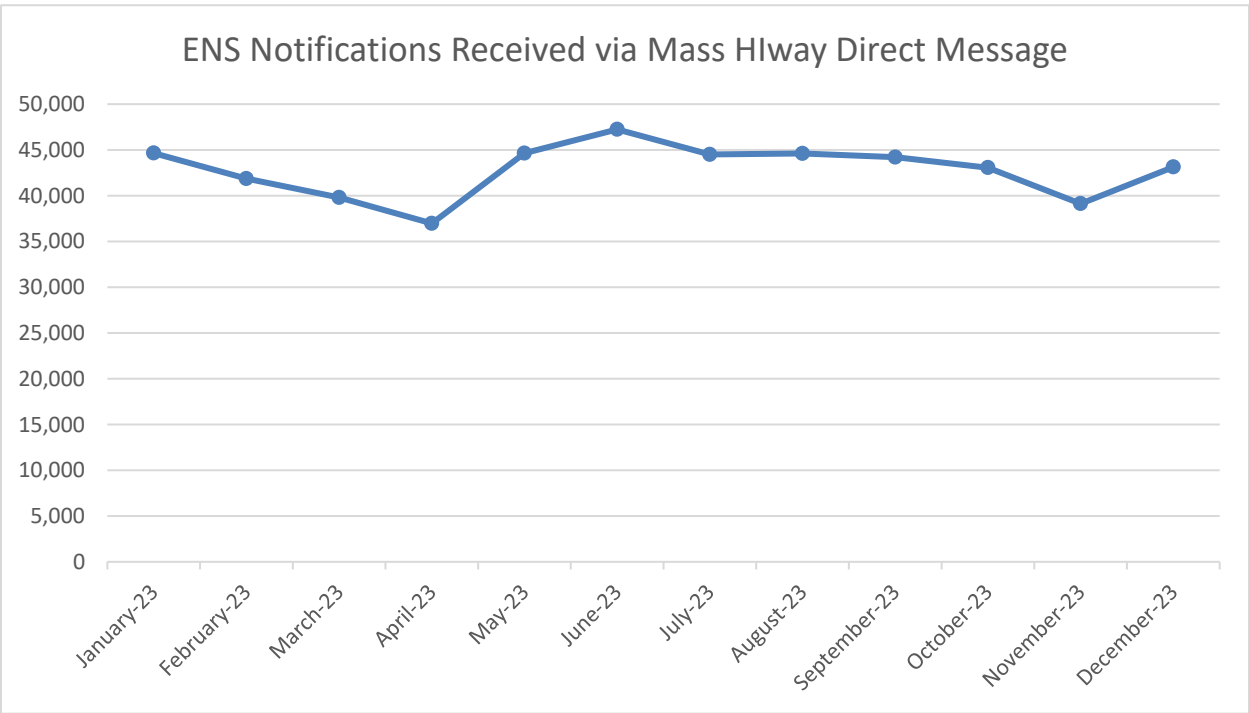
Quality of ADT <u>Demographic Information</u> – Q4	Vendor A	Vendor B
Average Fill Rate of Date of Birth in ADTs	100%	100%
Average Fill Rate of Sex in ADTs	100%	100%
Average Fill Rate of Address in ADTs	99%	99%
Average Fill Rate of City/Town in ADTs	99%	99%
Average Fill Rate of Zip Code in ADTs	99%	99%
Average Fill Rate of Phone Number in ADTs	94%	93%
Average Fill Rate of SSN in ADTs	71%	70%
Quality of ADT <u>Clinical Information</u> – Q4	Vendor A	Vendor B
Average Fill Rate of Chief Complaint in A01 (Admit) Messages	41%	0%*
Average Fill Rate of Diagnosis Code in A03 (Discharge) Messages	54%	52%
Average Fill Rate of Diagnosis Description in A03 (Discharge) Messages	55%	52%

Average Fill Rate of Discharge Location in A03 (Discharge) Messages	86%	85%
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*Note: Vendor B did not process chief complaints at the time of reporting.

In addition to the insight received from the Certified ENS Vendors, the team monitors the ENS notifications which are sent to Mass HIway participants via Direct Message. On average, there were 42,816 ENS Direct Messages sent every month over the Mass HIway, alerting providers to their patients moving in and out of various acute care hospitals.

Figure-11 ENS Notifications Received via Mass HIway Direct Message



E.3 ENS/ADT LANDSCAPE IMPROVEMENT EFFORTS

To improve utilization of ADTs by provider organizations, the Mass HIway Account Management team engaged in several efforts to educate provider organizations on ADT best practices. As a follow-up to the Federally Qualified Health Center (FQHC) survey fielded in early 2023, the Mass HIway Account Management team attended the **Mass League of Community Health Center’s** IT Leadership Forum and Nurse Manager and Quality Coordinator Forum to share the results of the ENS survey questions and provide insight into improving ADT follow-up workflows. Through these forums and collaboration with the Mass League, the Mass HIway

Account Management Team also went on to provide subject matter expertise to support three FQHCs working on ADT workflow improvement projects. These FQHCs included **Manet Community Health Center, Family Care Center at Stanley Street Treatment and Resources (SSTAR), and Lynn Community Health Center.**

In addition to the work done with FQHCs, the Mass HIway hosted an ADT Webinar in June of 2023 called “*ADT Alerts: Understanding the Massachusetts ENS Landscape and Making the Most of ADT Alerts.*” The webinar content was developed based on the results and feedback from the ADT landscape surveys and was open to all interested parties. There were fifty-eight registrants for the webinar and thirty-nine attendees (67% attendance rate). The webinar covered a Mass HIway overview, ADT alert basics, the Massachusetts ENS Landscape, common ADT alert utilization barriers, best practices to make the most of ADT alerts, and a provider organization ADT workflow spotlight on Manet Community Health Center.

The feedback from the webinar was very favorable with 74% of attendees indicating that they felt confident in their understanding of ENS and the Statewide ENS Framework after the webinar. Fifty-five percent of attendees indicated that they planned to apply information learned during the webinar to workflows at their organizations. The Mass HIway Account Management team has also worked on developing ADT alert best practice documentation for provider organizations. The documentation was posted on the Mass HIway website and was sent out to Mass HIway Newsletter subscribers and attendees of the ADT webinar on 2/22/24.

The Mass HIway was able to collaborate with the Mass League of Community Health Centers on their annual IT survey again in early 2024, and add questions related to ENS and ADT utilization. By comparing the results of the 2023 survey with the results of 2024 survey, the Mass HIway has been able to quantify some of the impact of its ADT utilization improvement work. The rate of FQHCs that reported receiving ADT alerts increased by 19% in 2024 (in 2023, 74% of responding FQHCs reported receiving ADT alerts and in 2024, 93% reported receiving ADT alerts). This increase may not be the result of more FQHCs receiving ADT alerts and may instead represent an increase in awareness of ADT alerts and how they come into organizations. In 2023, 13% of responding FQHCs indicated that they were unsure of whether they receive ADT alerts, while 0% reported being unsure of this in 2024.

Another indicator of the impact of the Mass HIway’s ADT utilization improvement work can be seen in the confidence level responding FQHCs reported related to their ADT alert follow-up workflow. Survey respondents who indicated that their FQHC receives ADT alerts were asked to rate their confidence in their health center’s ADT alert follow-up workflow on a scale of 1-5 (with 1 being not confident at all and 5 being very confident). In 2023, the average confidence

rate was 3.2 with two FQHCs rating their confidence level as a 1 (not confident at all). In 2024, the average confidence rate increased to 3.6 and no FQHCs rated their confidence level as a 1-not confident.

F. FEDERAL DEVELOPMENTS

The Mass HIway continues to monitor federal developments to understand and evaluate the potential intersection with Mass HIway services and operations and any impact to the health information exchange landscape in Massachusetts.

F.1 FEDERAL LEGISLATION ACTIVITY AND MILESTONES

In 2023, significant progress was made in advancing health information exchange activity, driven by key federal legislation and rules aimed at promoting interoperability and enhancing patient access to health information. The Centers for Medicare & Medicaid Services (CMS) played a pivotal role in driving interoperability initiatives, focusing on liberating patient data and improving data exchange capabilities. CMS's Interoperability and Patient Access Final Rule emphasized the adoption of Fast Healthcare Interoperability Resources® (FHIR) and supported enterprise transformation efforts to enhance digital capabilities.

The Office of the National Coordinator for Health Information Technology (ONC) published updates on Health Data, Technology, and Interoperability, highlighting certification program updates and algorithm transparency to facilitate information sharing. These efforts were complemented by the U.S. Department of Health and Human Services (HHS), which proposed a rule to establish disincentives for healthcare providers engaging in information blocking practices under the 21st Century Cures Act, reinforcing the importance of information sharing and interoperability in healthcare settings.

The Trusted Exchange Framework and Common Agreement (TEFCA) made significant strides towards enabling nationwide health information exchange. The Office of the National Coordinator for Health IT (ONC) published an updated version of the Common Agreement, outlining key changes such as the differentiation between TEFCA Information (TI) and Protected Health Information (PHI).

Additionally, the Department of Health and Human Services (HHS) announced the designation of two new Qualified Health Information Networks (QHINs) (CommonWell Health Alliance and Kno2) along with the initial QHIN designations (eHealth Exchange, Epic Nexus (a subsidiary of Epic), Health Gorilla, KONZA, MedAllies) in late 2023, bringing the total to seven QHINs that can now safely and securely exchange critical health data across the country. These developments marked important milestones in the implementation of TEFCA as envisioned by the 21st Century Cures Act to improve interoperability and patient access to health information.

Collectively, these initiatives reflect a concerted effort at the federal level to drive health information exchange activities, improve patient outcomes, and enhance the overall quality of care delivery through enhanced data accessibility and interoperability standards.

F.2 INFORMATION BLOCKING

The Information Blocking rule, part of the 21st Century Cures Act, seeks to ensure open access, exchange, and use of electronic health information (EHI). It aims to empower patients and enhance healthcare outcomes by preventing practices that unreasonably block information.

The Mass HIway has affirmed its compliance with these provisions as outlined in the "Massachusetts Health Information Highway (Mass HIway) Information Blocking Compliance Affirmation". The Mass HIway does not engage in practices that inappropriately restrict the access, exchange, or use of electronic health information (EHI) and is committed to promoting and ensuring equitable and timely access, upholding transparency in fees, and fostering interoperability within the healthcare ecosystem.

The Mass HIway's services, including secure Direct Messaging, a Provider Directory, and Public Health Reporting Gateway, demonstrate its dedication to enhancing healthcare delivery in Massachusetts. The full compliance affirmation is included as an appendix to this HITC annual report.

G. IN FLIGHT INITIATIVES

The Mass HIway participates and supports a number of EOHHS efforts and initiatives and provides cross-disciplinary subject matter expertise to support and advise EOHHS on health information technology programming including the implementation of strategic policy and technical goals, engagement with EOHHS programs and state executive leadership, and engagement with stakeholders in other state agencies and in the public.

For example, the Mass HIway is providing advisory support and subject matter expertise to support and inform the design and deployment of the new **Behavioral Health Treatment and Referral Platform (BH TRP)**. The BH TRP will be a shared platform to improve care coordination, more quickly move patients who are boarding in Emergency Departments and in Med-Surg units through the evaluation and referral process, reduce administrative burdens for staff, increase efficiency, and facilitate admission to inpatient psychiatric treatment settings.

The platform will be used by all care settings and users in Massachusetts who are expected to abide by the Massachusetts protocol for Expedited Psychiatric Inpatient Admission (EPIA) and will ultimately replace the current systems in use.

The Mass HIway is also overseeing the procurement and implementation of a new statewide electronic POLST (ePOLST) Registry, which is described in detail in the following section.

H. POLST PROGRAM

EOHHS and the Executive Office of Elder Affairs' (EOEA), under authorities specified in [House, No. 5374](#) embarked on an initiative to transition Massachusetts to the National [POLST](#) (Portable Orders for Life-Sustaining Treatment) paradigm to support patient preferences for end-of-life care through technology that improves care coordination, ensures transferability between states and establishes an electronic centralized POLST (ePOLST) registry to serve as the single source of truth across all care settings.

In coordination with the Department of Public Health (DPH), the POLST transition and process is owned and administered by the Executive Office of Elder Affairs (EOEA) and the Mass Hlway will oversee the procurement and implementation of an electronic POLST (ePOLST) Registry.

H.1 EPOLST REGISTRY 2023 UPDATE

Informed by the stakeholder engagement and requirements gathering exercises, EOEA and the Mass Hlway finalized the critical components, requirements, and capabilities for an ePOLST Registry. Following the approval received from CMS, and on behalf of EOEA, DPH and the Mass Hlway, EOHHS issued an [ePOLST Registry Request for Responses \(RFR\)](#) to procure a statewide ePOLST registry, which was officially posted in January 2023.

After completion of a competitive procurement process, EOHHS selected a vendor in the fall of 2023. EOHHS is now working to finalize contracts with the selected vendor to develop a cloud-based, statewide electronic POLST registry (ePOLST).

In September 2023, EOEA completed a 12-week Test Phase with **Cooley Dickinson** and **Fairview Hospital** and their outpatient practices, as well as local Skilled Nursing Facilities (SNFs) and EMS. Dozens of providers and staff took part in the Test Phase, conducting Serious Illness Conversations and completing the POLST Form with appropriate patients. These communities will continue to use the POLST form until the ePOLST registry is launched.

EOEA is completing a formal evaluation of the Test Phase and will share more in the coming months. The results of the evaluation will help EOEA develop a strong foundation for the ePOLST Registry.

Once developed, the ePOLST Registry will enable the end-to-end online completion, signing, validation, revision, and retrieval of the most recent POLST form for any given patient. The new ePOLST will be paperless: providers, patients, patient proxies and readers of the POLST form

(such as EMS) will have access through dedicated portals and via EHR integrations. It is anticipated that the Massachusetts ePOLST Registry will be available for pilot groups in late 2024 and statewide in early 2025.

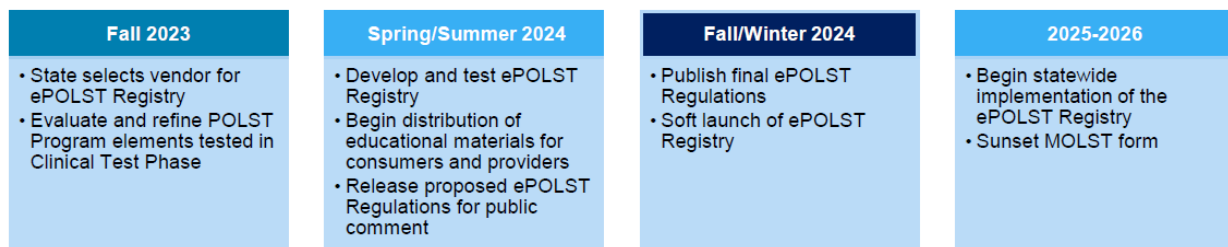
More about the Massachusetts POLST Program

The mission of the Massachusetts POLST Program is to help people living with serious illnesses and advancing frailty engage in active planning with their clinicians and care teams to ensure that their treatment preferences are understood and honored, regardless of their point of care.

The Massachusetts POLST Program goals are to:

- Align with national standards and best practices. Using the national POLST standard will enable improved portability outside of Massachusetts.
- Establish POLST as an integral part of the advance care planning continuum in Massachusetts. POLST is more than just a form. POLST is a clinical process that results in documenting patient preferences as a medical order that is honored regardless of the care setting.
- Support effective care planning conversations for people with serious illness and advancing age. We want to ensure that all clinical staff have appropriate tools for effective, compassionate, and thorough conversations with patients.
- Ensure clear, reliable documentation about the program. We want to ensure that all program components are well-documented and easily referenceable.
- Improve integration across all care settings with an electronic registry. The ePOLST system, accessible across care settings, will provide a single “source of truth” and will be available for integration into each organization’s electronic patient records.
- Continually improve the program. Continuously improve the POLST Program and implement any new learnings.

Figure-12 Anticipated Plan for MOLST to ePOLST Transition 2023-2026



EOEA and the POLST program team will continue to engage with the provider community to develop educational materials to drive statewide adoption of the new form and to inform the future development and implementation of the ePOLST Registry. EOEA plans to create a continuous quality improvement process to iterate on the educational material and training modules to improve adoption rates.

I. BUDGET

I.1 BACKGROUND & FUNDING RATES

The Mass Hlway's operations are financed through federal and state funds, alongside fees from participating entities. The Massachusetts Legislature established the Health Information Trust Fund under M.G.L. c. 10, s. 35RR, which secures state funds for the Mass Hlway. This is supplemented by federal funding, primarily from the Medicaid Enterprise System (MES) program, and participant contributions determined by their type and size, according to 101 CMR 20.13.

Federal funding for the Mass Hlway is now mainly sourced from the MES program administered by CMS, which offers varying Federal Financial Participation (FFP) rates for different types of activities. Design, development, and implementation activities, receives up to 90% enhanced federal support, with post-implementation operations benefiting Medicaid eligible for up to 75% enhanced operational funding, and other Medicaid-beneficial operational costs receiving a 50% standard federal participation rate.

The allocation of costs under these categories is based on the benefit to the Medicaid program, which in Massachusetts, as of October 2023, serves approximately 34% of the population. This demographic statistic guides the state's cost allocation strategy in line with CMS requirements.

J. CONCLUSION

This report describes key services and activities the Mass HIway and partners have undertaken to improve provider interoperability and health information exchange throughout the state, delivering valuable, secure Direct Messaging and Provider Directory services, enabling Public Health Reporting through the Consolidated Clinical Gateway and streamlining event notifications through the Statewide Event Notification Service Framework.

The Mass HIway program will continue to engage and inform providers, build awareness and promote best practice in the use of health information exchange and advancement of interoperability. And the Mass HIway will continue to develop an enhanced infrastructure to align with new standards, such as the use of APIs and FHIR for exchanging secure clinical information, and to respond to the growing demand for real-time, synchronous access to data to support public health reporting, care quality, care coordination and value-based care.

K. APPENDIX

K.1 MASS HIWAY INFORMATION BLOCKING COMPLIANCE AFFIRMATION



Massachusetts Health Information Highway (Mass Hlway) Information Blocking Compliance Affirmation

This document serves to affirm that the Massachusetts Health Information Highway (Mass Hlway), as a state-designated Health Information Exchange (HIE), is fully compliant with the information blocking provisions as outlined in the 21st Century Cures Act and implemented by the Office of the National Coordinator for Health Information Technology (ONC). Operating within a regulatory framework set by the Executive Office of Health and Human Services (EOHHS) and informed by the Health Information Technology (HIT) Council, the Mass Hlway upholds the following principles and practices:

1. **Access and Exchange of EHI:** The Mass Hlway does not engage in practices that inappropriately restrict the access, exchange, or use of electronic health information (EHI). As our primary service is Direct Messaging, which ensures a secure method of transmitting health information between authorized users, we provide a platform that facilitates equal and timely access to EHI for treatment, payment, and healthcare operations. While providers and Electronic Health Record (EHR) systems ultimately control the access and exchange of EHI, the Mass Hlway is committed to supporting our participants in their efforts to comply with information blocking regulations. We maintain the highest standards of privacy and security, as evidenced by our end-to-end encryption of Direct Messages, and we are dedicated to enabling seamless and secure health information exchange within the healthcare ecosystem.
2. **Reasonable Fees:** Any fees associated with connecting to or using the Mass Hlway are reasonable, transparent, and based on the cost of providing the services. There are no excessive fees that would inhibit the access, exchange, or use of EHI.

3. **Non-Discriminatory Practices:** The Mass HIway provides equal service to all participants without preferential treatment or discrimination. All policies and procedures are applied consistently across all entities and individuals.
4. **Standard Implementation of IT:** The Mass HIway utilizes standard, widely accepted practices and technologies to facilitate the interoperability of health IT. This ensures that the complexity or burden of accessing or exchanging EHI is minimized.
5. **Timely Access to EHI:** The Mass HIway ensures that there are no unnecessary delays in the access, exchange, or use of EHI. All participants have timely access to the information necessary for the provision of healthcare services.
6. **Promotion of Interoperability:** The Mass HIway actively promotes the interoperability of health IT and does not engage in practices that limit such interoperability. We support and utilize standardized APIs and formats for EHI that are widely supported and facilitate the seamless exchange of information.
7. **Compliance with Regulatory Requirements:** The Mass HIway adheres to a robust regulatory framework. Certain organizations, such as Acute Care Hospitals, Community Health Centers, and Medium-Large Medical Ambulatory Practices, are mandated to connect to the Mass HIway or a DirectTrust Health Information Service Provider (HISP) for specified use cases, ensuring widespread and standardized participation.
8. **Statewide Event Notification Service (ENS) Framework:** The Mass HIway oversees a network of Event Notification Services (ENS) provided by ENS Vendors certified by EOHHS. This ensures that notifications about patient events are disseminated securely and in a timely manner to authorized providers.
9. **HIway Account Management and HIE Adoption Support:** We provide comprehensive assistance with the adoption and use of HIE technologies to enhance care coordination, ensuring that our practices promote, rather than inhibit, the effective use of HIE.
10. **Mass HIway Services:**
 - **Health Information Service Provider (HISP):** Provides a trust framework for secure communications and the ability to exchange encrypted messages that must be deciphered using a public key infrastructure.
 - **Provider Directory:** Offers provider information and destination addresses (Direct Address) for providers and healthcare organizations, facilitating seamless and efficient information exchange.

- **Direct Messaging:** Ensures a secure method of transmitting health information between authorized users. Direct Messages are encrypted end-to-end, and the Mass HIway cannot access any information contained in the Direct Message transmissions, safeguarding privacy and security.
- **Public Health Reporting Gateway:** Offers a consolidated Massachusetts Public Health Reporting data submission and processing, streamlining public health initiatives and reporting.

In every aspect of our operation, the Mass HIway is dedicated to preventing information blocking and fostering an environment where EHI is accessible, exchangeable, and usable in a manner that is secure, efficient, and in the best interest of patient care. We affirm our unwavering commitment to these principles and practices, as they are fundamental to our mission of enhancing the quality, safety, and efficiency of healthcare delivery in Massachusetts.