

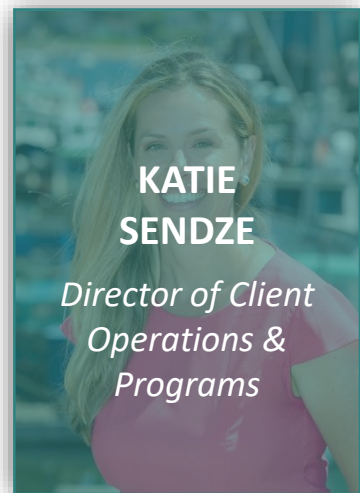
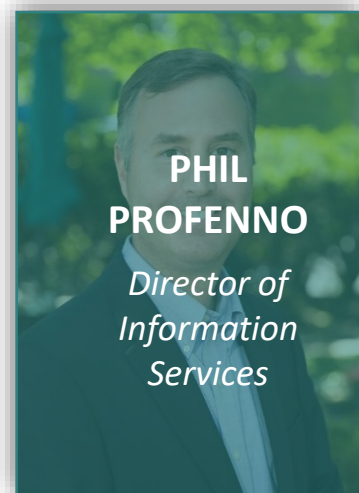
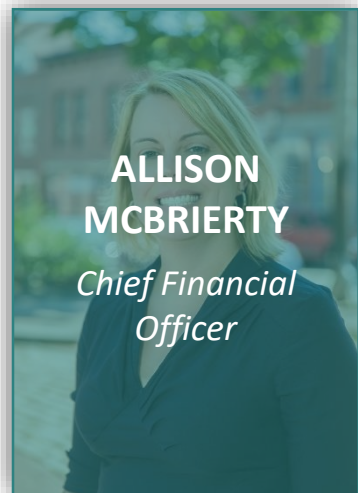
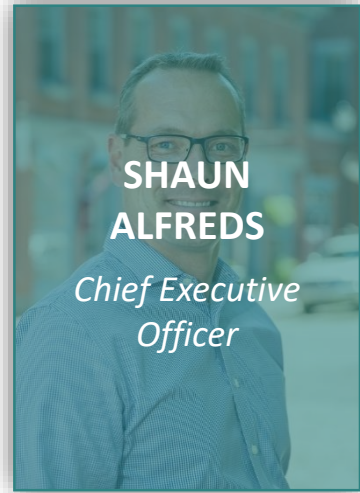
Advancing the Next Generation of HIE Services

Expanding Use Cases in Maine & Beyond

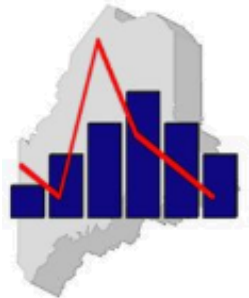
Shaun Alfreds, MBA
Chief Executive Officer

New England HIMSS Maine Conference
November 21, 2019

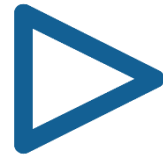
Our Team



Our History



The **Maine Health Information Network Technology Project** is initiated by the Maine Health Information Center as a feasibility study



HealthInfoNet systems' go live; designated as the State of Maine's **statewide health information exchange (HIE)**



HealthInfoNet builds on its record of innovation by establishing a subsidiary company, **Cureous Innovations**

2004

2006

2009 – 2010

2011 – present

2019



With the study completed, **HealthInfoNet** is established with support from Maine's largest health systems



HealthInfoNet becomes **market-leading HIE**, expanding connections to behavioral health and general medical providers, Veterans Affairs clinicians; developing predictive analytics platform and medical event notifications system; establishing key connections with public health registries; collecting and reporting social determinants of health information; etc.



Our Partners



Our Connections



1,666,466 patients

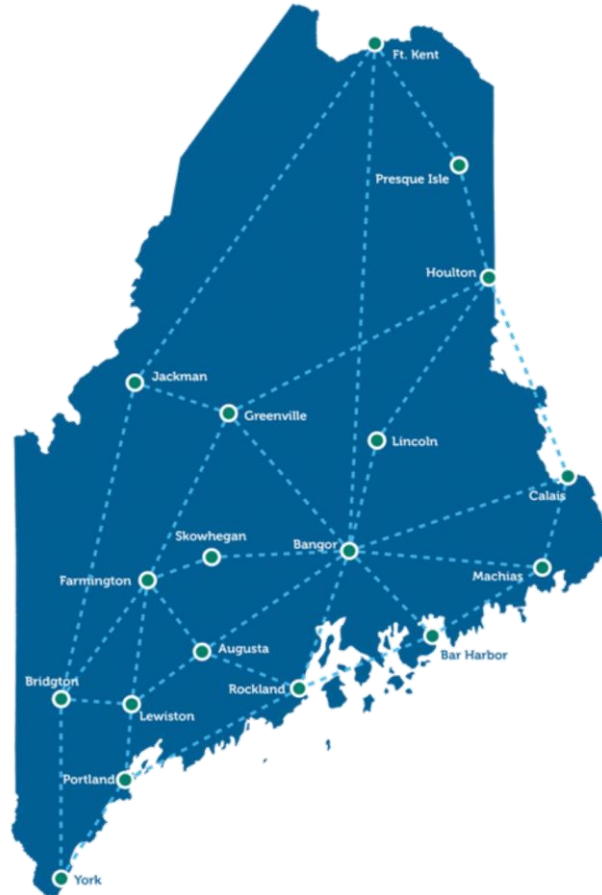
- 1,149,068 Maine residents
- 517,398 non-Maine residents



1.47% opt-out rate



5,058 clinical users



October 2019 Statistics



137,092 patient records accessed



348,294 patients managed for risk



46,175 real-time event notifications



1,029,047 alerts sent to Maine CDC for electronic lab, syndromic surveillance, and immunization reporting



Solutions Overview

Converting Data into Insights & Actions

Shaun Alfreds, MBA
Chief Executive Officer

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Data Integration

- Securely connect to critical data systems to create a comprehensive data warehouse
 - HL7 v.2.x clinical data acquired from electronic health record (EHR) systems and reference laboratories in near real-time
 - Batch Medicaid eligibility and claims files received monthly
 - Prescription medication data received from Surescripts in near-real time
 - CCD data received from certain EHRs and the Veterans Administration system
- Process data through data integration engine for validation purposes
 - Validation and testing conducted during initial onboarding and annually thereafter
 - Automated validation procedures for data type, format, and site



Data Enhancement

- Optimize processing and performance of the integrated dataset through the creation and generation of value-add services:
 - Local-to-industry-standard terminology standardization
 - Sensitive data blocking (i.e., sequestering) flags
 - Patient and provider attribution procedures
 - Identity resolution algorithms

The screenshot shows the 'Search LOINC' interface. The search criteria are: Code Identifier 'c1', Description 'Chest Single View', and 'Require First Word' checked. The search results are displayed in a table with columns: Rank, Code Identifier, Long Description, Short Description, Component, Property, Timing, Sample, Scale, Units, and Method. The table shows 10 results, with the first row highlighted.

Rank	Code Identifier	Long Description	Short Description	Component	Property	Timing	Sample	Scale	Units	Method
16.75	36554-4	XR Chest Single view	XR Chest 1V	View	Find	Pt	Chest	Doc		XR
16.5	24656-1	RF Chest Single view during surgery	RF Chest 1V in Surg	View~during surgery	Find	Pt	Chest	Doc		RF
16.5	36589-0	Portable XR Chest AP single view	XR port Chest AP 1 view	View AP	Find	Pt	Chest	Doc		XR_portable
16.5	38001-4	XR Chest Single view W expiration	XR Chest 1V W Exp	View~W expiration	Find	Pt	Chest	Doc		XR
16.5	38002-2	XR Chest Single view W inspiration	XR Chest 1V W Insp	View~W inspiration	Find	Pt	Chest	Doc		XR
16.5	41790-7	XR Chest Single view during surgery	XR Chest 1V in Surg	View~during surgery	Find	Pt	Chest	Doc		XR
16.5	42699-9	XR Chest and Abdomen Single view	XR Chest+Abd 1V	View	Find	Pt	Chest+Abdomen	Doc		XR

Code Lookup Services in Terminology Services

Data Dissemination

- Deliver aggregated patient-level demographic, encounter, and diagnostic information through a centralized resource designed to support care coordination and treatment options

HOW IS IT ACCESSED?

- InContext EHR application
- Parameter-based launch
- Online via VPN or 2-factor auth

WHO IS IT ACCESSED BY?

- Pharmacists • Hospitalists • Care Managers • Emergency Staff
- Physicians • VA Staff • Behavioral Health Workers • Quality Coordinators

WHAT DATA IS AVAILABLE?

- Demographic information
- Encounter history
- Lab and microbiology results
- Vital signs
- Radiology reports
- Adverse reactions/allergies
- Medication history
- Diagnosis/conditions/problems
- Immunization records
- Documents (e.g., PCP notes)
- Social determinants data

WHAT FEATURES ARE OFFERED?

- Worklist patient management
- Real-time events of care notifications
 - Admissions and discharges
 - Final reports and results
 - New documents
 - Deaths
- Mental health information
- VA connections
- Evidence-based care decision information

We use HealthInfoNet's clinical portal to prepare our medical staff with the most information possible about our patients before they come into our care. The system fills in key blanks of our patients' medical history.

Dorn McMahon, LCSW, Maine Medical Partners



Analytics & Reporting

- Supply timely reporting through innovative applications of analytics and delivery mechanisms
 - Near real-time predictive analytics used to address risk and improve outcomes
 - Statewide Maine CDC quality dashboards to assess diabetes and hypertension outcomes
 - Medicaid utilization measurement to assist MaineCare with identifying members using the emergency department for non-emergent diagnoses
 - Alerts sent to the Maine CDC:
 - Laboratory reporting – Specific lab results indicating the existence of one of 72 diseases for mandated reporting
 - Syndromic Surveillance – Events of care where the chief complaint indicates possible disease or condition that requires review/intervention



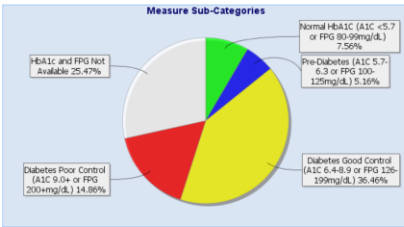
Maine CDC Statewide Quality Measures Dashboard

NQF 18: Controlling High Blood Pressure NQF 59: Comprehensive Diabetes Care NQF 24: Childhood Obesity NQF 421: Adult Obesity

Select Public Health District: ALL, Aroostook, Central Maine, Cumberland, Down East
 OR County: ALL, Androscoggin, Aroostook, Cumberland, Franklin
 OR Town: ALL, Abbot, Abbot Village, Acton, Adamstown Township
 Measure Year End Date: 2019-11-01
 Measure Year Start Date: 2018-11-01
 Run View Map Export Results

NQF 59: Comprehensive Diabetes Care: Hemoglobin A1c or Fasting Plasma Glucose Measure Ending 2019-11-01

Measure Name	Numerator	Denominator	Percent
NQF 59: Comprehensive Diabetes Care: Hemoglobin A1c or Fasting Plasma Glucose	32655	80968	40.33
Normal HbA1c (A1c <5.7 or FPG 80-99mg/dL)	6118	80968	7.56
Pre-Diabetes (A1c 5.7-6.3 or FPG 100-125mg/dL)	4181	80968	5.16
Diabetes Good Control (A1c 6.4-8.9 or FPG 126-199mg/dL)	29522	80968	36.46
Diabetes Poor Control (A1c 9.0+ or FPG 200+mg/dL)	12030	80968	14.86
HbA1c and FPG Not Available	20625	80968	25.47



Selected Region(s): ALL
 Reporting Sites: Bridgton Hospital, Calais Regional Hospital

NQF 59: Comprehensive Diabetes Care: Hemoglobin A1c or Fasting Plasma Glucose

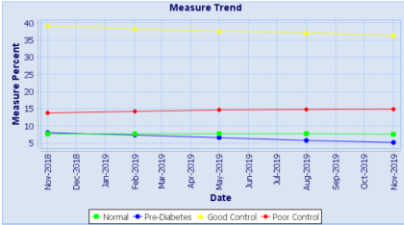
Overview
 The percentage of patients 18-75 years of age with diabetes (type 1 and type 2) whose most recent HbA1c level during the measurement year was greater than 9.0% (poor control), or if missing an HbA1c result, whose most recent Fasting Plasma Glucose (FPG) is greater than 200 mg/dL, or who was missing both results, or if neither an HbA1c nor an FPG test was done during the measurement year.

Denominator
 Patients 18-75 years of age by the end of the measurement year who had a diagnosis of diabetes (type 1 or type 2) during the measurement year or the year prior to the measurement year.

Numerator
 Patients whose most recent HbA1c level is greater than 9.0%, or, if the HbA1c result is missing, whose most recent Fasting Plasma Glucose (FPG) is greater than 200 mg/dL, or who is missing both results, or for whom neither an HbA1c nor FPG test was done during the measurement year. The outcome is an out of range result of an HbA1c test, indicating poor control of diabetes. Poor control puts the individual at risk for complications including renal failure, blindness, and neurologic damage. There is no need for risk adjustment for this intermediate outcome measure.

Exclusions

- Exclude patients who did not have a diagnosis of diabetes, in any setting, during the measurement year or the year prior to the measurement year.
- AND Exclude patients who meet either of the following criteria:
 - A diagnosis of polycystic ovaries, in any setting, any time in the patient's history through December 31 of the measurement year.
 - A diagnosis of gestational or steroid-induced diabetes, in any setting, during the measurement year or the year prior to the measurement year.



HealthInfoNet Technical Support: support@hinfonet.org, 207-420-0900

Maine CDC Statewide Quality Measures Dashboard



Total Patients: 1,478,843

Age Group Distribution

Gender Distribution

Risk - ED Visit

Emergency Visits / 1000 / Year

Emergency Visits / 1000 / Month

Population Utilization Risk

Payor Distribution

Risk - Cost

Yearly Estimated Cost Per Person

Monthly Estimated Cost Per Person

Data Updated Through: 2019-11-18 17:01:35

Risk - IP Admission

Inpatient Discharges / 1000 / Year

IP Discharges / 1000 / Month

Filters

VIEW

- 1 Patient Assigned ACO (All)
- 2 Patient Assigned PCP Facility (All)
- 3 Patient Assigned PCP Practice Site (All)
- 4 Patient Assigned PCP (All)
- 5 Patient Attribution - Facility (All)
- 6 Patient Attribution - Facility System (All)
- 7 Patient Assigned to Care Management (All)
- Demographics - Age (All)
- Demographics - Gender (All)
- Disease - Chronic Disease (All)
- Disease - Chronic Disease Count (All)
- Disease - Risk Factor - Alcohol User (All)
- Disease - Risk Factor - Blood Pressure (All)
- Disease - Risk Factor - BMI (All)

Analytics & Reporting Platform for Patient Risk Management

Innovation Updates

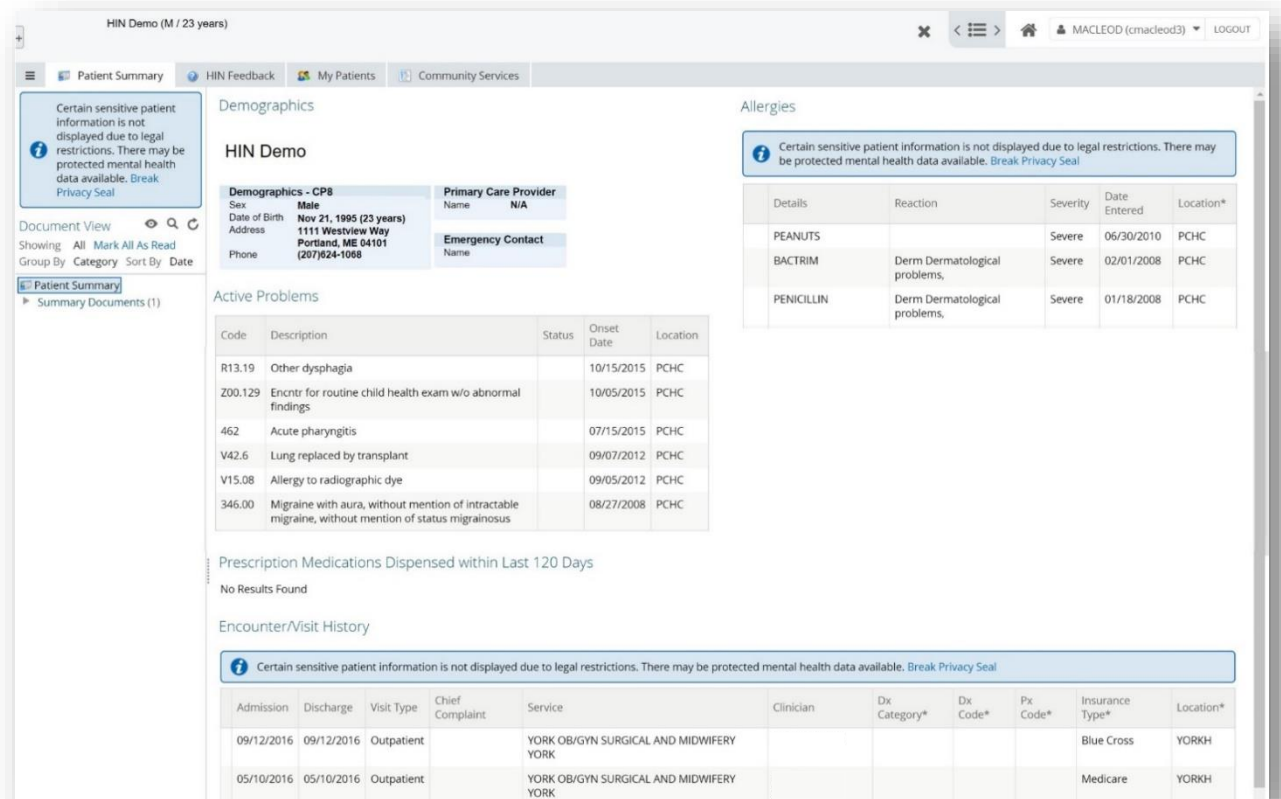
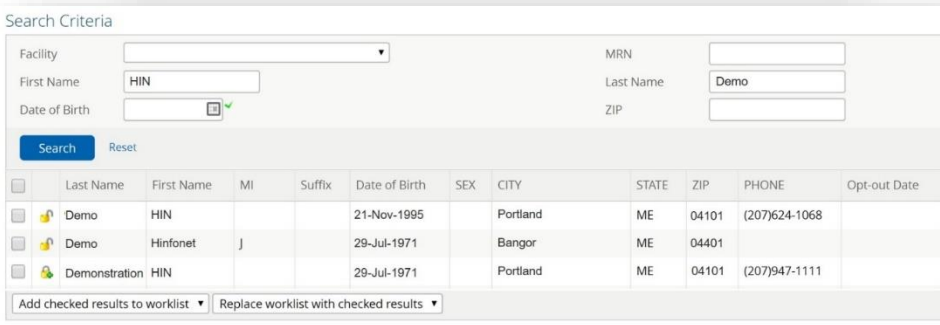
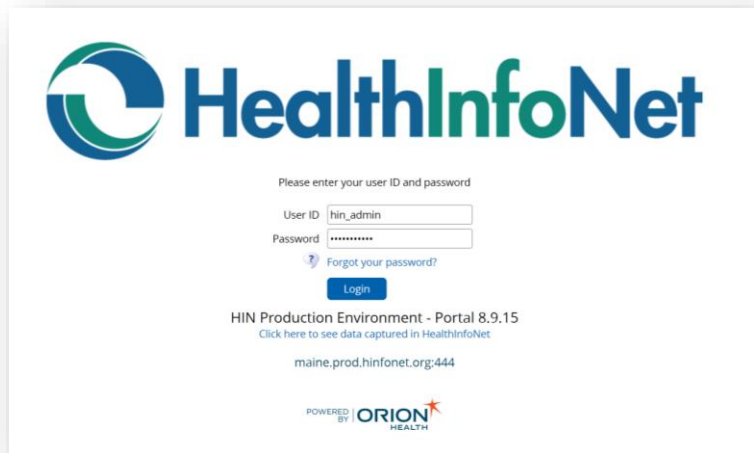
Powering Healthcare Transformation with
Innovative Applications of Data & Technology

Shaun Alfreds, MBA
Chief Executive Officer

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Clinical Portal Upgrade

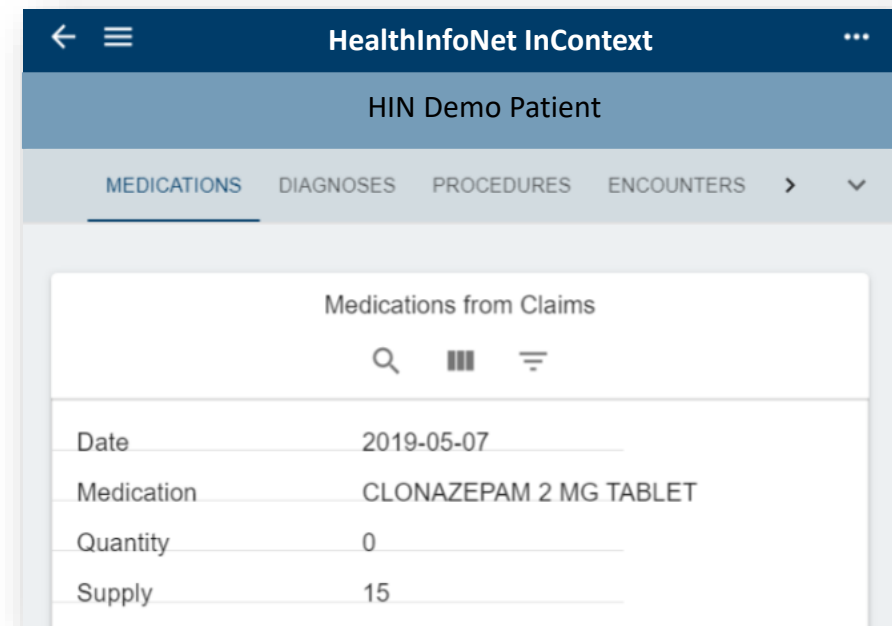
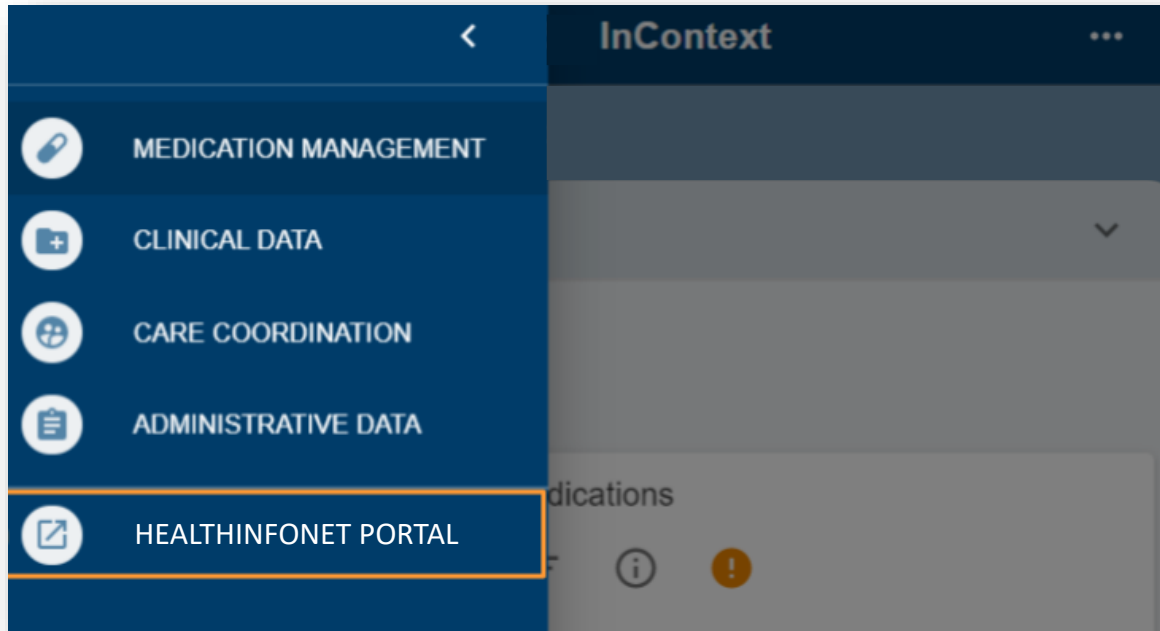
Updating the clinical portal user interface and workflow experience



Clinical Portal Patient Lookup Functionality

SMART on FHIR API Development

Developing SMART on FHIR API resources to support Commonwell and Epic use cases



HealthInfoNet-to-EHR InContext Patient Lookup Functionality

Substance Use Data Integration

Addressing 42 CFR Part 2 regulations to incorporate substance use data, including integration functionality with the Prescription Drug Monitoring Program (PDMP)

Substance Use Disorder
Data Sharing in Maine –
Convening #2

Southern Group

HealthInfoNet

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MeHAF-Funded SUD Data Workgroup Convening Activities

Written Opt-In Consent #1 – Patient signs form to disclose any or all Mental Health, HIV, and SUD data to all treating providers who participate in the HIE

1) Provider and patient discuss consent form and timeframe for consent



2) Patient chooses to give written consent to disclose

3) The form is sent to all treating providers who chose to make access

***This does not replace*

Verbal Opt-in #2 – Patient provides verbal consent* to disclose any or all Mental Health, HIV, and SUD data to a single provider at the point of care

1) Patient provides verbal consent to disclose data on a one-time basis to a single provider at the point of care



2) Provider accesses the HIE and breaks the sensitive data “privacy seal”, noting that the patient has given verbal consent or declaring an emergency. Provider may type in details for why they are accessing the data in the text box



3) The provider that received verbal consent will have access to the data the patient consented to share for a **three-day period*****. After the third day, the provider will need to receive verbal consent from the patient to view the protected data again

**Either provided on a one-time basis or in the instance of an emergency*

Social Determinants of Health Data Collection

Expanding the collection of social determinants of health (SDOH), including the Homeless Management Information System (HMIS) and Medicaid transportation services claims

The screenshot displays a web application interface for 'Non-Emergent Transportation History'. At the top, there are navigation tabs: 'Patient Summary', 'VA Record Search', 'My Patients', and 'Community Services'. Below the tabs is a search bar and a 'Show 25' dropdown menu. The main content is a table with the following columns: 'Provider', 'Date of Service', 'Code', 'Type', and 'Description'. The table contains 10 rows of data, all from 'LOGISTICARE SOLUTIONS' LLC. The 'Code' column consistently shows 'T2003' and 'NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP'. The 'Description' column lists various transportation routes such as 'Physician's office to a Residence', 'Residence to a Physician's office', and 'Hospital to a Diagnostic/therapeutic site other than P/H'. At the bottom of the table, it indicates 'Showing 1 to 25 of 238 results' and includes a pagination control with buttons for 'Previous', '1', '2', '3', '4', '5', '...', '10', and 'Next'.

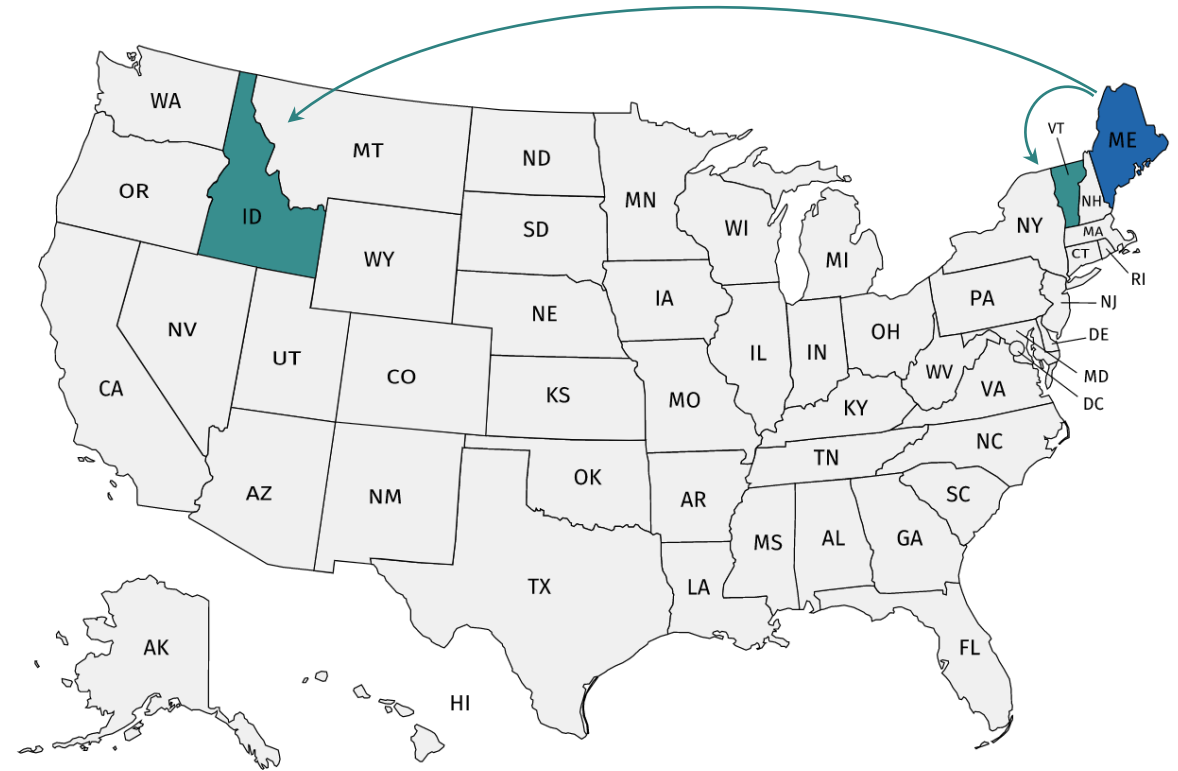
Provider	Date of Service	Code	Type	Description
LOGISTICARE SOLUTIONS' LLC	2019-08-20	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Physician's office to a Residence
LOGISTICARE SOLUTIONS' LLC	2019-08-20	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Residence to a Physician's office
LOGISTICARE SOLUTIONS' LLC	2019-07-23	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Diagnostic/therapeutic site other than P/H to a Physician's office
LOGISTICARE SOLUTIONS' LLC	2019-07-23	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Physician's office to a Diagnostic/therapeutic site other than P/H
LOGISTICARE SOLUTIONS' LLC	2019-06-25	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Diagnostic/therapeutic site other than P/H to a Physician's office
LOGISTICARE SOLUTIONS' LLC	2019-06-25	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Physician's office to a Diagnostic/therapeutic site other than P/H
LOGISTICARE SOLUTIONS' LLC	2018-10-25	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Hospital to a Diagnostic/therapeutic site other than P/H
LOGISTICARE SOLUTIONS' LLC	2018-10-10	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Hospital to a Residence
LOGISTICARE SOLUTIONS' LLC	2018-07-13	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Physician's office to a Residence
LOGISTICARE SOLUTIONS' LLC	2018-07-13	T2003	NON-EMERGENCY TRANSPORTATION; ENCOUNTER/TRIP	Residence to a Physician's office

Non-Emergent Transportation Community Services Information

Cureous Innovations



- Recently created for-profit subsidiary entity, **Cureous Innovations**, to expand and advance health information exchange activities outside of the State of Maine
 - Contracts with the Vermont Information Technology Leaders (VITL) and the Idaho Health Data Exchange (IHDE)
 - National marketing of TermAtlas™, Rhapsody®, analytics and reporting, and consulting and support services
 - Expanded suite of partners and technologies to continue to advance Maine’s HIE systems and services



Service Branding & Marketing Efforts

TermAtlas™
A proven medical terminology engine.

TermAtlas overcomes the challenges of local coding norms by transforming unique medical concepts into industry-standard vocabularies. A proven medical terminology engine, the software offers a systematic way of collecting, processing, and delivering critical information in a format understood by all.



Enhanced Quality

Non-standard data values can be difficult to work with – to query, to retrieve, to report.

Not to mention they inhibit meaningful data analysis, performance measurement, and actionable reporting.

TermAtlas surmounts these challenges first by establishing uniformity then by delivering high-quality data sets.



Built-In Sensitivity

As additional data sources, and thus more sensitive information, is integrated into robust data repositories, it's important to keep in mind when, where, and to whom that information can be made available.

TermAtlas ensures data enters the right hands by flagging configurable value sets of interest to block or sequester.



Reliable Support

Key medical concepts – both local and industry values – constantly emerge and develop.


TermAtlas harmonizes these updates by routinely loading newly published industry-standard vocabularies (i.e., ICD, CPT, HCPCS, LOINC, and SNOWMED) while maintaining client-specific source-to-target mappings.

Cureus Innovations is dedicated to advancing health and wellness through sophisticated applications of data and technology. We innovate with a curious eye and the challenge to always do better.

www.cureusinnovations.com | info@cureusinc.com | 207-541-9250
60 Pineland Drive, Portland Hall Suite 230, New Gloucester, ME 04260

Connect
A collaborative help desk platform.


A modern service desk software, Connect pairs self-service wiki and ticketing features with SLA and customer satisfaction reporting within a single platform. The software provides customers with access to a transparent knowledge base and a flexible ticketing system to overcome unforeseen challenges as they arise.



Robust Repository

Before filing a request, end users have the opportunity to connect to a transparent knowledge base stocked with documents designed to help answer their questions most effectively and efficiently.


Connect uses machine learning based on end users' keyword searches to intelligently recommend the most relevant resources.



Dynamic Ticketing

Customers can quickly submit requests or questions related to products and services through an easy-to-use web-based help center platform or by sending an email to their familiar support teams.

Connect creates a dynamic and collaborative interaction between end users and technical teams to resolve questions with confidence.



Personal Support

As good as technology can be at finding the right answers, sometimes there's nothing quite like person-to-person conversations to facilitate understanding and to quickly resolve questions or issues.

Connect provides end users with the necessary channels to contact a member of a dedicated support team via email or telephone.

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Rhapsody Engine
An intelligent integration system.

Rhapsody's high-performing interoperability platform enables healthcare organizations to seamlessly share and exchange health data information. Built with FHIR capabilities, the data integration system has been expertly designed for robust and reliable data processing and emerging data sources and use cases.



High Performance

With support for all health data message formats and standards, such as HL7, CCD, NCPDP, X12, and others, the data integration engine is a highly robust and scalable interoperability platform that has been designed to help users get results quickly.

The Rhapsody Engine has been engineered to adapt as needs and use cases evolve.



Fast Migrations

Migration and conversion activities from a legacy integration platform just became a lot simpler.

The Rhapsody Intelligent Mapper reduces the time and cost of migration, while ensuring high quality results, by performing analysis of legacy engines and reverse engineering of rules, documentation, and code.



Secure Systems

The system is a multi-platform integration engine, supporting Windows®, Linux, and AIX® operating systems. It is a reliable and robust engine that can be configured for availability.

The Rhapsody Engine takes security seriously, with a view to safeguarding any protected health information (PHI) that passes through the engine.

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Out-of-State Expansion



- Data processing and validation through Rhapsody® integration engine
- Local code standardization TermAtlas™ management services
- Support desk ticketing and knowledge-base resource



- Technical assessment and consultation of infrastructure and services design
- Enterprise master patient index evaluation and validation
- Local code standardization TermAtlas™ management services
- Marketing and communications strategy development





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