



HealthInfoNet Update:
Moving HIE to The Next
Generation of
Information
Management

Devore S. Culver November 9, 2017

First... A Personal Update





Presentation Objectives

- HIN Operations Update
- Overview New Data Types and New Service Opportunities
- Demonstrating Impact in the Behavioral Health Patient Management Space
- What is Coming in 2018



HIE Connections



Acute Care Hospitals	18
Critical Access Hospitals	16
Mental Health Hospitals	1





Mental Health Hospitals	1
Ambulatory	464
Behavioral Health	143
FQHCs	68
Post-Acute Care	46
VA Locations	12
Labs	4
Health Systems	5
Emergency Medical Service	3
Pharmacy	2





Payers





HealthInfoNet's Statistics 2017



16.5+ million
Inbound messages/month



85,000Patient lookups/month



45,000 real timePatient encounter notifications/month



Data transmissions sent to Maine CDC in support of Electronic Lab Reporting, Syndromic Surveillance and Immunization Reporting (Meaningful Use Measures)/month



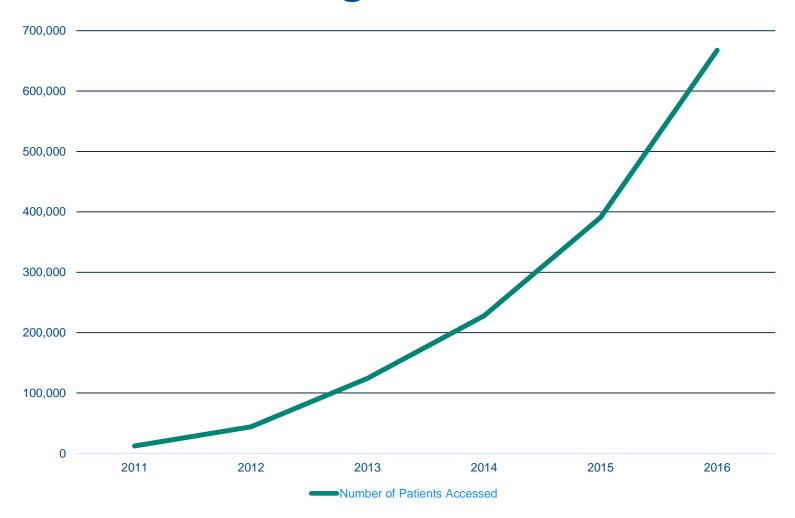
7 TB CDRCentral Data Repository size



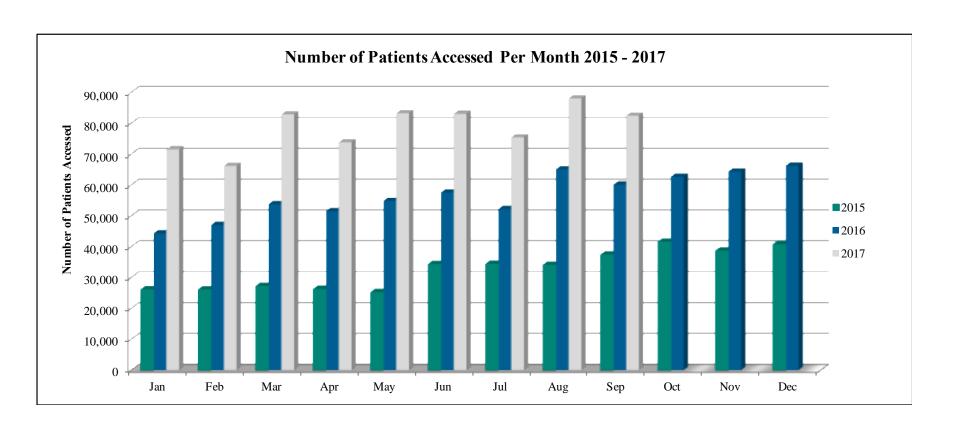
8+ GB a day
Central Data Repository
(CDR) daily growth



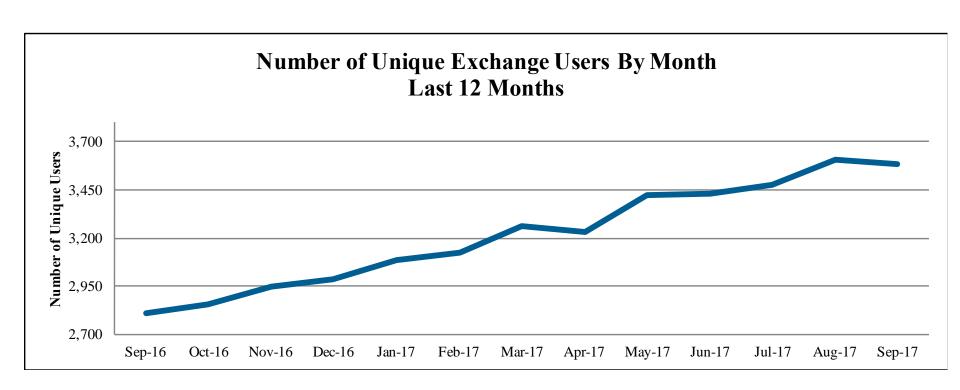
HIE Usage 2011-2016



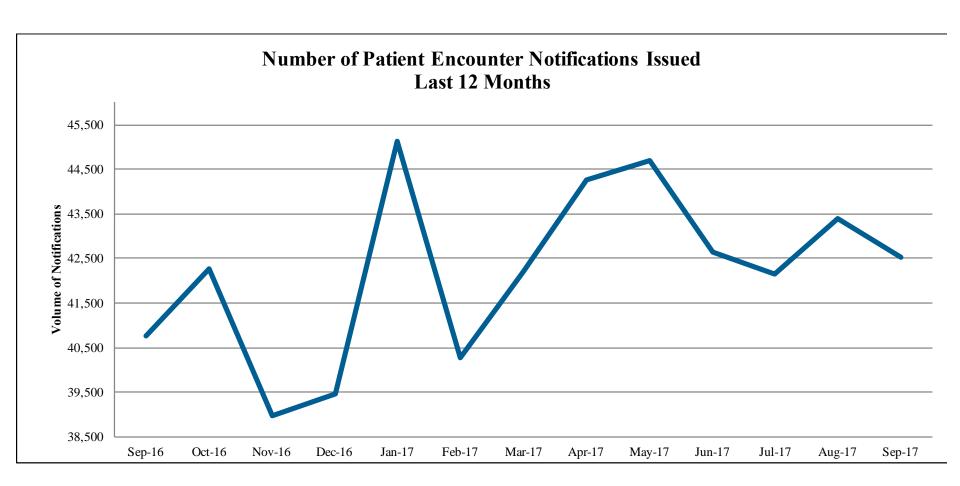




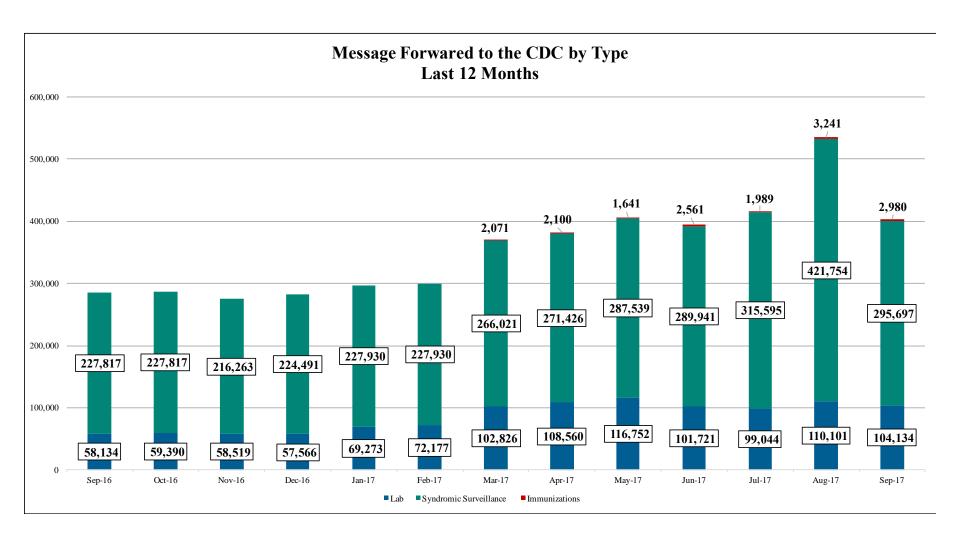






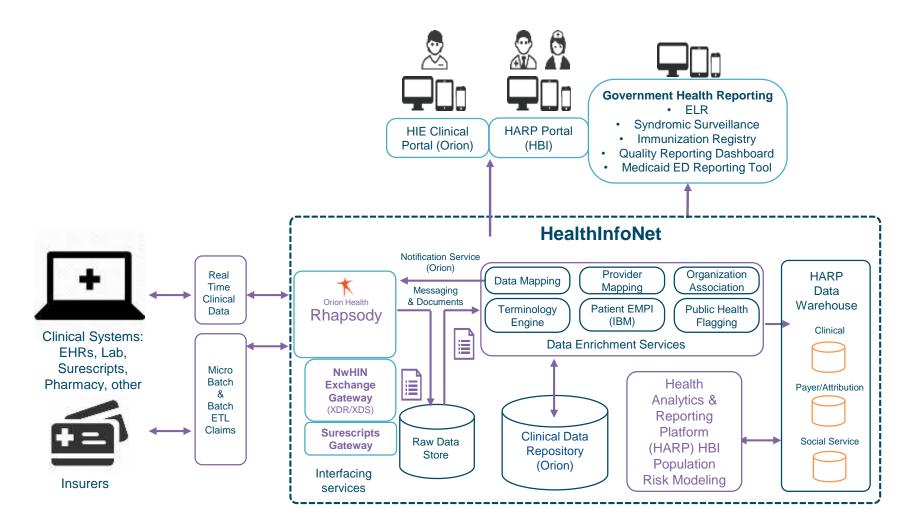








HealthInfoNet Architecture Diagram





Expanding the Statewide Exchange Database



Introducing Social
Determinants
Of Health
SDoH



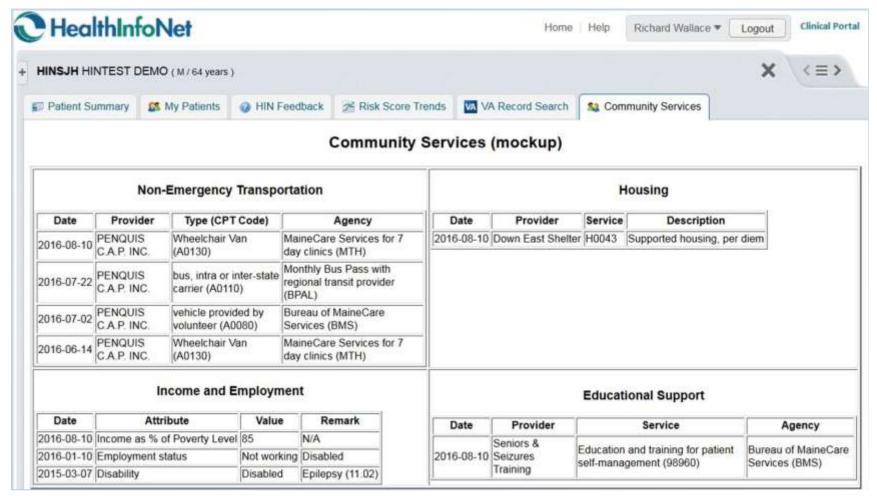
Active SDoH Data Partners

- Community Action Agencies (CAA)
- Maine Department of Health and Human Services (i.e. Medicaid)
 - Non-emergent transportation services data
 - Behavioral health prior authorization & certification data
- FQHC "UDS" social data:
 - Housing/migrant worker status
 - Use of new SDoH ICD-10 coding available (Z Codes)



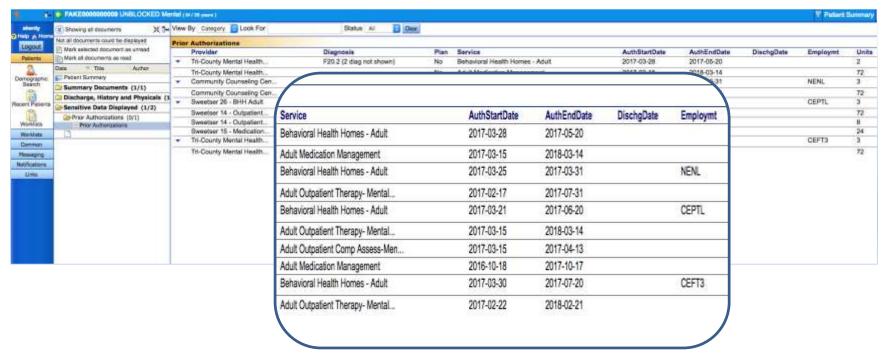


HIE Portal - Community Services Data Upgrade





Medicaid Behavioral Health Prior Authorization Data



Examples of new data contributions include:

- Medicaid Health Home (Stage B) Encounters
- State Mental Health Hospital Encounters
- Employment status



SDOH and Medicaid Claims Included in Enhanced HIE Predictive Analytics

Patient History

Patient Risk of Event or Outcome

Risk Model Development

1000s of Patient Features

- Age
- Gender
- Geography
- Income (Census)
- Education (Census)
- Race (Census)
- Diagnoses
- Procedures
- Chronic conditions
- Visit and admission history
- Outpatient medications
- Vital signs
- Lab orders and results
- Radiology orders
- Medicaid Claims

Multivariate Statistical Modeling -**Decision Tree Analysis Machine Learning**

Available Risk Models

Population Risk Models (predicts future 12 months)

- Predicted Future Cost
- Risk of Inpatient Admission
- Risk of ED Visit
- Risk of AMI
- Risk of Asthma
- Risk of CHF
- Risk of COPD
- Risk of CVA
- Risk of Diabetes
- Risk of Hypertension
- Risk of Mortality

Event Based Risk Models (predicts future 30 days)

- Risk of 30 day Readmission
- Risk of 30 day ED Return



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Next Steps for SDoH

- HIE Connection with Maine's Homeless
 Management Information System (HMIS)
 (2017/2018)
- Combine State Services & HIE EMPI (2018)
- Opt-In Structure for "non-covered entity" SDoH data (example: CAA data)
- EHR use of new ICD-10 Z codes for "Factors influencing health status and contact with health services (Z00-Z99)"





Behavioral Health Organizations & HIE Integration Results



Key BH Integration Projects

- Completed bidirectional HIE connections & provide 1.5 million in reimbursements for HIT investments across 20 BHOs
- 2. Trained and sustained HIE usage for the Clinical Portal and Notifications service across all 20 participants
- 3. Completed a quality improvement project to reduce unnecessary Emergency Department utilization for MaineCare members
- 4. Connect additional BHHs with view only services (SIM year 4)
- Educate HIE users about the new value of KEPRO data for BHH patients



SIM BHO Quick Stats

\$1.455 million reimbursed across 20 BHOs



74,522
Cumulative
Patient
Accesses

12,000



Patients
Managed
with
Notifications
by

163 Users





SIM BH Quick Stats

11,000+ patients have chose to opt-in their mental health information

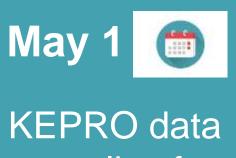


6

BHHs joined
as part of
SIM Year 4
View-only offer



18 / 20 are Behavioral Health Homes



goes live for BHH patients only



BHO SIM Monthly Records Accessed







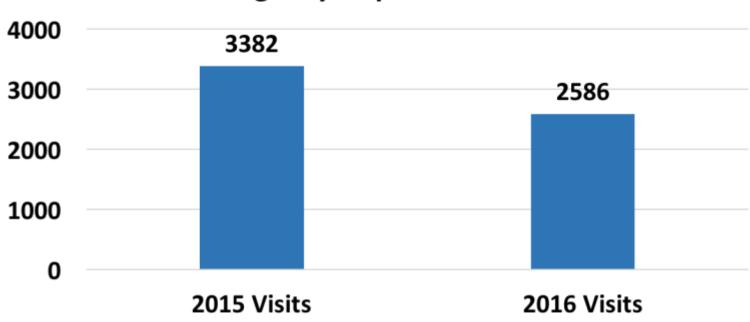
BH Quality Project Goals – Extension to 12 month

- Implement real-time notifications for ED/hospital admissions to intervene with clients with a history of 2 or more ED visits within a 6 month period (418 patients selected)
- 2. Access the HIN Portal to coordinate care with both the client & medical community
- 3. Leverage "Data Informed" workflows with all organizations and convene monthly "learning community" to share lessons learned



ED Visit - 23% Decrease

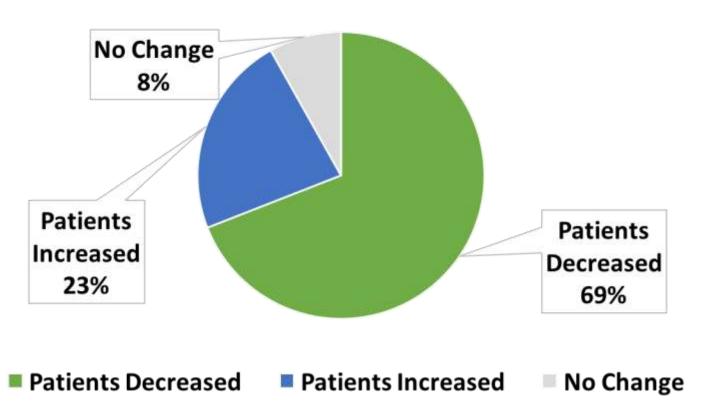
Emergency Department Visits





Decreased ED Utilization for 288 Patients

Emergency Department Visits







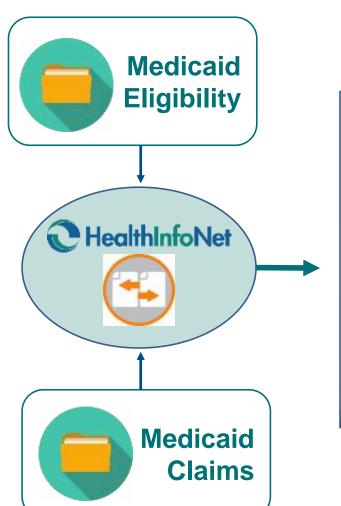


MaineCare Utilization Reporting Tool - Background

- MaineCare's "ED Collaborative" Care Management program was using a hospital generated "ED visit census fax workflow," to identify members who were using the ED inappropriately.
- The hypothesis was that if provided the data required, HIN could build a process that is more reliable, timely, and efficient than the hospital census fax information.
- MaineCare began to provide HIN monthly batch claims data (eligibility, medical, pharmacy) to integrate with the HIE Clinical Data Repository and Mater Person Index.



"MaineCare Utilization Reporting Tool" Overview







Data Parameters

- Data Use Permission received from all Hospitals to make data available to MaineCare for the specific "use-case".
- Data Scope Dashboard excludes HIE data during times of discontinuous eligibility (i.e. No data that the payer does not have legal access to under HIPAA is available).
- Timeliness Dashboard is updated overnight with the previous days HIE data and revises daily eligibility changes provided by MaineCare claims data daily update process.

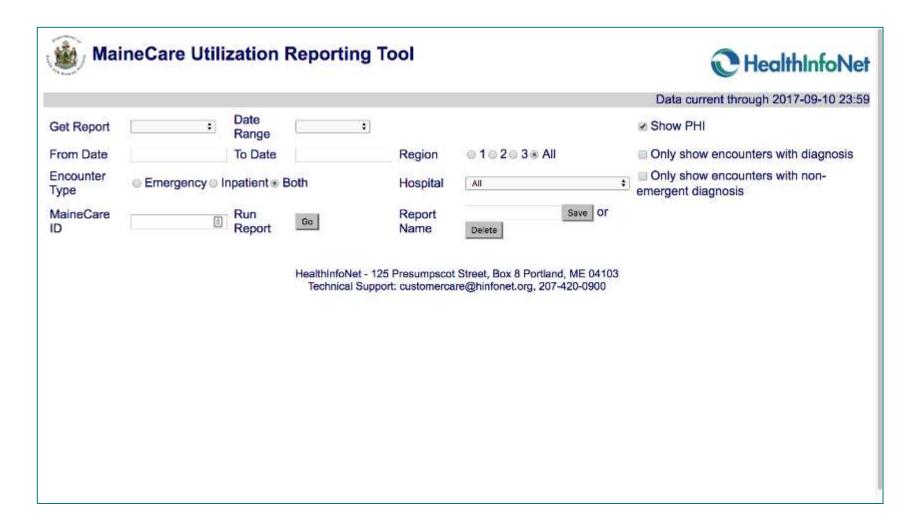


Access Parameters

- Access the reporting solution is built within the HIE architecture and uses the same security and audit parameters (VPN, authentication, etc.).
- User Management user accounts are provided and management per client request within the scope of the project.
- Reliability the solution resides in both test and production environments



User Interface Design



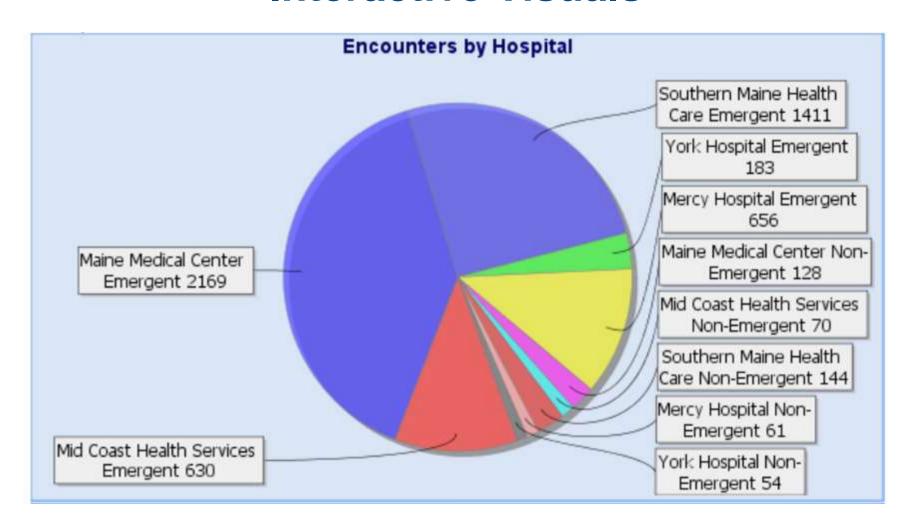


Data Output Design



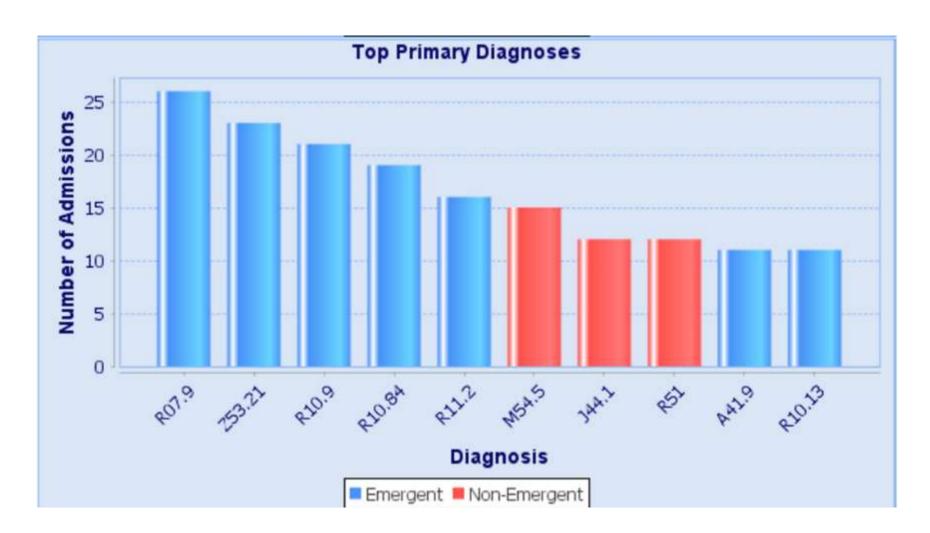


Interactive Visuals



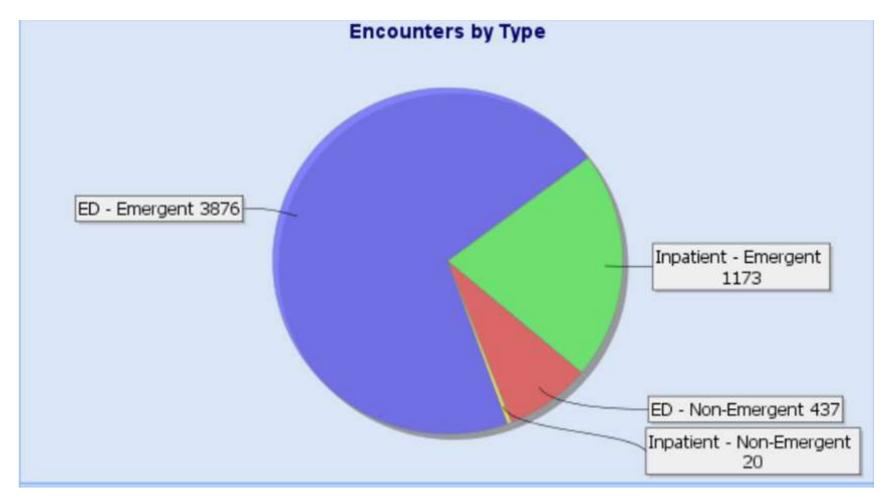


Custom Analysis





Custom Analysis





Custom Analysis





Custom Data Export

Active	Admit Date	MaineCare ID	Prim. Ins.	Patient Name	DOB	Count	PCP	Region	System	Hospital	Chief Complaint	Емя Турм	Dx Code	Diagnosis Description	Dx Code 2	Diagnosis Description 2	ED Rink	p Risk	Cost	Home Home Start Date	Health Home Provider Type 1	Health Home Service Location
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	2017-06-16 18-10	H006N338738	N.			:2	Timothy Webb	2	MGH	Maine/Jeneral Flexith	Back Pain	17	MSAR	Donagia, propertied	M05.17	Intert disc discreters w redisculated by, lumb construit region	77.3	31,8	100.0	1208/2015	Britis B	Moho Courseling 003
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	2017-08-02 21:36	HIDDEN996320	N			19	NEED INFO	3	ENHS	Eastern Medical Medical Center	LT ARM PAIN	t	M79 042	For in left hand	G89.29	Other chronic pain	74.0	12.7	05.1	12/21/2016	gon-B	Acts Benga 019
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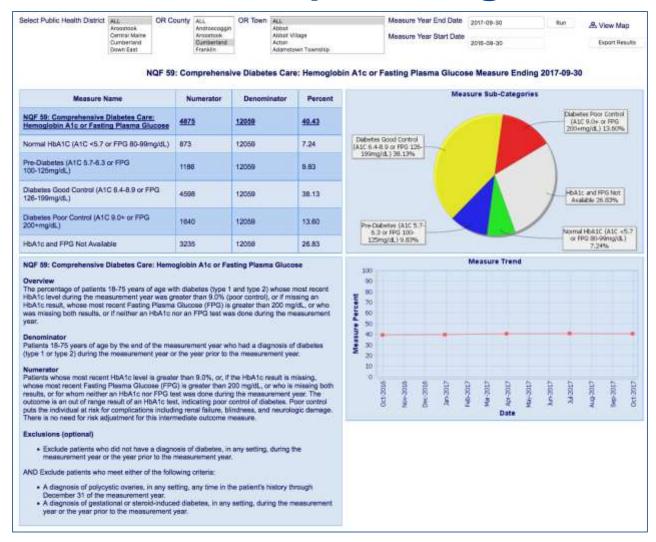


CDC User Interface Design



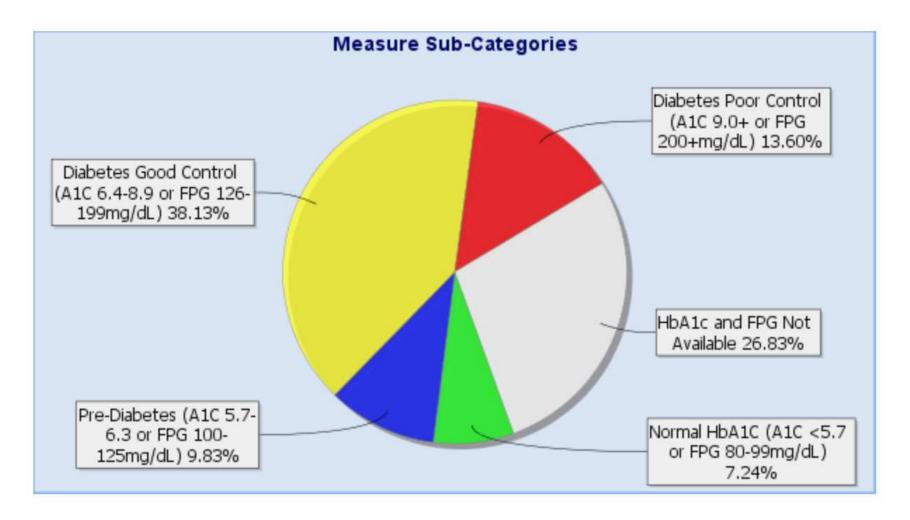


Data Output Design





Interactive Visuals





Interactive Visuals

Measure Name	Numerator	Denominator	Percent		
NQF 59: Comprehensive Diabetes Care: Hemoglobin A1c or Fasting Plasma Glucose	<u>4875</u>	12059	40.43		
Normal HbA1C (A1C <5.7 or FPG 80-99mg/dL)	873	12059	7.24		
Pre-Diabetes (A1C 5.7-6.3 or FPG 100-125mg/dL)	1186	12059	9.83		
Diabetes Good Control (A1C 6.4-8.9 or FPG 126-199mg/dL)	4598	12059	38.13		
Diabetes Poor Control (A1C 9.0+ or FPG 200+mg/dL)	1640	12059	13.60		
HbA1c and FPG Not Available	3235	12059	26.83		



Interactive Visuals





Measure Overview

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 (optional)

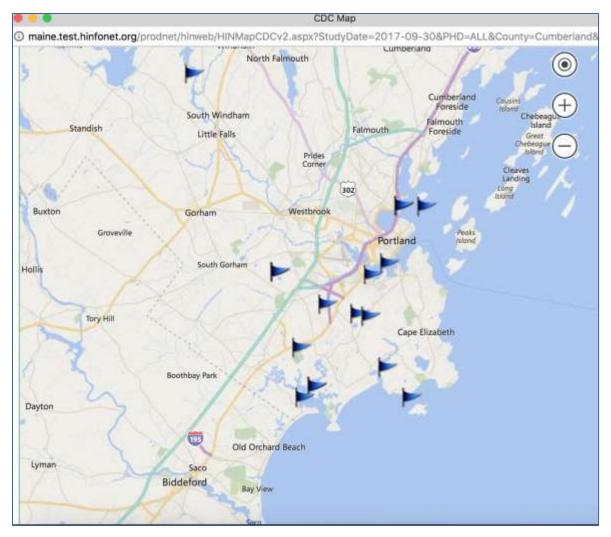
Exclude patients who did not have a diagnosis of diabetes, in any setting, during the
measurement year or the year prior to the measurement year.

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.



Map View





Custom Data Export

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Demo Links

MaineCare Utilization Reporting Tool

CDC Quality Measures Dashboard





What Is Coming In 2018



Looking Toward 2018

- Further expansion of the exchange data set
- New portal clinical viewer (CP8)
- Access to the HARP analytic platform as part of the standard Participant Agreement
- Connection to hospitals in the Boston area
- Expanded reporting functionality



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