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Introduction to *HealthIntent* APIs

October 9, 2018

Bonnie Bates, Patrick Elam

Lead Solution Strategist, Software Engineer

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Before we get started...

- Welcome and Introductions
- Overall Agenda
 - Part 1: Overview of HealthIntent APIs
 - Part 2: Core Constructs
 - Part 3: Registries, Measures, and HCCs
 - Part 4: Authentication/Authorization Setup
- Does anyone need to download Postman now?
 - <https://www.getpostman.com>



Part 1: Introduction to *HealthIntent* and Its APIs

Bonnie Bates

Lead Solution Strategist, HealthIntent

June 26, 2018



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The background of the slide features a close-up, low-angle view of a modern building's exterior. The building is constructed from a complex network of dark steel beams forming a triangular grid pattern, with large, transparent glass panels filling the spaces between the beams. The perspective is looking upwards, creating a sense of depth and architectural complexity.

Why population health?

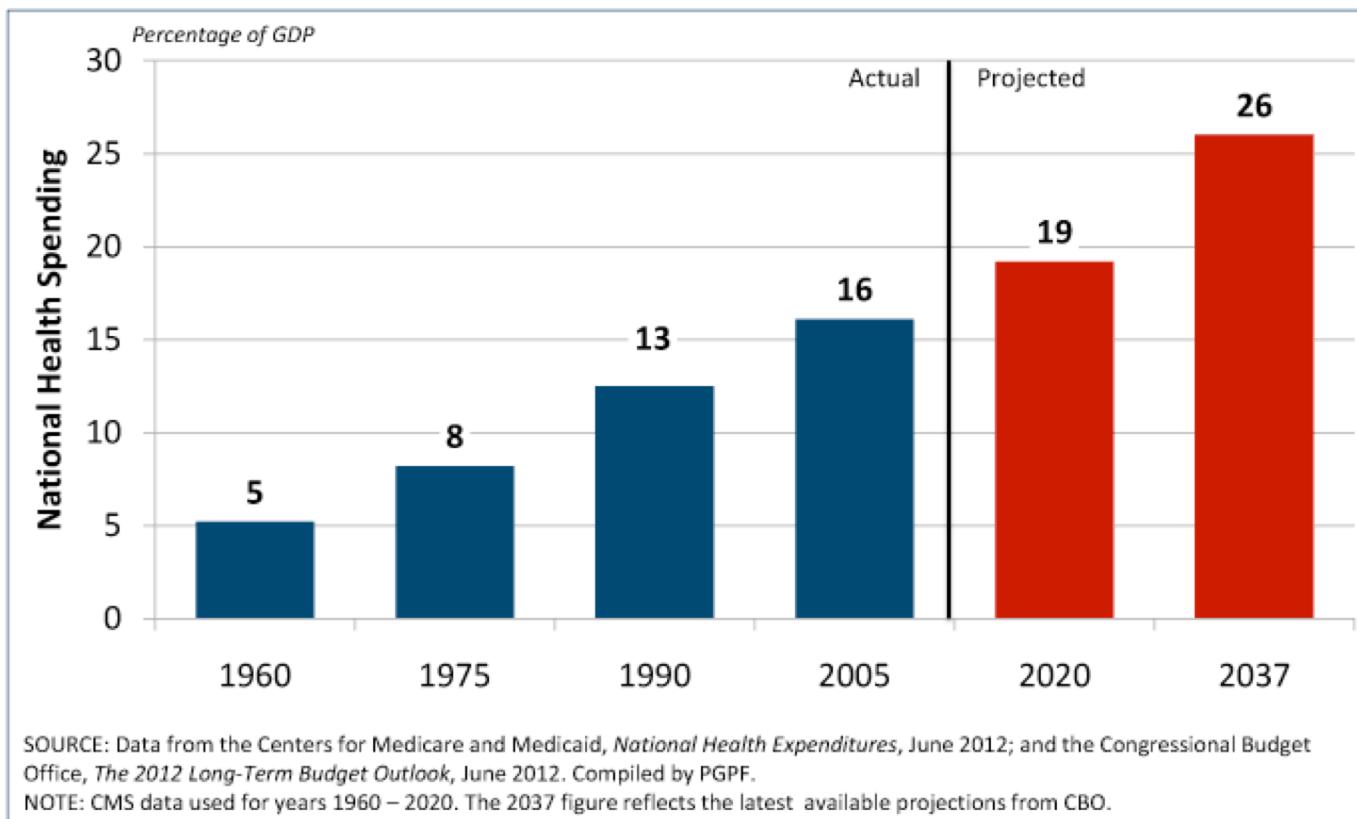
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Legacy model is unsustainable



Total U.S. health expenditures (both public and private) are projected to soar to more than one-quarter of the economy by 2037



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PGPF.ORG

<http://pgpf.org/primers/healthcare>

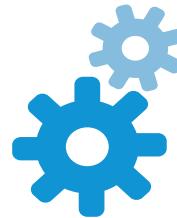
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How do we fix this?

*Change the system's
incentives to reward better
quality and improved
outcomes at lower costs.*

Our strategy



Know

identify and predict what will happen
within your population



Engage

your members, their family and
care providers to take action

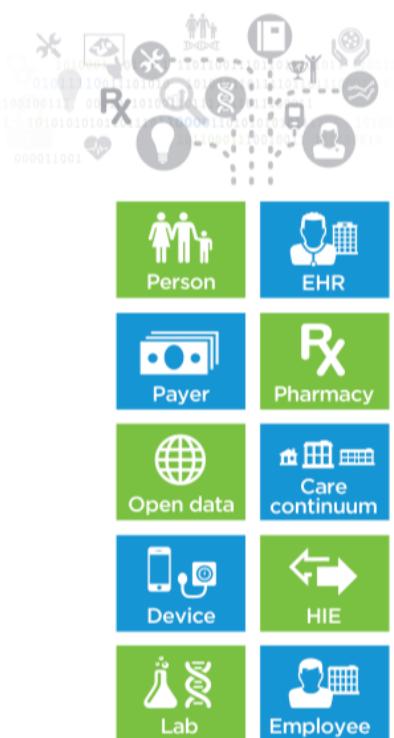


Manage

outcomes to improve
health and care

HealthIntent platform

Aggregate and normalize

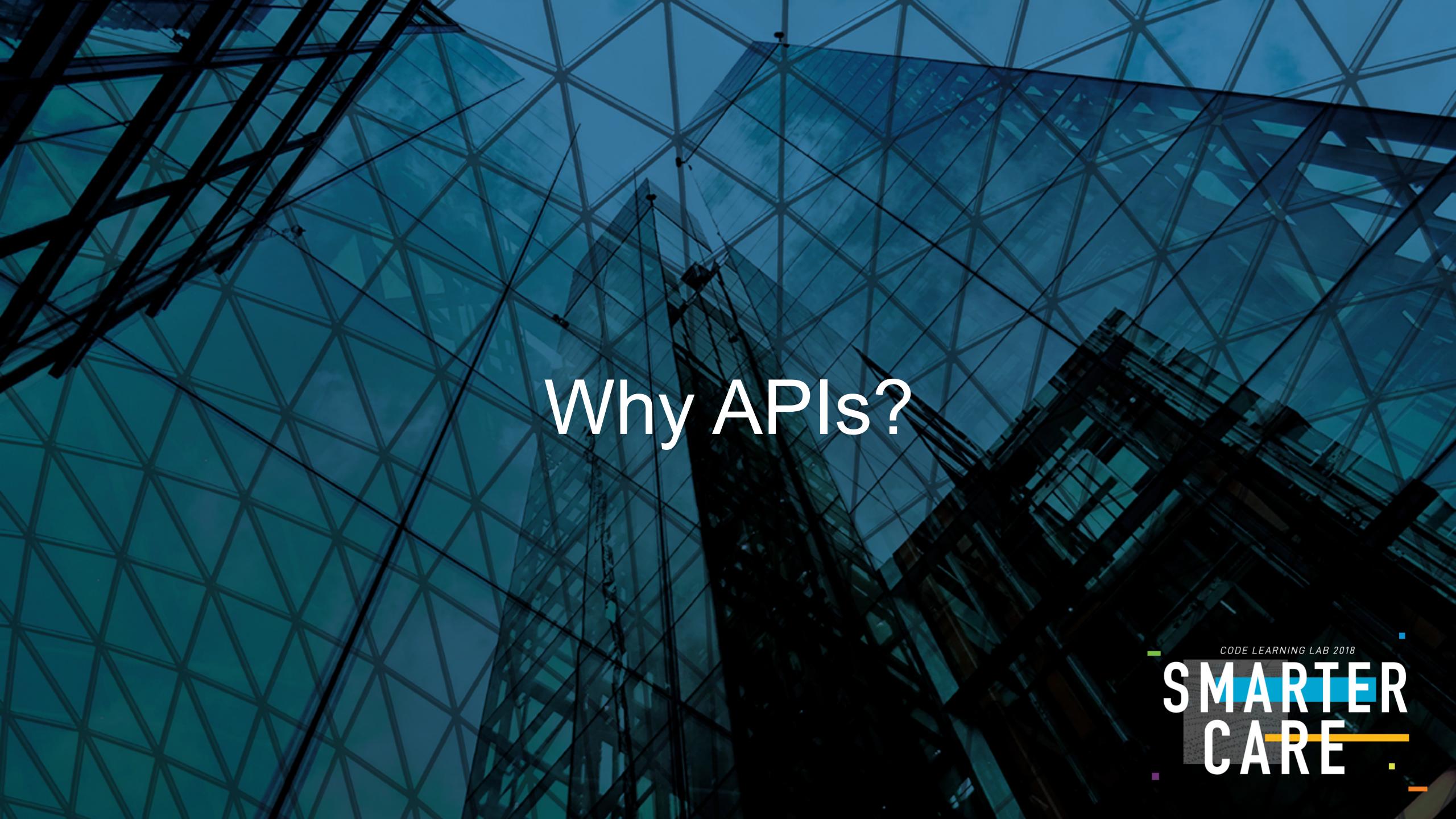


Create and apply intelligence



Act and measure



A dark, abstract background showing the intricate geometric patterns of a modern building's glass and steel framework, with light filtering through the glass panes.

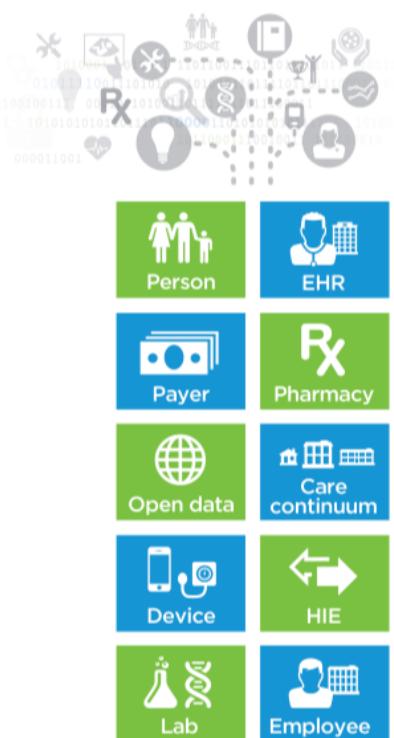
Why APIs?

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Because this isn't what we're selling...

Aggregate and normalize



Create and apply intelligence



Act and measure



This is.

Aggregate and normalize



Create and apply intelligence

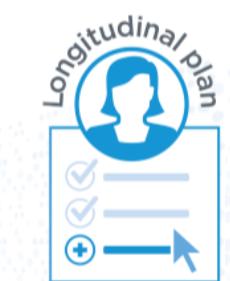
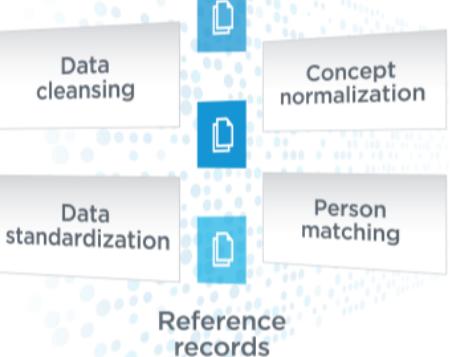


Populations

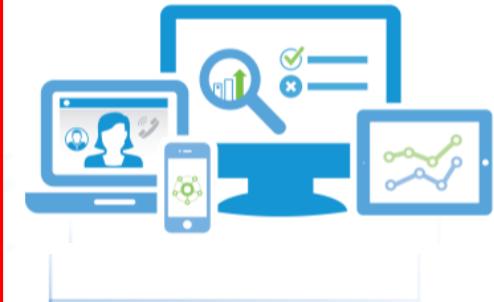
Longitudinal record

LEARNING SYSTEM

IDENTIFY • PREDICT • ATTRIBUTE • ACT • MEASURE
SURVEILLANCE



Act and measure



- Person
- Health coach
- Care manager
- Home health assistant
- Clinician
- Provider
- Data scientist
- Executive

Our strategy



Know

identify and predict what will happen
within your population



Engage

your members, their family and
care providers to take action



Manage

outcomes to improve
health and care

Intelligence in the workflow

Cerner EMR Integration

The Cerner EMR integration section displays three screenshots of the Cerner EMR interface. The top screenshot shows a patient's chart with a medication list and a dropdown menu for 'Order Profile'. The middle screenshot is a dashboard with real-time data like ED volume (18), average acuity (2.9), and provider score (42%). The bottom screenshot shows a 'Recommendations' screen with a list of tasks and a 'Diabetes Maintenance - HgbA1C' entry.

Pluggable Applications (SMART applications)

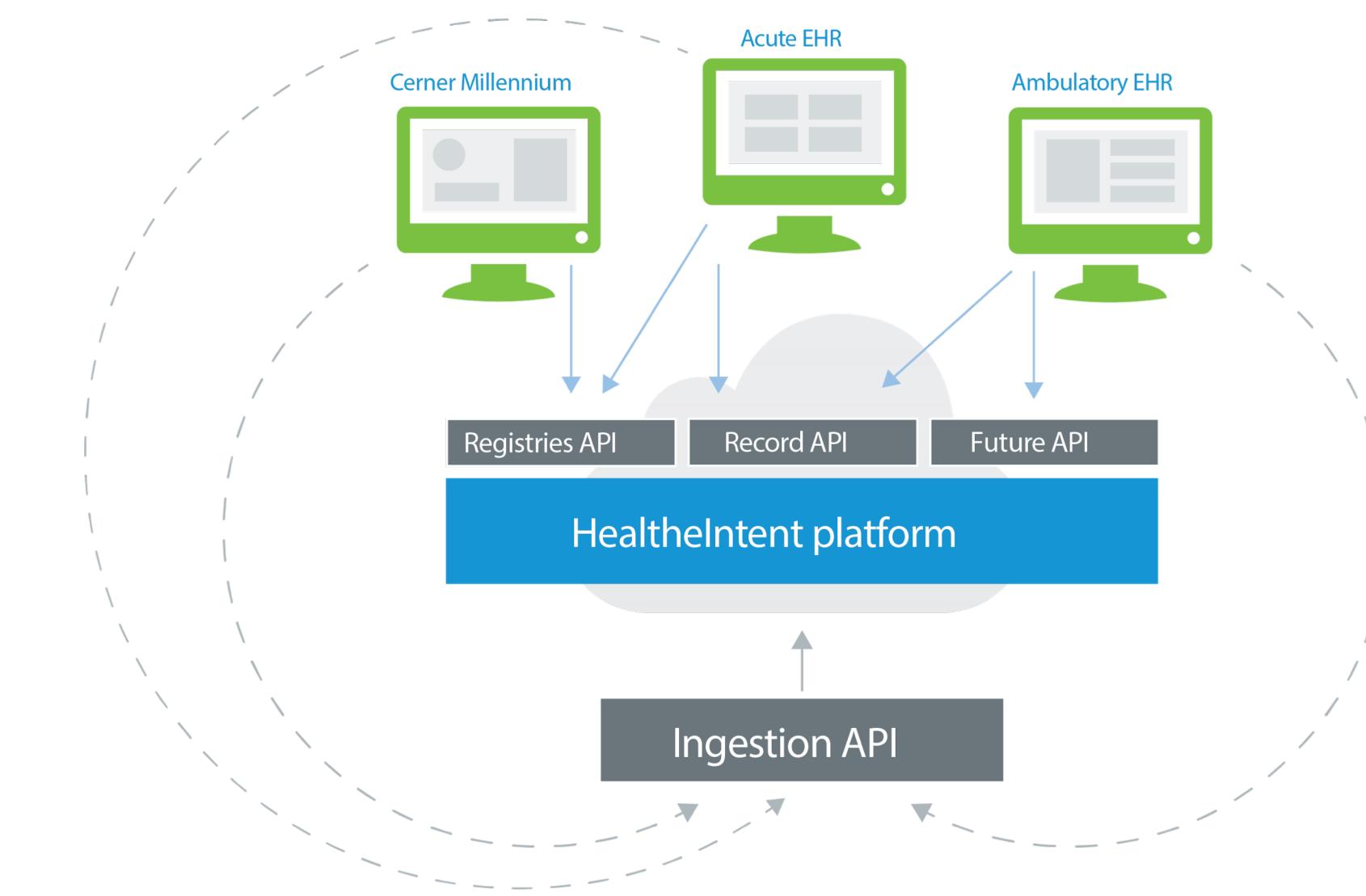
The SMART application interface screenshot shows a 'HealthRecord' for 'MULLES, EWING IVAN'. It includes a 'Composite Score' of 28.00%, vital signs (e.g., blood pressure 128 mmHg, heart rate 120/min), and a 'Conditions' section for Ian Calvert. Below this is a 'Scorecard' for 71 scorables across 7 categories, with a total score of 2,764.

“Deep” Integration (APIs)

The UpToDate interface screenshot shows a patient profile for 'Ibrahimi, Aaron, 32Y, M as of 06/23/2016'. It includes sections for 'POP HEALTH' (Risk Score: 1.4, Quality Score: 50%), 'EXTERNAL REGISTRIES (2)', and 'HYPERTENSION (5 OUT OF 7 MET)'. A detailed view of the 'Blood Pressure Management - ACHIEVED' section is shown, listing target values and last satisfied dates.

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Cerner Ignite APIs for HealthIntent



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Simple API Technologies



Design

- HealtheIntent APIs are designed to adhere to REST patterns



Invocation

- HTTP is the invocation and communication protocol for all HealtheIntent APIs



Messages

- Most HealtheIntent APIs use JSON for structuring data



Security

- API security is system-oriented
- Authentication – the OAuth 1.0a or bearer-token standard is used to authenticate accounts
- Authorization – accounts are granted permissions that are enforced by APIs

HealthIntent APIs for Population Health

- "Legacy" APIs
 - `https://{{tenant}}.{{solution}}.healtheintent.com/api`
 - Data Collector, HealtheCare, HealtheRecord, HealtheRegistries, HCCs, Readmission Risk
 - Replaced: Consumer, Data Syndication
- "Platform" APIs
 - `https://{{tenant}}.api.us.healtheintent.com/{{api-name}}/{{version}}`
 - Patient-oriented services: Allergy, Condition, Health Concern, Immunization, Medication, Observation, Patient, Procedure, Risk Assessment
 - Other services: Consumer, Data Syndication, Healthcare Service, Personnel, Organization, Specialty, Tenant

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Documentation

- All documentation is publicly available at docs.healtheintent.com

The screenshot shows a dark-themed API documentation page for the Cerner code_ API. At the top, there's a navigation bar with the Cerner logo and a search bar. Below the navigation, a blue header bar contains the title "Hierarchical Condition Category API". The main content area has a white background. It starts with a brief introduction to the Hierarchical Condition Category (HCC) model, mentioning over 9000 ICD-10 codes mapping to 70+ HCC categories, and the CMS requirement for documentation once per calendar year. Below this is a section titled "Hierarchical Condition Category" with a detailed description of what it represents. Underneath is a table titled "The HCC object" with columns for Name, Type, and Description. The table lists four fields: diagnosis_code (string, Previously documented diagnosis code (ICD9, ICD10)), code (string, HCC code number and description), diagnosis_code_description (string, Description of the previously documented diagnosis code), and diagnosis_code_system_id (string, The coding system id of the). To the right of the main content, there are two tabs: "ruby" and "shell", followed by a large, mostly blank dark area.

Hierarchical Condition Category API

Hierarchical Condition Category (HCC) is a risk adjustment payment model mandated by the Centers for Medicare and Medicaid Services (CMS). There are more than 9000 ICD-10 codes that map to 70+ HCC codes in the model. CMS requires documentation of the person's condition at least once each calendar year to ensure reimbursement.

Hierarchical Condition Category

A Hierarchical Condition Category represents a persistent and/or suspected diagnoses. A persistent diagnosis is a previously documented condition tied to Hierarchical Condition Categories not yet documented this year. A suspected diagnosis is a condition not diagnosed or documented for the person, but suspected based on laboratory results, medications, and procedures. Both supporting and possible competing clinical facts are provided to facilitate decisions around a suspected diagnoses.

The HCC object

| Name | Type | Description |
|----------------------------|--------|---|
| diagnosis_code | string | Previously documented diagnosis code (ICD9, ICD10) |
| code | string | HCC code number and description |
| diagnosis_code_description | string | Description of the previously documented diagnosis code |
| diagnosis_code_system_id | string | The coding system id of the |

Example HCC object

```
{  
  "diagnosis_code": "250.62",  
  "code": "HCC18 Diabetes with Chronic Complications",  
  "diagnosis_code_description": "DIAB NEURO MANIF ADULT-UNCONTRLD",  
  "diagnosis_code_system_id": "2.16.840.1.113883.6.103",  
}
```

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Millennium Integration – Registries

Provider View | Normal view | Print | 14 minutes

Admit Workflow | Manage Workflow | Ambulatory Work... | Discharge Workfl... | Quick Orders and... | + | Discharged | Home | Search

Allergies ...
Home Medications ...
Labs ...
Recommendations ...
Histories ...
Immunizations ...
Diagnostics ...
New Order Entry ...
Subjective/History of Present Illness
Review of Systems
Objective/Physical Exam
Meaningful Use (11)
Registries
Reminders (0)
Quick Links
Assessment and Plan
Media Gallery (12)
Create Note

Registries (6)

Quality Score: 51% | Viewing: All | Expand All

| Category | Task | Last Update | Status | Due Date |
|---|-------------------------------------|--------------|--------------|--------------|
| Adult Wellness (2 out of 6 met) | Alcohol Use Screening | Jan 09, 2014 | Not Achieved | Jan 09, 2013 |
| | Blood Pressure Measurement | Nov 09, 2016 | 110/60 mmHg | Nov 10, 2015 |
| | Body Mass Index | -- | Excluded | Oct 13, 2015 |
| | Cervical Cancer Screening | Now | -- | -- |
| | Depression Screening | -- | Excluded | Oct 13, 2015 |
| | Influenza Vaccination - Full Se... | Now | Not Achieved | Oct 29, 2014 |
| | Influenza Vaccination - Partial... | Now | Not Achieved | Oct 29, 2014 |
| | Lipid Panel Follow-Up Plan | -- | Excluded | Oct 13, 2015 |
| | Tobacco Use Screening and Cessation | Feb 04, 2018 | Achieved | Feb 05, 2016 |
| | | | | |
| Asthma (1 out of 6 met) | | | | |
| Chronic Kidney Disease (3 out of 5 met) | | | | |
| Diabetes (10 out of 15 met) | | | | |
| Heart Failure (4 out of 5 met) | | | | |
| Ischemic Vascular Disease / Coronary Artery Disease (5 out of 12 met) | | | | |

Registries information is updated regularly but may not reflect the latest data available.

eClinicalWorks Integration – Registries

The screenshot displays the eClinicalWorks 10e physician dashboard. At the top, a header bar shows patient information: Ibrahimi, Aaron, 32Y, M, located at 5 Heritage St, Westborough, FL01583, with a phone number 08/31/1983 | 101-206-4411 | 102-443-4324, and an email asdf@gmail.com. The header also includes a progress note counter (P 0), encounter count (E 0), appointment count (S 0), and various status indicators (D 56, R 2, T 22, L 17, M 4).

The main dashboard area contains sections for Medical Summary, CDSS, Labs, DI, Procedures, Growth Chart, Imm, T.Inj, Encounters, Patient Docs, Flowsheets, and Notes. Below these are buttons for Progress Note, Scribe, and Orders.

On the right side of the dashboard, there is an "UpToDate" integration window. This window includes tabs for Overview, DRTLM, History, CDSS, Ordersets, eEHX, and PopHealth. It displays quality scores (NA | NA) and PHA Alerts (0). A red box highlights the "EXTERNAL REGISTRIES" section, which lists Risk Score (1.4), Quality Score (50%), and a HYPERTENSION goal (5 OUT OF 7 MET). This section details Blood Pressure Management outcomes, including a due date of 2016-05-04, frequency of 365, and an achieved outcome. Other listed items include High Blood Pressure Plan of Care, Serum Creatinine, Tobacco Use Screening and Cessation, and Senior Wellness goals (6 OUT OF 15 MET) involving Alcohol Use Screening and Blood Pressure Measurement.

At the bottom of the dashboard, there is a toolbar with buttons for Send, Print, Fax, Record, Lock, Details, Templates, Claim, Letters, Ink, Scan, and eEHX Options.

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MEDITECH Integration – Readmissions Risk

Patient Care System - (BRR/BRR.LIVE/BRR.LIVE) - Frances E Wilk CMRN

Grill, Kevin
Ht: 178 cm / Wt: 89.2 kg BSA: 2.07 m²
Allergy/AdvReac: Hydrocodone, Hydromorphone, Rivaroxaban, Tramadol

DOB: 09/29/1941 74 M
H00049740184 / HM9510535 / BRR9294338
Cardio Vascular Care Unit 105-1 ADM IN
FULL CODE: [+]

Location Cardio Vascular Care Unit

| Room-Bed | Readmit Risk Score | F/U Appt #1 Date | F/U Appt #2 Date | Education given | CM High Risk Readm |
|------------------------|--------------------|--------------------------|------------------|----------------------|--------------------|
| Patient Name | Chr Ill/Readm Comp | F/U Appt #1 Time | F/U Appt #2 Time | Chr Ill Educ given | CM Post DC Cons... |
| Chief Complaint | Readm Ed Order ... | F/U Appt #1 Prov | F/U Appt #2 Prov | | |
| 102-1 | | | | | |
| PRUETT, DAWN C | | | | | |
| chest pressure | | | | | |
| 104-1 | | | | | |
| FOLKS, RONA | | | | | |
| TEE with EP Ablation | | | | | |
| 105-1 | HIGH | | | COPD | |
| GRILL, KEVIN | Y | | | no | |
| abnormal labs | Y | | | | |
| 106-1 | HIGH | Friday, Septemeber ... | | CHF | |
| LOEB, VARIEA | | 2:20pm | | | |
| Pain and Sweeling L... | | Dr. Jones, Primary Ca... | | | |
| 107-1 | LOW | | | | |
| SHOEMAKER, LAURA | | | | | |
| FALL/L HIP PAIN | | | | | |
| 108-1 | HIGH | | | Readmission | |
| JONES, COLE | | | | will give this shift | |
| AAA | | | | | |
| 109-1 | | | | | |
| NUGENT, TONY R | | | | | |
| chest pain | | | | | |
| 110-1 | MODERATE | Thursday, August 27, .. | | | |
| MCDONNALD, ALAN | | 3:00pm | | | |
| SOB, Afib | | Dr. Kim, Primary Care... | | | |
| 111-1 | LOW | | | | |
| APER, NANCY L | | | | | |
| DYSPNEA | | | | | |
| 112-1 | | | | | |
| TOUGAS, DANNY | | | | | |

Status Board
Interventions
Outcomes
eMAR
IV Spreadsheet
Transfusions
Special Panel

Assign Care Providers
Notes
Process Plans
Schedule

EMR
Orders
Allergies
Oncology
Reconcile Meds
Patient Instructions
Pt Ed
Discharge
Exit PCS

My List Locations Find Patient Acknowledge Messages Select Status Board Add To User List Add To My List Print ? Save Return

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Documentation and Support

uCern Connect Organizations Wiki

My Stuff - Browse - Help

Ignite APIs Community in Solution and User Forums

Overview Activity Content People Reports Calendar

SHOWCASE: SMART on FHIR AT COXHEALTH

SMART on FHIR CoxHealth We visited/interviewed Dr. Louie

Play video

INTRODUCTION

Welcome to the Ignite APIs Community. Ignite APIs is the solution family for Cerner's open platforms. The current focus of this group is twofold — Cerner's implementation of SMART® on FHIR®, which we call *Ignite APIs - Millennium*, and the public APIs for *HealthIntent*, Cerner's population health platform.

Ignite APIs - Millennium leverage the SMART on FHIR® specification to enable application programming interface (API) access to Cerner Millennium data using FHIR resources. Fast Healthcare Interoperability Resources (FHIR) is a standard describing data formats and elements (known as resources) and an API for exchanging electronic health records (EHRs). Substitutable Medical Applications and Reusable Technology (SMART) is a specification that enables application integrations into Cerner Millennium.

Ignite APIs - HealthIntent enable API access to the various features of Cerner's population health platform, including aggregated longitudinal person records, registries and measures, risk scores, and other population-health-related information. Additionally, the HealthIntent Data Syndication API allows bulk transport of large sets of longitudinal record information, which you can import and investigate in third-party data warehouses or research systems.

The development and business teams behind Cerner Ignite APIs all watch this group, so we encourage you to use the widget below to ask questions.

uCern Community

Cerner | code_

Hierarchical Condition Category API

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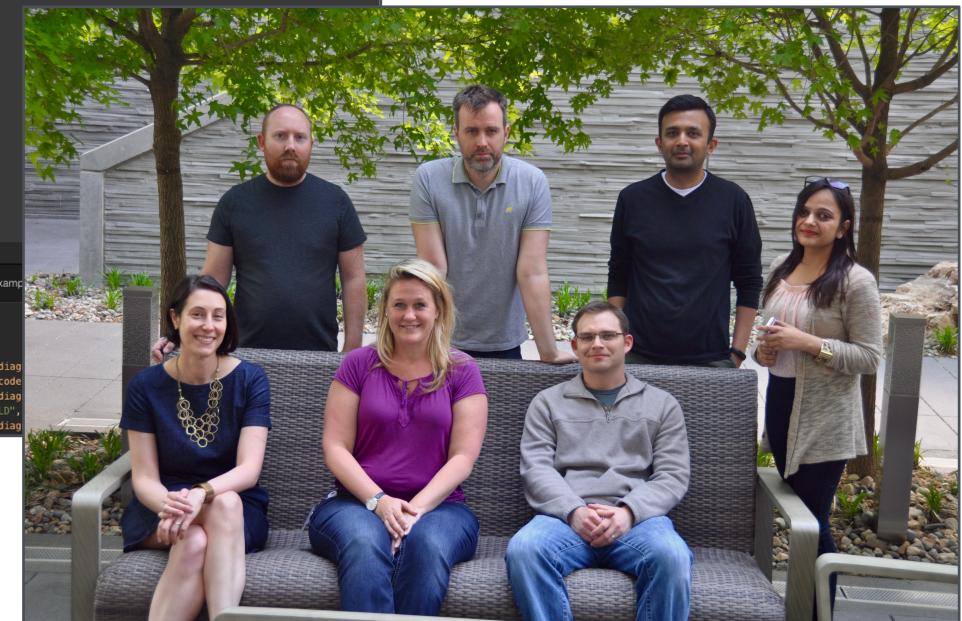
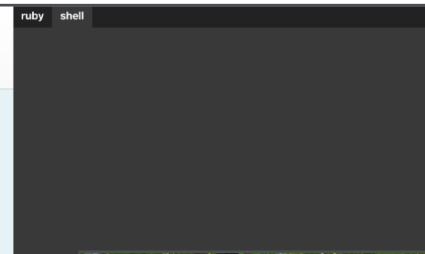
Hierarchical Condition Category

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| code | string | HCC code number and description |
| diagnosis_code_description | string | Description of the previously documented diagnosis code |
| diagnosis_code_system_id | string | The coding system id of the diagnosis code |

Technical documentation



Our team is here to help

How do I get started?

Here are the steps:

1 Join the [Ignite uCern community](#)

- Post a question on the forum asking for credentials that will allow you to access the HealthIntent APIs
- Cerner associates monitor the boards and will respond to your request

2 Experiment with our demo tenant

- Visit docs.healthintent.com to review the technical specifications for all HealthIntent APIs
- Use your demo credentials to practice making calls and develop your integrated workflows

3 When you're ready, get access to your production data

- Cerner will help you request credentials for each of the systems you want to integrate



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Part 2: Core Constructs

Bonnie Bates

Lead Solution Strategist, HealthIntent

June 26, 2018



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HealthIntent's Basic Constructs

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Agenda

- Region
- Tenant
- Data Source
- Population
- Subpopulation
- Person

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Region

- A grouping of physical and logical infrastructure where HealthIntent data is stored and processed.
- <https://console.eu.healthintent.com/>
- The only thing in all of HealthIntent that implies a *physical* separation of data (as opposed to logical separation)
- An “instance” of HealthIntent
- Current regions
 - us (hosted on Cerner hardware in the United States)
 - eu (hosted on Cerner hardware in the U.K.)
 - dod (Cerner-hosted, U.S.)
 - Canada (AWS-hosted in Canada)
 - Australia (AWS-hosted, Australia)

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A large blue cloud shape containing the text "US Region".

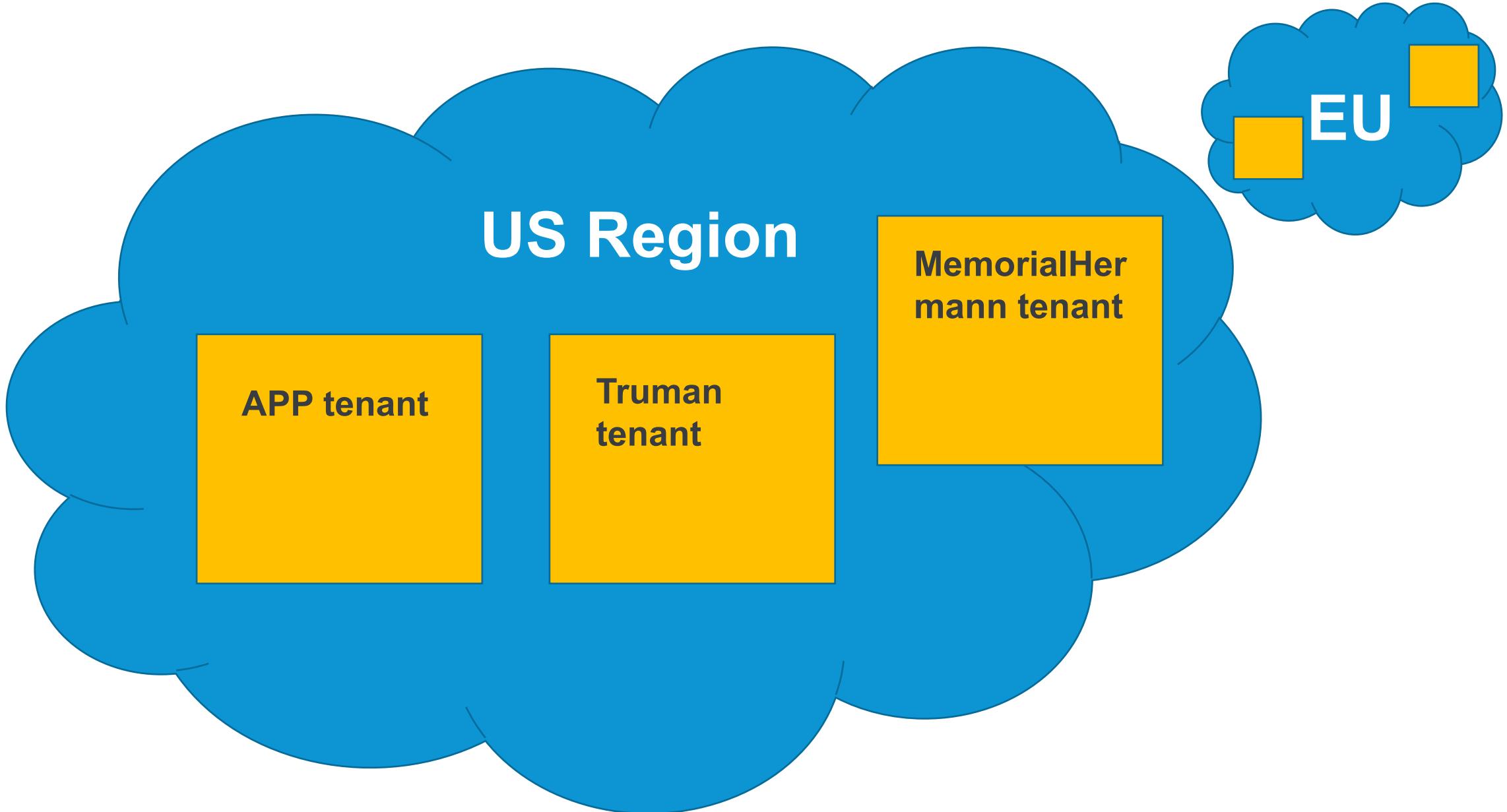
US Region

A large blue cloud shape containing the text "EU Region".

**EU
Region**

Tenant

- The technical representation(s) of a client within the HealthIntent platform.
- memorialhermann.registries.healthintent.com
- One client may have multiple tenants, depending on their business needs and what they have purchased as part of their agreement with Cerner.
- Multiple clients may share a tenant, if they can agree on a shared governance model and data sharing agreements.
- Each tenant is completely logically separated from all other tenants. The only things they have the ability to share are data sources and MPM indexes.
- Each tenant belongs to one and only one region.

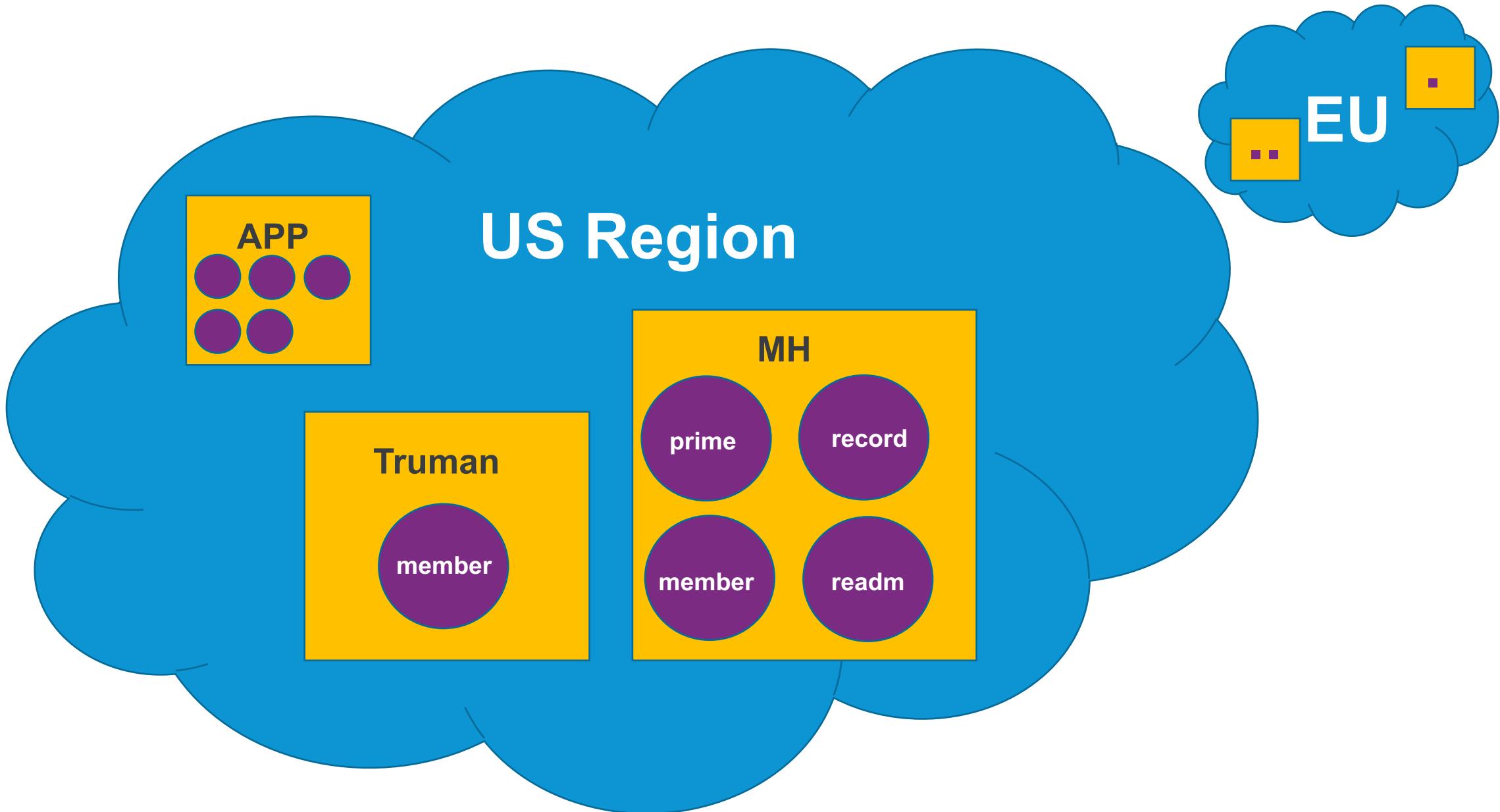


Data Source

- A system that contributes data to HealthIntent
- A data source must be “owned” by one tenant, but that tenant may allow other tenants to use it. The source does not have to be re-onboarded or duplicated for that to occur.

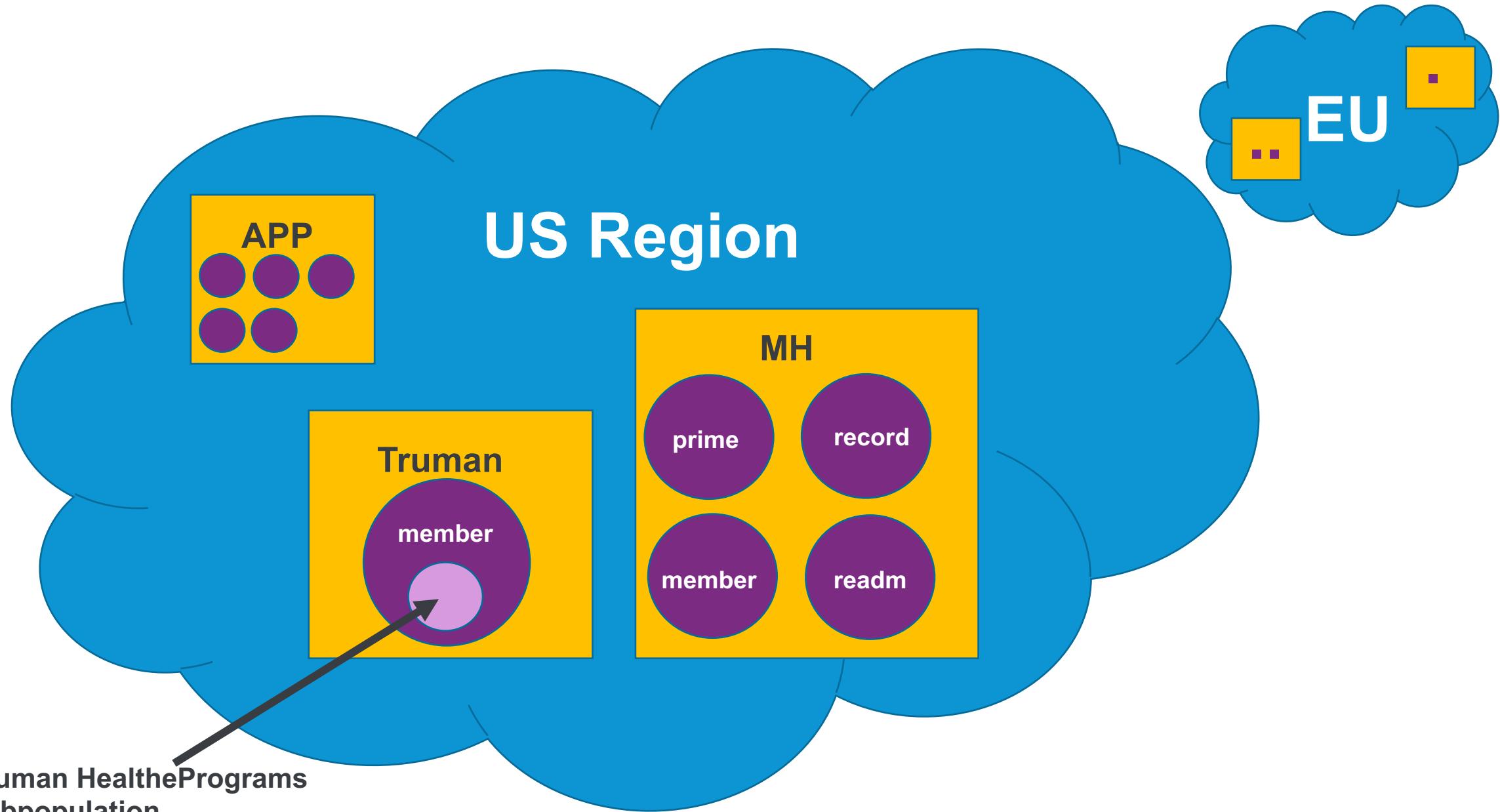
Population

- A set of longitudinal person records on which a client performs population health activities using HealthIntent capabilities.
- <https://cernerdemo.registries.healthintent.com/populations/1424e81d-8cea-4d6b-b140-d6630b684a58/people/ae3a2060-1261-43a3-a42b-013b0d700fca/registries>
- Defined by:
 - List of data sources
 - Set of MPM links
 - Population identification algorithm (optional)
- A population belongs to one and only one tenant.
- A tenant may have more than one population, depending on their business needs.



Subpopulation

- A subgroup of longitudinal person records within a population.
- Used to narrow the focus for certain population health activities
- CANNOT be used to remove or hide data from certain sources!
 - The longitudinal records have already been constructed by the time we identify persons for the subpopulation.
 - If you need some users to have access to longitudinal records that contain data from all sources, and other users to have access to longitudinal records that contain only some of those sources, your only option is a completely separate population (potentially within a separate tenant).

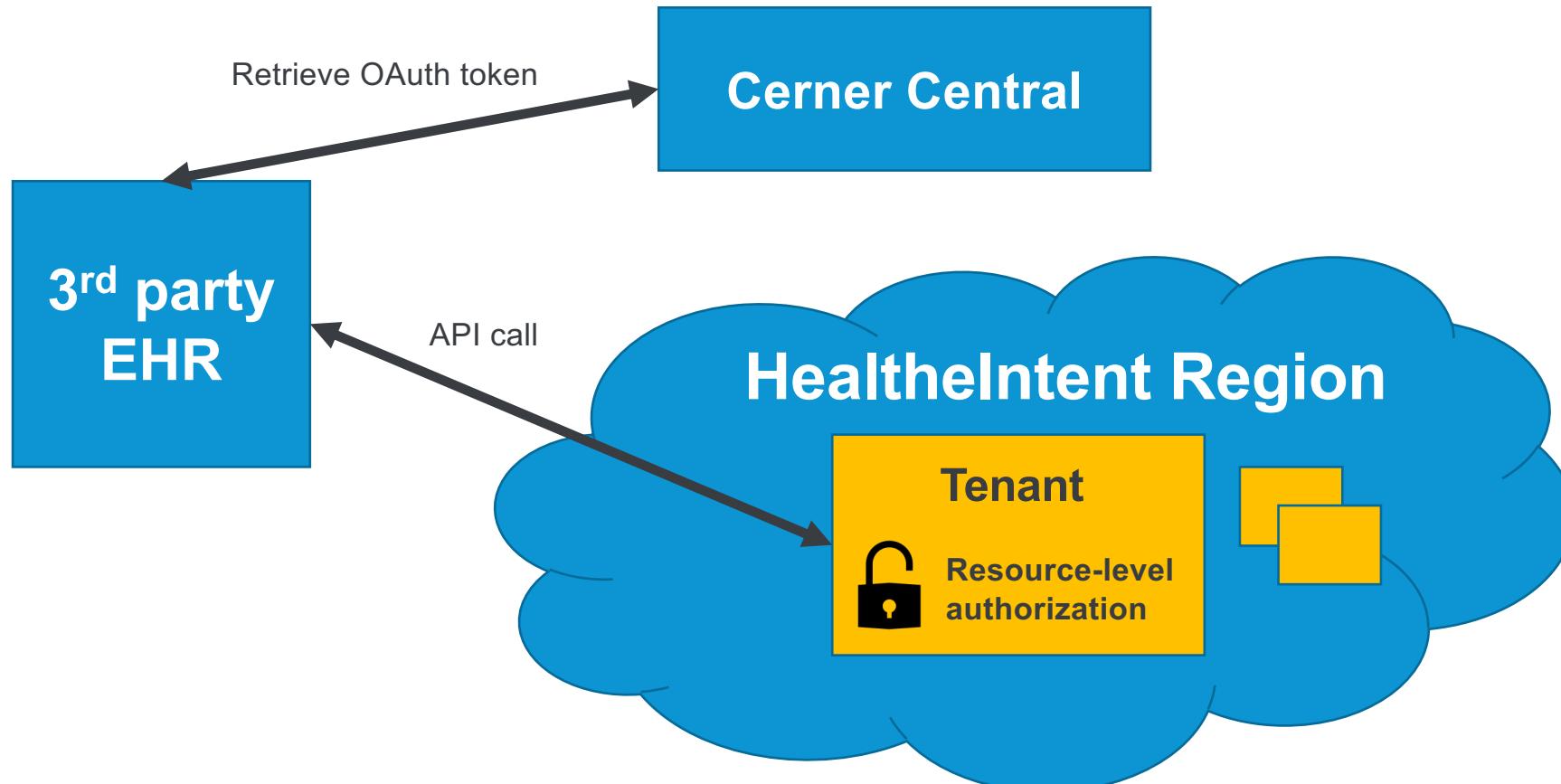


Patient

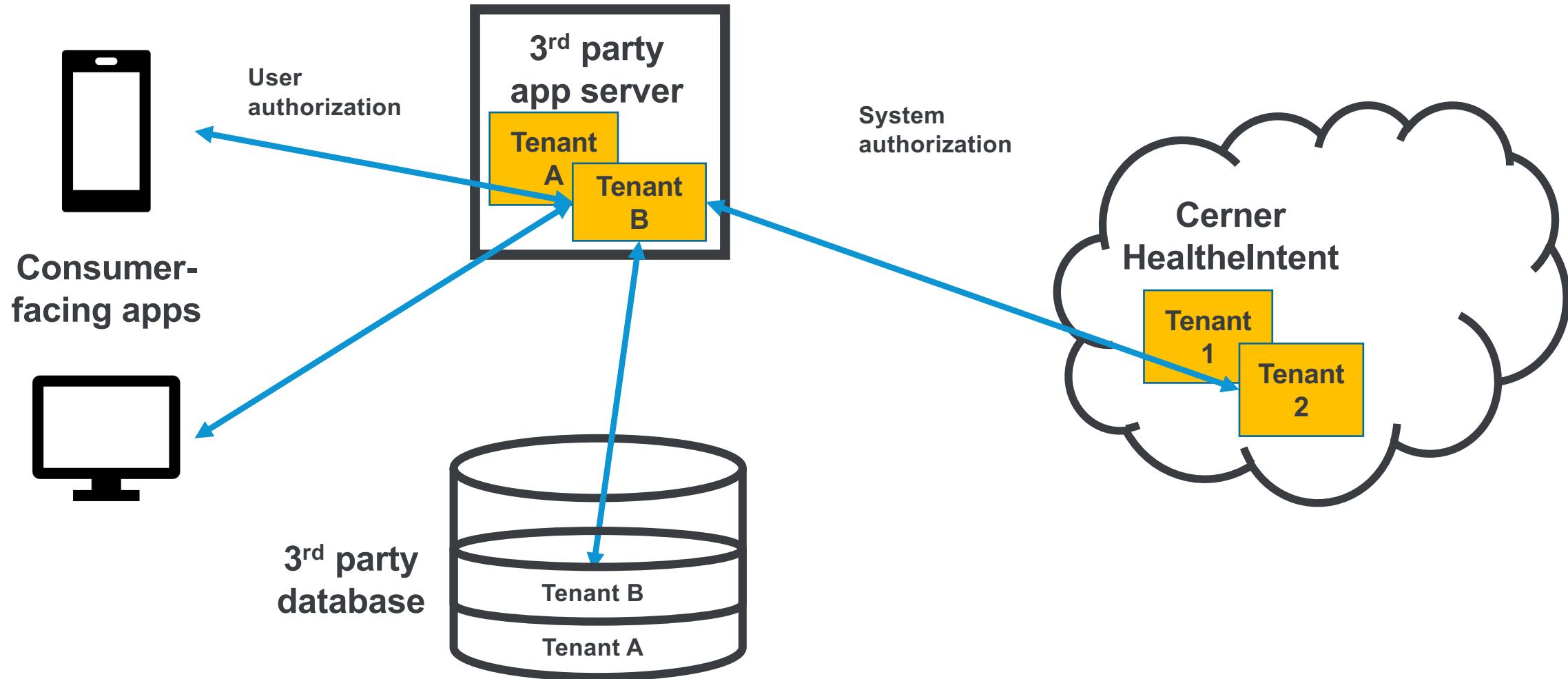
- A longitudinal health record that has been constructed by linking together data from the various data sources for a population.
- <https://cernerdemo.registries.healtheintent.com/populations/1424e81d-8cea-4d6b-b140-d6630b684a58/people/ae3a2060-1261-43a3-a42b-013b0d700fca/registries>
- Belongs to one and only one population. Patient identifier has no meaning outside the context of a population.
- The same human may be represented in multiple populations, even populations in different tenants, but they are different “logical patients” to HealtheIntent, with different identifiers.

System Authorization for API Integrations

Our API-based workflow integrations delegate user-level authorization to the consuming system.



Potential Auth Strategy for Consumer Apps





Part 3: Supporting Value-Based Care with the Registries and HCC APIs

Date



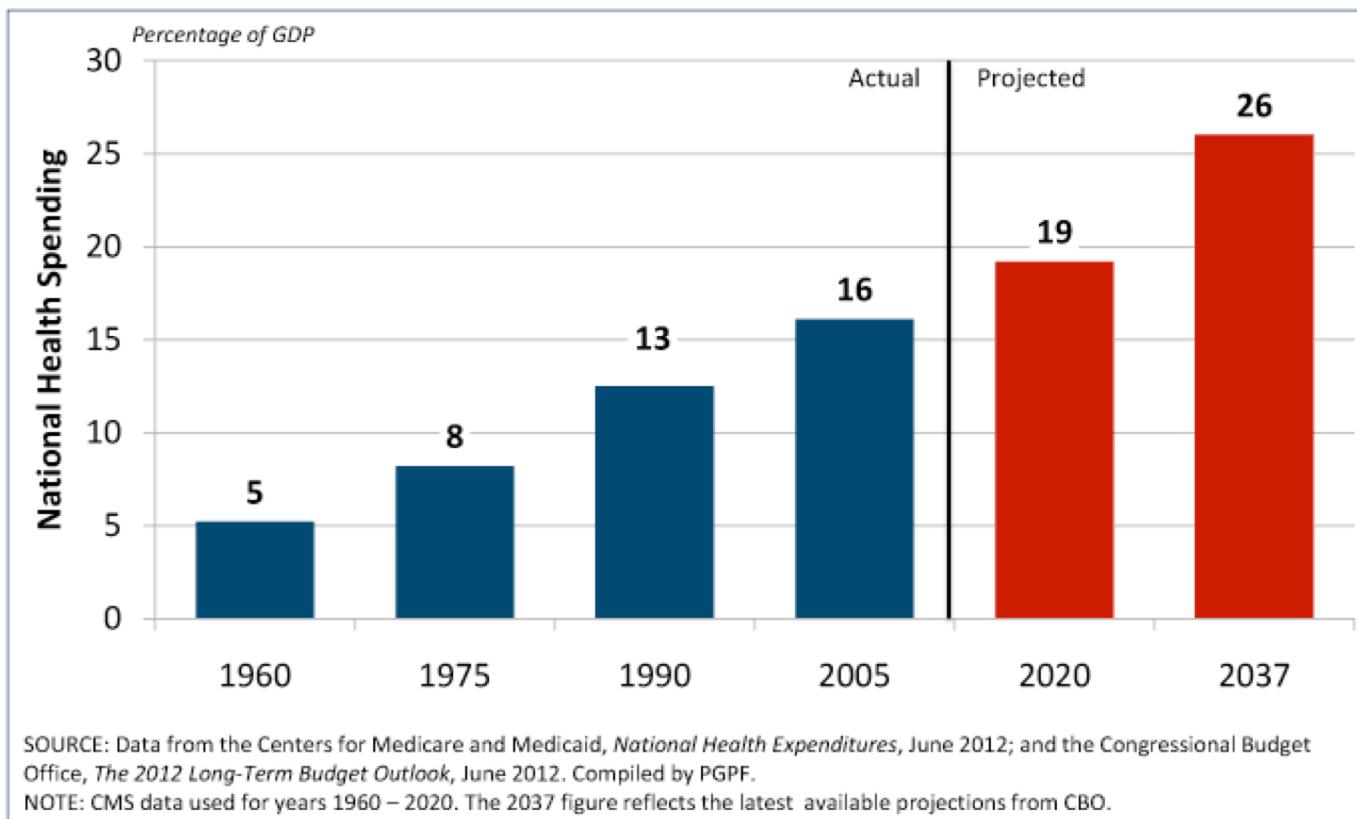
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Legacy model is unsustainable



Total U.S. health expenditures (both public and private) are projected to soar to more than one-quarter of the economy by 2037



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<http://pgpf.org/primers/healthcare>

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How do we fix this?

*Change the system's
incentives to reward better
quality and improved
outcomes at lower costs.*

Easier said than done...

How to incentivize quality of care? One answer:

- **Payment based on adherence to accepted protocols (evidence-based medicine)**
 - Diabetes: annual foot/eye exams, HbA1C < 7, LDL < 100
 - Wellness: annual physical, tobacco cessation, flu shots
 - Child Wellness: childhood vaccinations, nutrition counseling

Millennium Integration – Registries

Provider View | Normal view | Print | 14 minutes

Admit Workflow | Manage Workflow | Ambulatory Work... | Discharge Workfl... | Quick Orders and... | + | Discharged | Home | Search

Allergies ...
Home Medications ...
Labs ...
Recommendations ...
Histories ...
Immunizations ...
Diagnostics ...
New Order Entry ...
Subjective/History of Present Illness
Review of Systems
Objective/Physical Exam
Meaningful Use (11)
Registries
Reminders (0)
Quick Links
Assessment and Plan
Media Gallery (12)
Create Note

Registries (6)

Quality Score: 51% | Viewing: All | Expand All

| Category | Task | Last Update | Status | Due Date |
|---|-------------------------------------|--------------|--------------|--------------|
| Adult Wellness (2 out of 6 met) | Alcohol Use Screening | Jan 09, 2014 | Not Achieved | Jan 09, 2013 |
| | Blood Pressure Measurement | Nov 09, 2016 | 110/60 mmHg | Nov 10, 2015 |
| | Body Mass Index | -- | Excluded | Oct 13, 2015 |
| | Cervical Cancer Screening | Now | -- | -- |
| | Depression Screening | -- | Excluded | Oct 13, 2015 |
| | Influenza Vaccination - Full Se... | Now | Not Achieved | Oct 29, 2014 |
| | Influenza Vaccination - Partial... | Now | Not Achieved | Oct 29, 2014 |
| | Lipid Panel Follow-Up Plan | -- | Excluded | Oct 13, 2015 |
| | Tobacco Use Screening and Cessation | Feb 04, 2018 | Achieved | Feb 05, 2016 |
| | | | | |
| Asthma (1 out of 6 met) | | | | |
| Chronic Kidney Disease (3 out of 5 met) | | | | |
| Diabetes (10 out of 15 met) | | | | |
| Heart Failure (4 out of 5 met) | | | | |
| Ischemic Vascular Disease / Coronary Artery Disease (5 out of 12 met) | | | | |

Registries information is updated regularly but may not reflect the latest data available.

eClinicalWorks Integration – Registries

The screenshot displays the eClinicalWorks 10e software interface. At the top, a header bar shows the URL 10.210.22.45:8094/mobiledoc/jsp/webemr/index.jsp#mobiledoc/jsp/webemr/progressnotes/physiciansdashboard/dashboard.jsp. Below the header is a navigation bar with links for Medical Summary, CDSS, Labs, DI, Procedures, Growth Chart, Imm, T.Inj, Encounters, Patient Docs, Flowsheets, and Notes. A progress note tab is active.

The main content area shows patient details for "Ibrahimi, Aaron, 32Y, M":
DOB: 08/31/1983 | Age: 32 Y | Sex: Male
Phone: 101-206-4411 | Primary Insurance: Self Pay
Address: 5 Heritage St, Westborough, FL-01583
Account Number: 9294
Encounter Date: 06/06/2016 | Provider: WILLIS SAM, MD (TEST LICENSE)
Appointment Facility: Westborough Medical Associates

On the left, sections for Subjective, Objective, Assessment, and Plan are visible, each with expandable dropdown menus for Chief Complaint(s), HPI, Current Medication, Medical History, Allergies/Intolerance, Surgical History, Hospitalization, Family History, Social History, and ROS.

The right side of the screen shows a "UpToDate" interface with tabs for Overview, DRTLM, History, CDSS, Ordersets, eEHX, and PopHealth. It displays quality scores (NA | NA) and PHA Alerts (0).

A red box highlights the "EXTERNAL REGISTRIES" section, which lists:

- Risk Score: 1.4
- Quality Score: 50%
- HYPERTENSION (5 OUT OF 7 MET)**
 - Blood Pressure Management
 - Due date: [redacted]
 - Frequency: [redacted]
 - Outcome: ACHIEVED
 - Last satisfied date: 2015-05-05
 - Value unit: Achieved
 - Blood Pressure Measurement
 - Due date: 2016-05-04
 - Frequency: 365
 - Outcome: ACHIEVED
 - Last satisfied date: 2015-05-05
 - Value unit: 137/101 mmHg
 - High Blood Pressure Plan of Care
 - Serum Creatinine
 - Tobacco Use Screening and Cessation
- SENIOR WELLNESS (6 OUT OF 15 MET)**
 - Alcohol Use Screening
 - Blood Pressure Measurement

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Registries Terminology

- **Population**
 - The set of people for whom a client has the ability and responsibility to affect health outcomes
 - Represented in the architecture as a set of longitudinal records.
- **Registry**
 - List of patients identified by a HealtheRegistries identification algorithm
- **Measures**
 - Clinical activities/results, completion/achievement of which serve as proxies for quality of care
 - Examples: annual mammogram, flu shot, dietitian consultation, HbA1C < 7
- **Supporting Facts**
 - Pieces of clinical data that contributed to the evaluation of a processing outcome, such as a measure status or an attribution relationship
- **Attribution**
 - A relationship between a *provider* and a person, which indicates that the provider is responsible for the person's health outcomes.
- **Affiliation**
 - A relationship between an *organization* and a person, which indicates that the organization is responsible for the person's health outcomes.

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HCCs

- Hierarchical Condition Categories
- System for adjusting reimbursement payments based on patient complexity
- Algorithms find suspected or persistent diagnoses that need to be documented
- RAF (Risk Adjustment Factor) represents overall complexity of a patient
- Currently in the process of being uplifted to new patterns (available Q1 2019)

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HCCs – Example Integration

Right Panel data last modified on: 11/16/2015 11:29 AM

▼ EXTERNAL DATA

| | | | |
|--|------------|-------|------|
| | 1942-03-07 | 77494 | Hide |
|--|------------|-------|------|

▼ HEALTHEINTENT (2)

- Risk Score: 1.19
- Quality Score: 90%

► HYPERTENSION (1 OUT OF 1 MET)

► SENIOR WELLNESS (9 OUT OF 10 MET)

▼ HIERARCHICAL CONDITION CATEGORIES (HCCs) (1)

- Actual RAF : 0.866
- Potential RAF : 1.087
- Potential RAF with Suspected : 1.087

▼ HCC48 Coagulation Defects and Other Specified Hematological Disorders

- Diagnosis Code: D68.9
- Diagnosis Description: Coagulation defect, unspecified
- Last Service Date: 2016-12-14

► Supporting Facts

► Competing Facts

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Other *HealthIntent* sessions

- **3pm Tuesday:** Building Personnel and Organizations, Open Lab, ~~Configuring the Consumer Portal~~
- **1pm Wednesday:** Configuring the Consumer Portal and Building Pagelets, Open Lab
- **3pm Wednesday:** Patient-Oriented APIs and Data Syndication, Open Lab

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Authentication Setup

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Prerequisites

- You will need a way to call the APIs
- Postman or Advanced Rest Client are fast, easy to install and easy to use options
- Other options
 - cURL
 - Ruby's HTTParty
 - Python's Requests
 - Go's net/http
 - etc

URI Pattern

`https://{tenant}.{solution}.healtheintent.com/api`

- Tenant -> The tenant mnemonic
- Solution -> The solution identifier

URI Patterns

- "Legacy" APIs
 - `https://{{tenant}}.{{solution}}.healtheintent.com/api`
 - Data Collector, HealtheCare, HealtheRecord, HealtheRegistries, HCCs, Readmission Risk
 - Replaced: Consumer, Data Syndication
- "Platform" APIs
 - `https://{{tenant}}.api.{{region}}.healtheintent.com/{{api-name}}/{{version}}`
 - Patient-oriented services: Allergy, Condition, Health Concern, Immunization, Medication, Observation, Patient, Procedure, Risk Assessment
 - Other services: Consumer, Data Syndication, Healthcare Service, Personnel, Organization, Specialty, Tenant

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Step 1: Authentication

- The current APIs support both OAuth 1a and OAuth 2.0's Bearer Token
- We will be using a Bearer Token in this workshop
 - The Bearer Token used in this workshop will be **disabled** at the end of the week.
- More info on Authentication can be found at:
 - docs.healtheintent.com/#authenticating-using-a-bearer-token
- Instructions for requesting your own system account can be found at:
 - docs.healtheintent.com/#requesting-a-system-account

Authentication: Bearer Token

- To use the bearer token, place the string ‘Bearer <token>’ in the ‘Authorization’ header:
- <https://tinyurl.com/y9cyqfac>

Step 2: Call the APIs

- Practice calling the APIs with the exercises at:
 - <https://docs.healthintent.com/exercises/chc2018>



Questions?

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