OCHIN Community Health Database

AIM-AHEAD Program

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OCHIN

What is a Community-based Health Center (CHC)?

"Health centers are community-based and patient-directed organizations that deliver comprehensive, high-quality, free or low-cost primary health care services." - Health Resources and Services Administration

CHCs are:

- Provide services regardless of ability to pay; charge on sliding fee scale if uninsured
- Often include pharmacy, dental, mental health, substance use disorder care
- Emphasize coordinated care management, use of quality improvement practices, health information technology
- Have federal reporting requirements

CHCs are NOT:

- Hospitals
- Health plans
- Integrated health systems

Clinics in the OCHIN network are community-based health centers. This umbrella term includes (but is not limited to):

- Federally qualified health centers (FQHCs)
- FQHC lookalikes
- Rural Health Centers
- Ryan White HIV/AIDS clinics
- Healthcare for the Homeless grantees

OCHIN EHR Data Overview

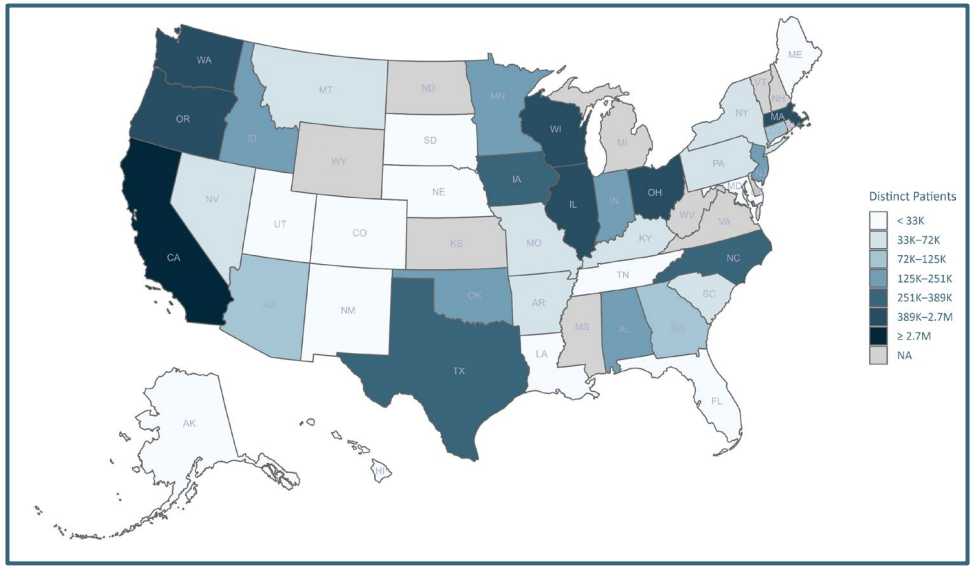
- OCHIN operates one of the most comprehensive databases on primary healthcare in the United States.[1]
- The OCHIN Epic EHR data warehouse aggregates electronic health record (EHR) representing:

>8 million all-time patients
(**> 5** million patients with a visit in the last 3 years)

286 health systems

2,463 clinic sites

40 states



- Approved AIM-AHEAD projects can access >10 years of data from the OCHIN Community Health Database

[1] OCHIN leads and is the largest data contributor of the ADVANCE Clinical Research Network (CRN), a member of PCORnet. (https://advancecollaborative.org/)

OCHIN Research Data Warehouse (RDW)

- OCHIN stewards the largest collection of community health EHR data in the country with more than two decades of practice-based research expertise.
- OCHIN is a founding partner of the AIM-AHEAD Data and Research Core
- Data are aggregated from OCHIN's a single instance of the Epic EHR for **>280** health systems with **>2,400** clinic sites across **>40** states

The **OCHIN RDW** integrates outpatient EHR data for patients seen in all member health centers.

- The OCHIN RDW is the source of the AIM-AHEAD OCHIN Community Health Database.
- Data are standardized into a common data model and will be **provisioned in OMOP format** beginning in AIM-AHEAD Year 4.

Source: OCHIN RDW, accessed 1/2025

OCHIN EHR Data

Key Characteristics of OCHIN Patients		
Variables	**Percent**	**Patient Count**
Total all-time patients Total active patients (seen in last three years)		8,634,916 5,591,910
100% and Below Federal Poverty Level (FPL)	40.4%	3,493,065
101% - to 200% FPL	33.4%	2,887,174
Medicare	7.5%	648,777
Medicaid	48.3%	4,171,776
Uninsured	25.7%	2,217,214
Rural	15.5%	1,342,843
Diabetes[1]	10.7%	730,202
Hypertension[1]	20.8%	1,423,945
Asthma[1]	8.6%	585,846
Hyperlipidemia[1]	19.2%	1,309,627
Mental/Behavioral Health Dx[1,2]	38.7%	2,641,577
Obesity[3]	12.1%	824,152

[1]Chronic condition percentages presented among all-time adult patients
[2]Includes anxiety, bipolar, depressive disorders, schizophrenia, and other psychotic disorders
[3] Obesity diagnosis on problem list or last-recorded BMI >30

Available Data

- EHR-based data such as demographics, patient-level area-level data, encounter details, diagnoses, procedures, laboratory results, medications, and other clinical data captured during healthcare encounters

Inclusion/Exclusion Criteria

- Data years available for AIM-AHEAD Year 4: 2012-2024
- Patients with 1 or more ambulatory, telehealth, or dental visit at a member clinic site on or after 1/1/2012
- Records from institutionalized patients and neonates (<28 days old) are excluded.

Data Not Currently Available for AIM-AHEAD Projects

Not Currently Available	Reason
Network member or delivery location more granular than state	Confidentiality of member clinics and patients
Chart notes	PHI disclosure risk
Family linkages within EHR	Limited scope and completeness
PCORnet fields relating to inpatient care	Data unavailable in OCHIN CHC network

Governance

The OCHIN Community Health Database is a limited data set (LDS), specified in the HIPAA Privacy Rule as a dataset in which certain direct identifiers have been removed.

Access to data contained in this LDS requires an IRB-approved or exempt protocol and a Data Use Agreement (DUA) between OCHIN, HMS, and the requesting party.

To request access as part of an AIM-AHEAD program, start with **this form**.

A limited data set is still Protected Health Information (PHI)

An LDS may include:

- Dates (e.g., date of birth, service dates)
- City, state, zip code, and/or zip code tabulation area

Path to OCHIN Data Access: Pre-Award

Learn
- Review OCHIN's data & infrastructure orientation
- Request a copy of OCHIN's data dictionary

Explore
- Query OCHIN data via cohort discovery

Prepare
- Attend OCHIN office hours
- Request a data consultation

Apply
- Respond to an AIM-AHEAD call for proposal
- Project approval by OCHIN's Data Access Committee

Path to OCHIN Data Access: Post-Award

Worksheet
- Complete your data specification worksheet with support from OCHIN

IRB
- Submit your IRB application with support from OCHIN & AIM-AHEAD's RCO

DUA
- Execution of 3-party DUA between your organization, OCHIN, & Harvard Medical School

Access
- Receive approval for data access
- Attend HMS/OCHIN orientation to AIM-AHEAD Service Workbench

Notes On Using OCHIN EHR Data for Research

- Open cohort
  - All data stem from CHC being ‘live’ on EHR and patient utilization
  - Health centers have joined the OCHIN network at different points in time
  - Most patient data are collected within the context of an encounter
- Different systems & practices = differential data completeness and quality
- Cohorts from earlier time periods will be smaller as patient counts have increased due to new facilities joining the OCHIN network. Longitudinal studies will be influenced by patient counts over time.
- Data come from more clinics in recent years (avoid volumes over time)
- Watch for systematic differences by health system

What is a Clinic?

- CHCs have several layers of organization, which has implications in use, and interpret data
- Different terms are used for these concepts within **conversation** and **the data**

Health Center

Organizational/ ownership level. Has a HQ address. Many health systems have multiple clinics.

Health Center, CHC
Health System

e.g., Multnomah County Health Dept

Clinic Site

Physical location, "brick & mortar". Has an address and generally contains multiple departments.

Clinic, Clinic Site
Delivery site

e.g., MC East County Health Center

Generally, most relevant to research

Department

An EHR unit. Providers log into and patients have encounters at a specific departments. Many departments may be at one clinic site.

Department
Facility

e.g., Primary Care, Dental, Vaccine, Pharmacy

Notes on Key Variables

Encounter Types

Ambulatory Visit

- Majority of clinical face-to-face visits; generally billable
- Examples: primary care, well-child visits, behavioral health
- Diagnoses, procedures, labs, medications, and insurance type most often associated with AV and TH. AVs usually have vital signs (BP, BMI)

Telehealth

- Similar clinical and billable characteristics to AV, but delivered remotely
- Less likely to have vitals recorded
- Appear very rarely prior to 2020. Rapid uptake from 3/2020 onward

Dental

Other Ambulatory

- Usually non-billable, limited-service encounters or patient contacts
- Examples: pharmacist calls, refill requests, patient registration, lab work
- Often filtered out of research queries

Other

- Similar to Other Ambulatory
- Often filtered out of research queries

Notes on Key Variables

Diagnoses
(ICD-9: 2012-Sep 2015, ICD-10: Oct 2015-current)

Visit Diagnosis

- All diagnosis codes recorded in the context of encounters, usually several per encounter
- Primary dx not available

Problem List

- A list of current and active as well as past/resolved diagnoses relevant to the care of the patient. Accessible and used across healthcare team. Meant to indicate ongoing, non-transitive conditions, and/or those that are most important about a patient
- Patient-based measure, not linked to or specific to a given encounter

Medical History

- Similar concept to problem list but recorded in medical history section of chart; often patient-reported, may be more subject to recall limitations and workflow differences

Highlighted Limitations

- Not all laboratory records are mapped to LOINC
- Medication dispensing data is difficult to measure and prone to bias
  - Only exist for patients who return for a subsequent visit (captured via pharmacy data vendors and queried automatically prior to scheduled visits)
  - Limited to insured patients (where Rx was paid by a public or private plan)
  - Cannot be directly linked to a prescribing record
  - Medication adherence difficult to measure (discrete days supply not available)
- Patient-reported outcomes and patient screenings are not collected consistently across health systems or patient populations
  - Lack of screening does not indicate absence of need

Generalizability, Bias, and Scope of Interpretation

- Differential completeness and quality (coding differences) exist by network partner site, health system, and clinic
  - *Try to account for these differences by using the surrogate health system identifier as a clustering or control variable*

- Patient population/characteristics are not homogeneous across the OCHIN network
  - *Examine data to understand heterogeneity, identify potential sources of bias, and avoid unnecessary assumptions when making interpretations*

- Out-of-network care is captured incompletely. When care was not delivered within the OCHIN network, it could be due to several reasons, such as the patient received it out of network, the patient refused it or could not access it.
  - *Do not assume that care NOT delivered in an OCHIN clinic was not received*