Health Data Compass (HDC)

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Director, Health Data Compass
Integration Across CCTSI

Representatives from all Schools, Colleges, Hospitals, Key Research Stakeholders

Internal Advisory Committee

External Advisory Committee

CTS Workforce Development Element C1 (Cicutto)

Community and Stakeholder Engagement Element C2 (Nease/Tamez)

CTS Resources and Services Element D1 (Kohrt)

CTS Pilot Grant Program Element D2 (Serkova)

Health Informatics Element D3 (Haendel)

CTS Research Program Element E (Ginde/Kwan)

Planning
- BERD
- Pragmatic Trials
- Clinical Trials/TIN
- Bioethics
- Research Studios

Conduct
- CTRC Network
- RKS
- Data Management
- Natural Animal Models

Analysis
- CTRC Core Labs
- Nutrition & Exercise Cores
- Cardiovascular Imaging
- BERD

Dissemination
- D&I Core
- Communication and Marketing

K12

Pre-T32

Post-T32

PI: Sokol
MPI: Higgins

Administrative Core
Sokol, Lockie, Higgins

Executive Committee

QC/QI & Evaluation

Hub Liaison Team

Representatives from all Partner & Collaborator Institutions, URM Community Members

Executive Committee

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Health Informatics (D3) Strategic Goals

1. **Goal**: Integrate clinical, biological, administrative, and public health data and deploy robust analytical environments
   - Roadblocks addressed: Enhance scientific rigor and reproducibility, Minimize infrastructure roadblocks for conducting CTR

2. **Goal**: Improve accessibility and interoperability of regional and national data sharing and analytics
   - Roadblocks addressed: Minimize infrastructure roadblocks for conducting CTR

3. **Goal**: Develop, validate, and deploy CDS and clinical trial execution tools
   - Roadblocks addressed: Enhance scientific rigor and reproducibility

4. **Goal**: Expand hands-on translational informatics education for various career stages and disciplines
   - Roadblocks addressed: Enhance scientific rigor and reproducibility
Leadership Team & Diversity – Health Data Compass – the Enterprise Research Data Warehouse

Ian Brooks, PhD
Director of HDC

Melissa Haendel, PhD
Through April 15, 2024

Health Data Compass (HDC)
55% female;
19% PhD; 61% Masters;
3% Students; 48% POC
Health Data Compass – Enterprise Data Warehouse

DATA INGESTION AND CURATION

DATA SOURCES
- Provider & Practice Plan (financial) data
- EHR Patients, Encounters, Medications, Labs, etc.
- Colorado All Payer Claims Database
- Death Registry & Vaccination Data
- Regional geospatial/environmental data
- Clinical Trial & Biorepository Data
- CCPM BioBank Genomic data
- Registry & Study Data

HEALTH DATA COMPASS

CORE DATA FUNCTIONS
- Data Integration/Linkage
- Extract/Transform/Load
- Harmonization to Terminologies
- Honest Broker
- Data Modeling

OMOP (Primary CDM) → EUREKA VMs

SECURE DATA SHARING AND DELIVERY TO NATIONAL NETWORKS (N3C, ACT, ETC.)
Health Data Compass is formed of three units:

- **Administration**, which includes security and compliance

- **Data and cloud engineering**

- **Data Services**, which includes data delivery.
CTS Roadblocks to Address

1. Enhance scientific rigor and reproducibility

2. Minimize infrastructure roadblocks for conducting CTR
Year 1 Progress & Impact

• **Staffing**
  • Retrained and reclassified the Compass team. Mandatory Epic and GCP certifications for staff + leadership training for managers. Added new positions.
  • Redesigned Data Delivery Team to have a triage arm = cut waiting times by $>50\%$

• **Health Data Compass**
  • **216** HDC data deliveries in 2023; 2,363 deliveries in total
  • **48** multi-user EUREKA VMs currently active
  • **44** PubMed indexed manuscripts in 2023 (incl our own)
  • HDC contributed to **>$15M NIH funded grants** in FY23/24
  • **Data sharing** locally and nationally – N3C, CDC VISION, & MENDS, + TrinetX (522 projects for 264 users) & Flatiron national registries
Goal 1 Progress & Impact

- **Goal 1.1 Improve data quality and usability**
  - Worked with partners in UCHhealth designing a new clinical data warehouse using modern SaaS software. Expect launch in FY25.
  - Performed extensive data quality programming with raw data and OMOP mapped data. We have also explored Caboodle schema stability and built a new data archive.

- **Goal 1.2 Expand data resources integrated within HDC**
  - Continued our effort to improve geolocation data.
  - Launched the Leaf data browser

- **Goal 1.3 Advance our analytic environment**
  - Developed and launched our latest Eureka VM (v4), with a newly developed temporary internet access tool, a new operating system, and upgraded user interface.
Goal 2 Progress & Impact

• **Goal 2.1 Promulgate data harmonization and mapping best practices**
  
  • We supported the development and validation of an OMOP-on-FHIR bulk data transfer service that currently supports data transfer of 2.3M patients for a CDC funded public health surveillance project.

• **Goal 2.2 Share data responsibly**
  
  • Completed ISO 27001 audit and certification. Compass is compliant with all domestic and international standards for data compliance and IT security.
Year 2 Plans

• Launch new CDW utilizing modern SaaS tools. This will give us near real-time access to data in both Clarity & Caboodle.

• Refine access control infrastructure to enable improved access to data lakes for clinical, image, streaming, notes data. Expand our data lake network.

• Continue to improve Eureka 4 based on user feedback; create permissive environment for Console access; Expand Eureka HPC as a HIPAA compliant campus resource.

• Continue to expand our mapped geolocation, environmental and SDoH data, ensuring conformance to OMOP and FHIR standards.

• PPRL and MPI for clinical and other data. Continue our investment in advancing data security and compliance tools and methods.