

**IOWA**

---

# Lightning Talks

**Tech Forum 2026**

June 3, 2026

Tech Forum - Lightning Talk 2026

---

# What?

## Self-Service Data Tool -- TriNetX

June 2026

# Who we are

---



Heath Davis  
Associate Director for  
Biomedical Informatics  
CCOM & ICTS



Asher Hoberg  
Lead, Clinical Research  
Data Services  
Institute for Clinical and  
Translational Science

# What is TriNetX

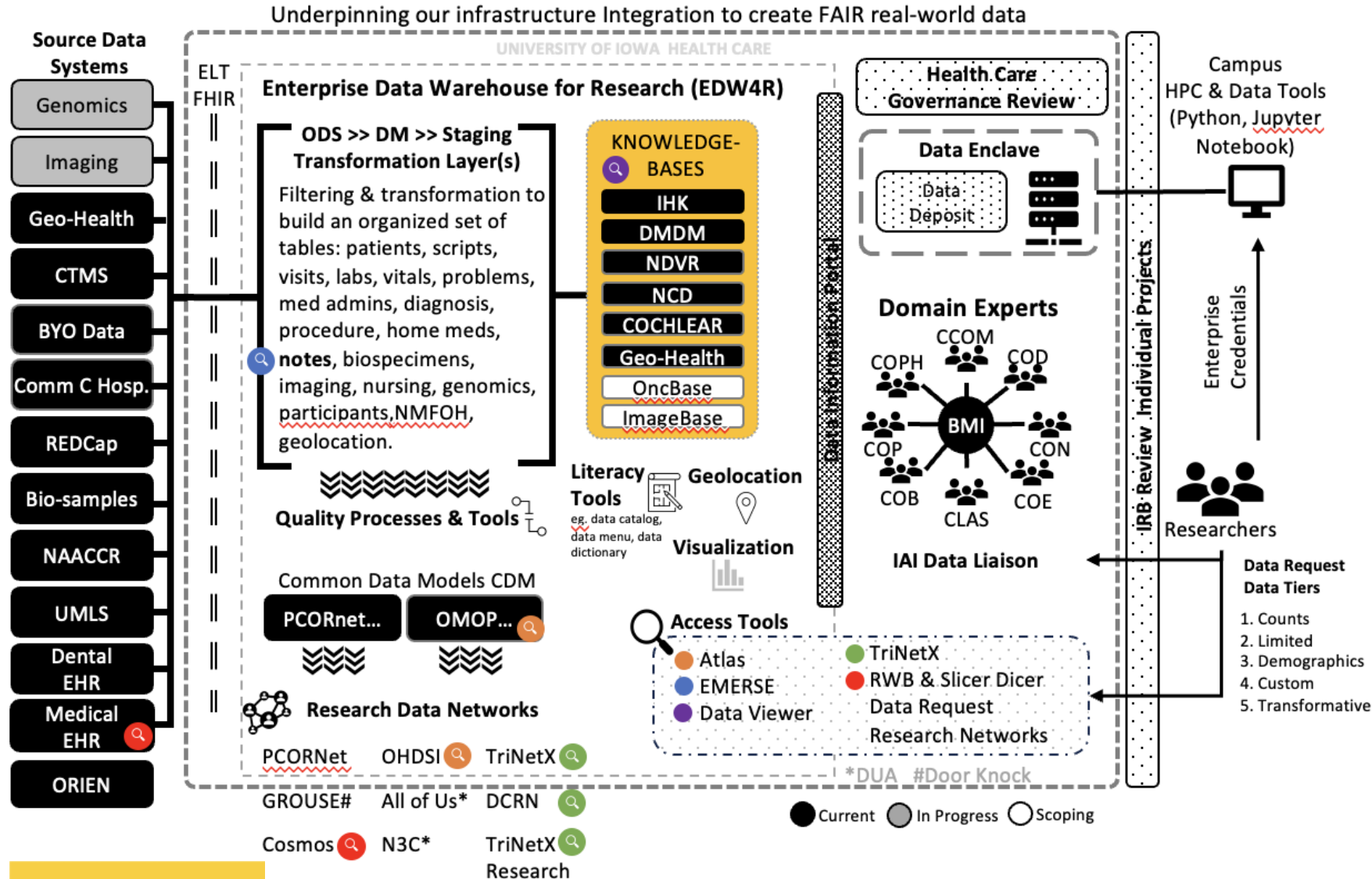
---

Introduced in 2017 at University of Iowa, TriNetX is basically a giant health research network that lets hospitals, researchers, (and pharma sponsors funding research) learn from real-world patient data without directly exposing individual patients' identities.

We use it as a frontline Data Self-Service Tools for faculty, staff and student researchers.

We have an IRB for this tool that allows researchers to explore data features and summaries independently.

# Enterprise Data Warehouse for Research (EDW4R)

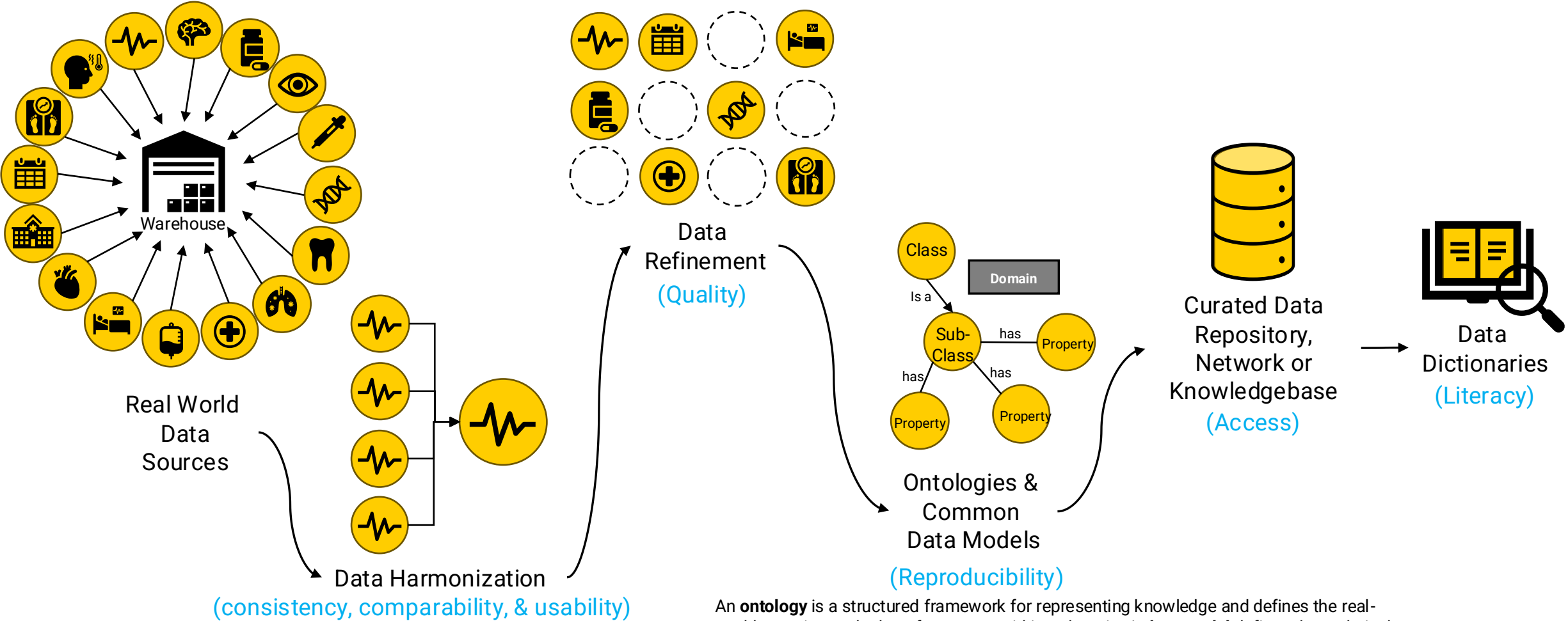


Enterprise Data Warehouse for Research (EDW4R) or Clinical Research Data Warehouse (CRDW) is core infrastructure at CTSA awarded institutions and Academic Health Care Institutions.

- BMI - Biomedical Informatics
- BYO - Bring Your Own
- Cochlear - Cochlear Implant Knowledgebase
- Comm C. Hosp - Community Hospitals
- CTMS - Clinical Trial Management System
- DMDM - Dental Medical Data Mart
- FHIR - Fast Healthcare Interoperability Resources
- OMOP - Observational Medical Outcomes Partnership
- OncBase - Cancer Knowledgebase
- PCORNET - The National Patient-Centered Clinical Research Network
- Geo-Health - Geography and non-medical factors of health
- UMLS - Unified Medical Language System
- GROUSE - GPC Reusable Observable Study Environment
- IHK - Intergenerational Health Knowledgebase
- ImageBase - Medical Imaging Resource
- N3C - National Covid Cohort Collaborative
- NAACCR - North American Association of Cancer Registries
- NCD - Nursing Care Dataset
- NDVR - Neuro Developmental Registry

- Domain Experts**
- CCOM - Medicine
  - CLAS - Liberal Arts & Sciences
  - COB - Business
  - COD - Dentistry
  - COE - Engineering
  - CON - Nursing
  - COPH - Public Health
  - COP - Pharmacy

# Simplified



An **ontology** is a structured framework for representing knowledge and defines the real-world meaning and rules of concepts within a domain. A **data model** defines the technical structure and organization of data for a specific application

# TriNetX

The screenshot displays the TriNetX Query Builder interface. At the top, it shows 'Example Query for Iowa' with 26,930 patients and 1 HCO. The interface is divided into two main sections: 'MUST Have' (Inclusion Criteria) and 'CANNOT Have' (Exclusion Criteria). The 'MUST Have' section lists several criteria with their respective patient counts: Type 2 diabetes mellitus (45,270), Metformin (47,150), Insulin (41,870), and Hemoglobin a1c/hemoglobin.total in blood ≥ 7 %, ever (110,720). The 'CANNOT Have' section lists Chronic kidney disease (ckd) (18,310). A 'Create an event' button is visible below the criteria. Red arrows point from the 'MUST Have' and 'CANNOT Have' sections to red ovals labeled 'Inclusion Criteria' and 'Exclusion Criteria' respectively.

Criteria	Count
E11 Type 2 diabetes mellitus	45,270
OR	
6809 Metformin	47,150
OR	
N0000029184 Insulin	41,870
OR	
9037 Hemoglobin a1c/hemoglobin.total in blood ≥ 7 %, ever	110,720
AND	
I10 Essential (primary) hypertension	98,460

Criteria	Count
N18 Chronic kidney disease (ckd)	18,310

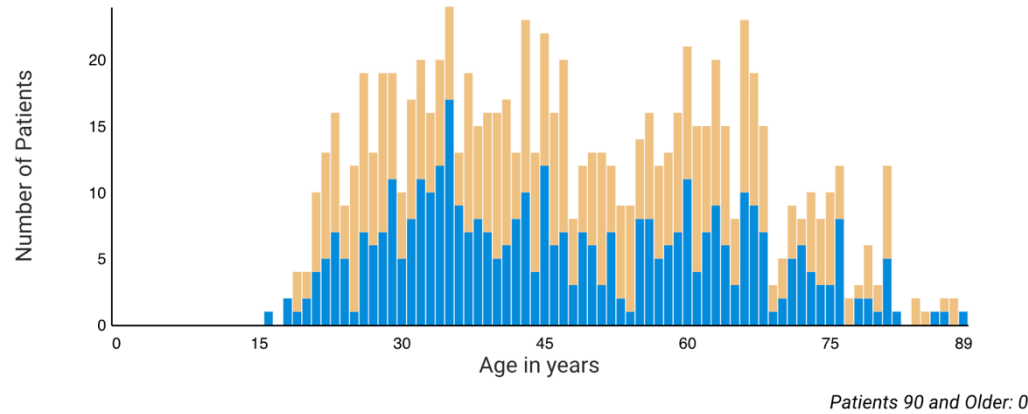
## Search based on coded data:

- Demographics
- Diagnosis
- Oncology
- Procedures
- Medications
- Labs
- Genomics
- Vitals
- Custom Terms
- Notes

---

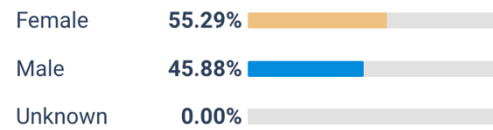
**So What?**

# TriNetX - Highlights

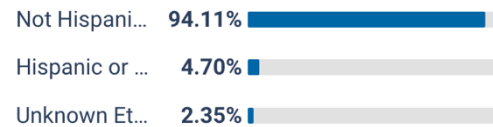


Total Patients	Minimum Age	Maximum Age	Mean Age	Standard Deviation
850	16	89	48	17

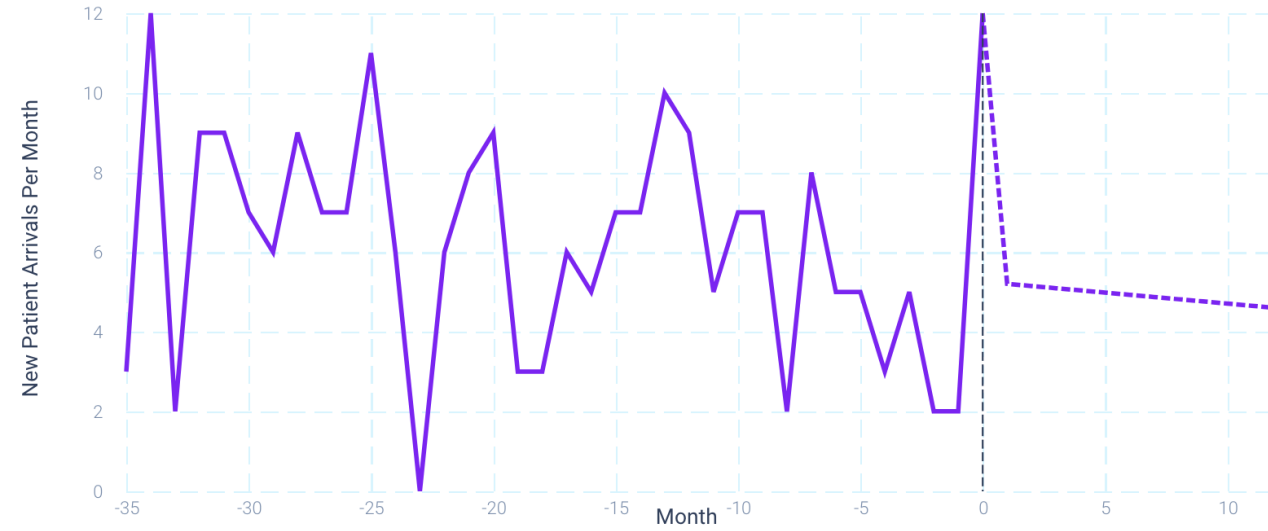
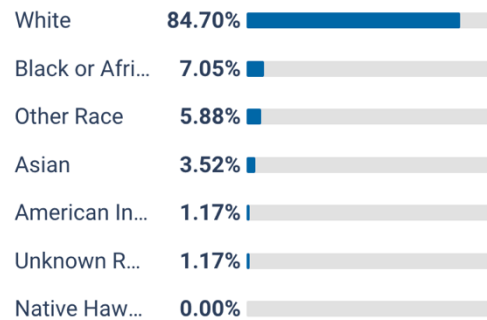
## Sex



## Ethnicity



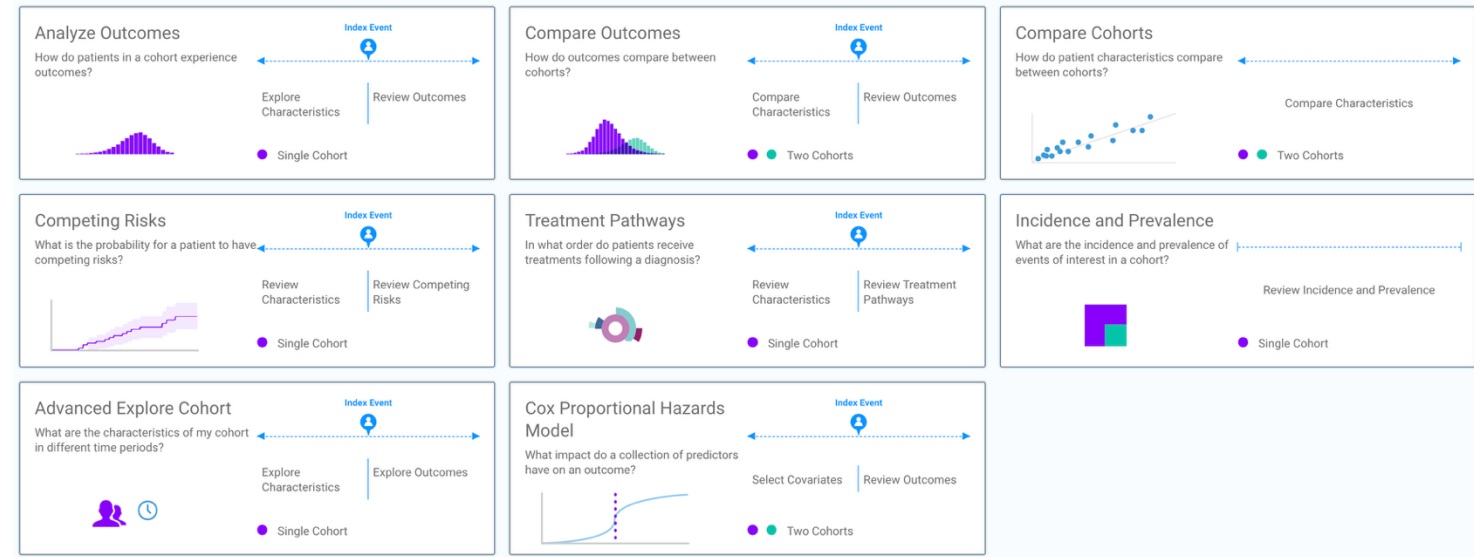
## Race



<input checked="" type="checkbox"/> All	Healthcare Organization (HCO)	Historic Arrivals (Monthly Avg Over Past 3 Yrs.)	Predicted Arrivals (Monthly Avg Over Next 1 Yr.)
<input checked="" type="checkbox"/>	University of Iowa Hospital...	6.2	4.9

# TriNetX – Analytics

- Assess **homogeneity** between two groups (akin to **summary statistics** in a standard Table 1).
- Balance cohorts** using propensity score matching; report **measures of association** (**risk diff, risk ratio, odds ratio, hazard ratio**), **confidence intervals**, and **p-values**; assess sensitivity of between-cohort comparisons before and after balancing.
- Conduct **survival analysis** that accounts for multiple mutually exclusive outcome events to reduce bias when estimating risk.
- Identify **most common individual treatments**, combination treatments, and chronological lines of treatment.

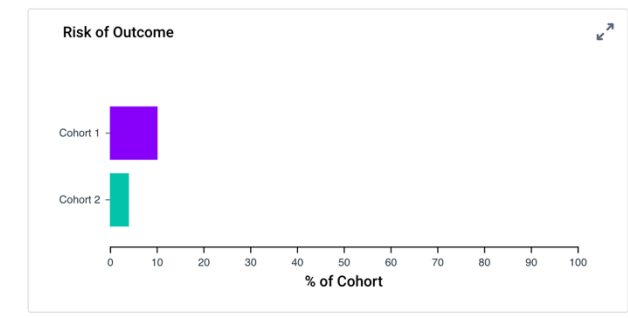


1a : Measures of Association

Cohort	Cohort Statistics			Risk
	Cohort	Patients in Cohort	Patients with Outcome	
Cohort 1	1 UI CF Carriers	490	50	10.204%
Cohort 2	2 UI NOT CF carrier	490	20	4.082%

Risk Difference	Risk Difference		Risk Ratio		Odds Ratio		
	95 % CI	z	p	95 % CI	95 % CI	95 % CI	
6.122%	(2.92%,9.324%)	3.721	0.0002	2.5	(1.511,4.135)	2.67	(1.565,4.558)



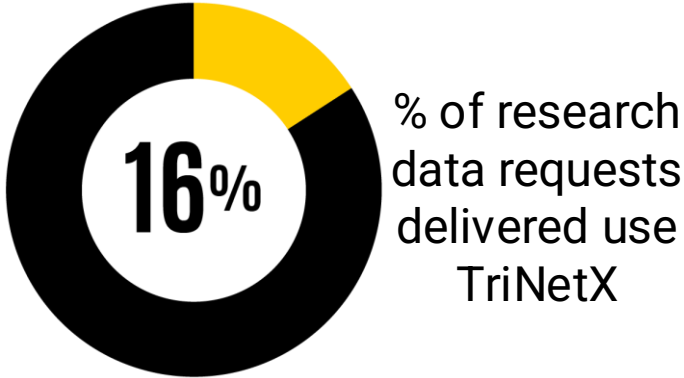
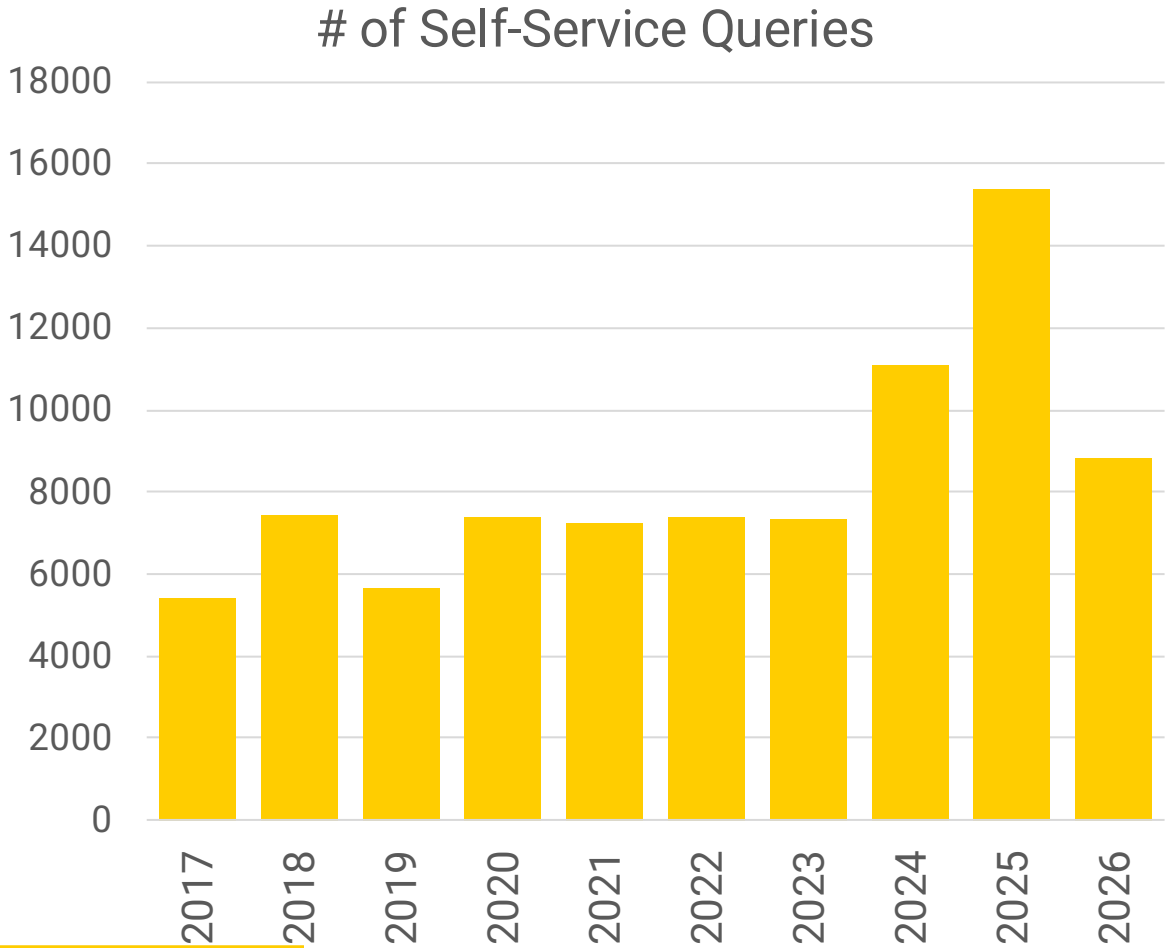
---

# Live Demo

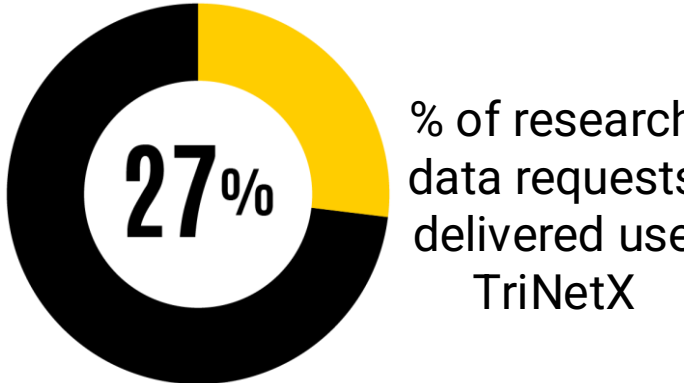
Tech Forum - Lightning Talk 2026

<https://live.trinetx.com/#/>

# Self-Service Queries



In the past 12 months



All time

# Iowa Data Facts

Iowa Data Facts							
Summary Statistics		Total Patient Facts	Avg. Facts / Patient		Time Window for 95% of Facts		
		<b>1.5 Billion</b>	<b>~1000</b>		<b>2011-2026</b>		

Iowa Data Facts							
Diagnoses	Procedures	Medications	Labs	Vital Signs	Genomic Data	Oncology	Therapy Lines
101	103	422	170	166	<1	<1	<1
157 Million	159 Million	652 Million	263 Million	256 Million	20,488	944,453	132,235

Focus Areas of CQI

# TriNetX Networks

Iowa

1 HCO 

1.5M  
Lives 

DCRN


Iowa, Utah Medical College Wisconsin (MCW)

3 HCOs 


5.4M  
Lives 


Research

112 HCOs 

145.5M  
Lives 

Global

175 HCOs 

177.9M  
Lives 

---

# What Now?

Communication, Access and Literacy

# Campus Health Science Network Datasets

Research Data Networks (focus, use and increase literacy on what we have access to.....)



GPC PCORNet



TriNetX



ORIEN



Wellmark



BigMouth



N3C Clinical



Cosmos



All of Us

Transformative Datasets & Knowledgebases (building what we don't.....)



Intergenerational Health Knowledgebase (IHK)



Neurodevelopmental Registry (NDRV)



Dental Medical Datamart (DMDM)



Nursing Care Dataset (NCD)



Cochlear Implant Knowledgebase (CIP50)



Impact Across Geographies



Oncology Knowledgebase

# Research Data Networks

Network	Primary Data / Focus	Data Model	N	Sites	Typical Research Use-Cases	Cost / Access Model	Skill & Ease of Use	Access Model
GPC (PCORnet)	EHR + registry data across health systems	PCORNet CDM	~47 M	>70 over 8 regional networks	Pragmatic trials, CER, observational studies	Institutional agreements, governance required, front door cost	Moderate (CDM knowledge helpful)	Distributed, governed
TriNetX	De-identified pooled EHR data	TriNetX	+175 M (US)	80+ HCOs (US)	Cohort discovery, feasibility, observational research	Commercial / subscription. Paid license	Easy UI; advanced analytics need skills	Self-Service
ORIEN	Oncology clinical + genomic data	—	~400,000+	~18 cancer centers	Cancer genomics, translational research	Consortium Membership-based	Moderate-high (bioinformatics expertise)	Controlled, consortium governed
Wellmark	Insurance claims data	—	—	—	Utilization, cost, health services research	Contract. Repository agreement, possible fees	Moderate (claims expertise)	Controlled
N3C COVID	Centralized COVID-focused EHR data	OMOP	~22.8 M	~84	COVID & Long COVID studies	Collaborative public initiative. Approved researcher access.	Moderate-high (SQL/R helpful)	Central enclave, controlled
N3C Clinical	Centralized non-COVID EHR data	OMOP	subset	subset	Cross-disease clinical research	Collaborative. Approved enclave access. Participants only (this may change)	Moderate-high (SQL/R helpful)	Central enclave, controlled
Epic Cosmos	De-identified Epic EHR data	—	~300 M	~1,500+ hospitals and ~34,000+	Benchmarking, feasibility, outcomes	Epic customer-based. Epic-controlled access. Role-based tiered access.	Easy aggregates; Advanced Moderate-high. Comprehensive Epic Training required	Hybrid – central enclave
All of Us	Surveys + HER data + genomics	OMOP	~633,000+	1000+	Population health, precision medicine	Federally funded. Tiered access; cloud costs	Moderate-high	Controlled tiered self-service, central enclave
BigMouth	De-identified pooled Dental Health Record	i2b2	~4.5 M	11 Sites	Dental Health and Outcomes	Individual IRB and Project Approval Level 1 Access: included in College of Dentistry's membership fee. Level 2 Access: \$1500-4500/query to extract data	Moderate	Self-Service

# TriNetX Service Details

---

## Eligibility

- All UI Healthcare faculty and staff and to University faculty and staff involved in clinical research. Students must have a mentor.

## Service Support Availability

- Monday – Friday 8:00 am-5:00 pm

## Application Availability

- 24/7/365

## Virtual Drop in Support

- Mondays & Wednesday 1:00pm-3:00pm
- Fridays, 9:30am - 11:00am

## Service Cost(s)

- The cost of TriNetX is covered by ICTS and

available at no cost to University of Iowa Faculty, Staff and Students.

- Individual dataset extraction may cost \$

## Request Account

- [icts-bmi-consulting@healthcare.uiowa.edu](mailto:icts-bmi-consulting@healthcare.uiowa.edu)

## Service Access

- <https://live.trinetx.com/#/>

## Training:

- [https://redcap.link/icts\\_training](https://redcap.link/icts_training)

## Point(s) of Contact

- Asher Hoberg
  - [icts-bmi-consulting@healthcare.uiowa.edu](mailto:icts-bmi-consulting@healthcare.uiowa.edu)



**IOWA**