



# Patient Synchronicity:

Exploring a novel, patient-synchronous data management approach and innovative datasets for integrated evidence generation across the product lifecycle

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# Setting the Stage

## OBJECTIVES:

1

Learn the importance of accurate patient matching and identity resolution techniques

2

Explore the benefits of building a patient registry for interventional and prospective observational studies

3

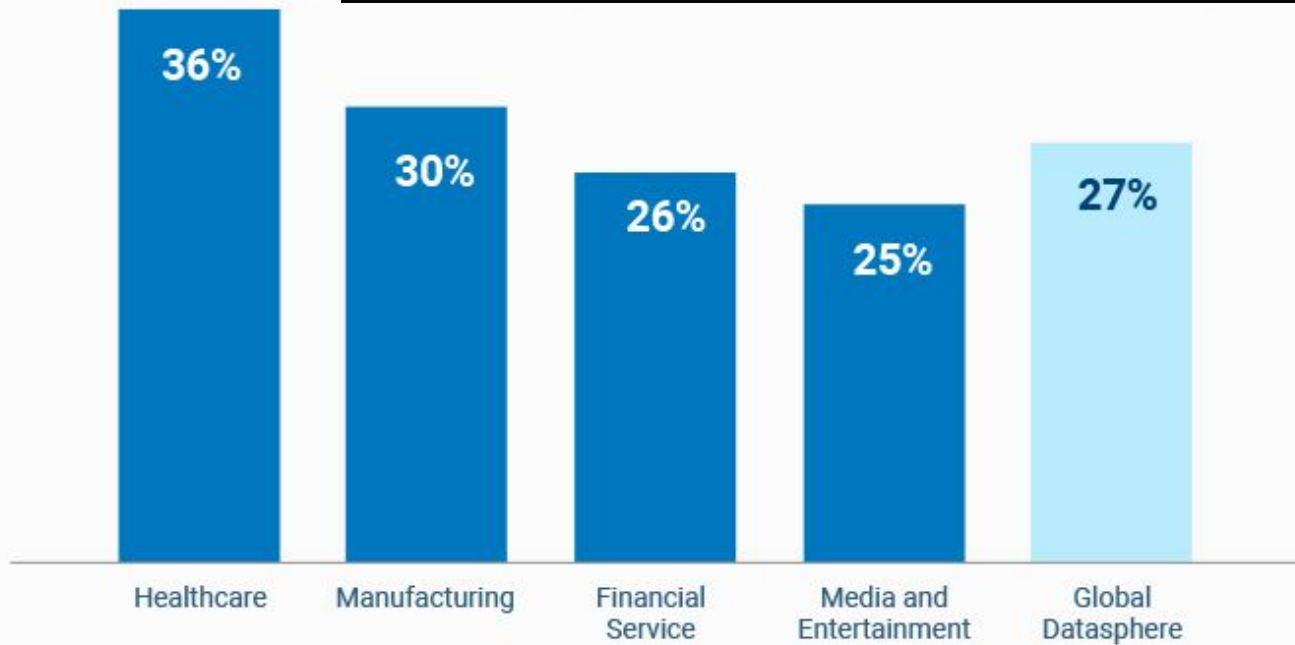
Understand the challenges and strategies for managing privacy and consent across complex partner ecosystems

4

Discover new and innovative datasets to drive real-world evidence generation for longer term outcomes and safety studies

“Every second, an exponential amount of healthcare data is generated and mined for valuable insights. Today, approximately 30% of the world’s data volume is being generated by the healthcare industry. By 2025, the compound annual growth rate of data for healthcare will reach 36%.”

## 2018-2025 Data – Compound Annual Growth Rate (CAGR)



Source: Coughlin et al Internal Medicine Journal article "Looking to tomorrow's healthcare today: a participatory health perspective". IDC White Paper, Doc# US44413318, November 2018: The Digitization of the World – From Edge to Core".

# A trusted innovation partner

Our transformational technologies and real-world data (RWD) ecosystem enable synchronicity across innovative use cases

80%

80% of the top 20 US pharmaceutical and biotech companies rely on HealthVerity technology

250+

250+ leading healthcare organizations are using HealthVerity to synchronize data for improved patient outcomes

7:8

7 of the top 8 companies pursuing anti-viral treatments and/or vaccines leverage the HealthVerity COVID dataset

**Id**

Identity

**Pr**

Privacy

**Gv**

Governance

**Ex**

Exchange

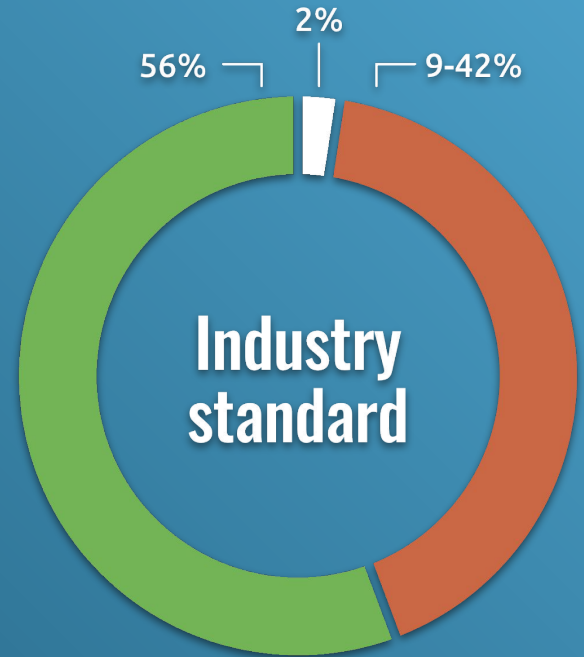
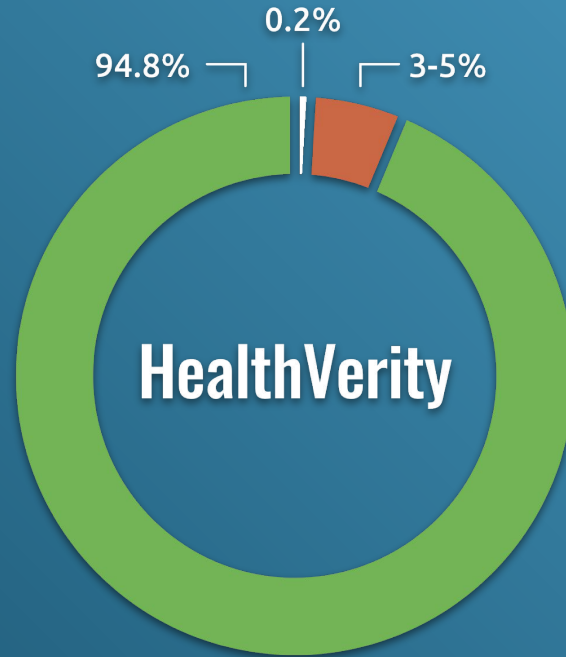
# Synchronizing the science with an elemental approach

- Establishing patient identity as the ultimate source of truth
- Ensuring data privacy and HIPAA compliance
- Governing data usage rights and permissions
- Enabling the discovery and exchange of interoperable healthcare and consumer data

# Accuracy is critical to RWE generation

**10x** greater accuracy than tokenization

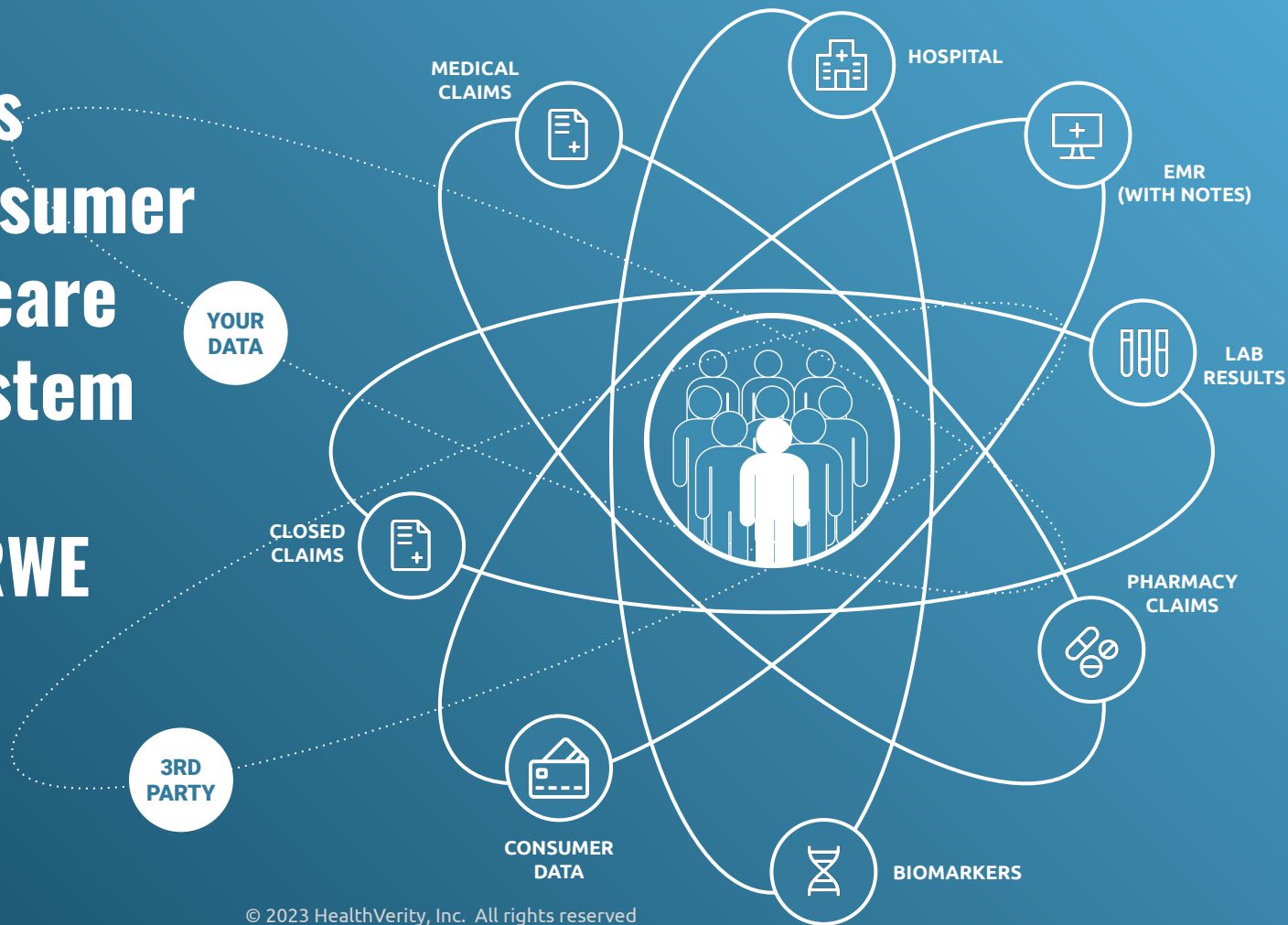
- Probabilistic matching technology to unite disparate patient records
- Centralized management of identity
- Patient master built on over 200 billion healthcare and consumer records



● Accuracy ● False positive rate ● False negative rate

# The nation's largest consumer and healthcare data ecosystem

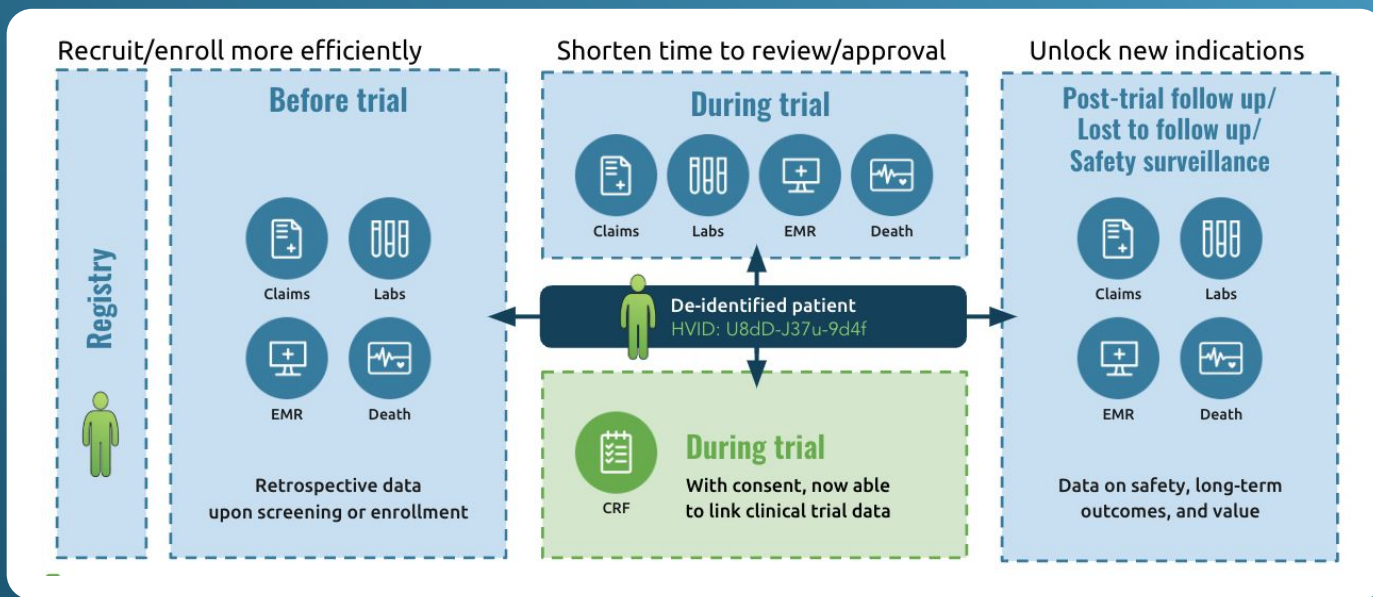
## -Powering RWE



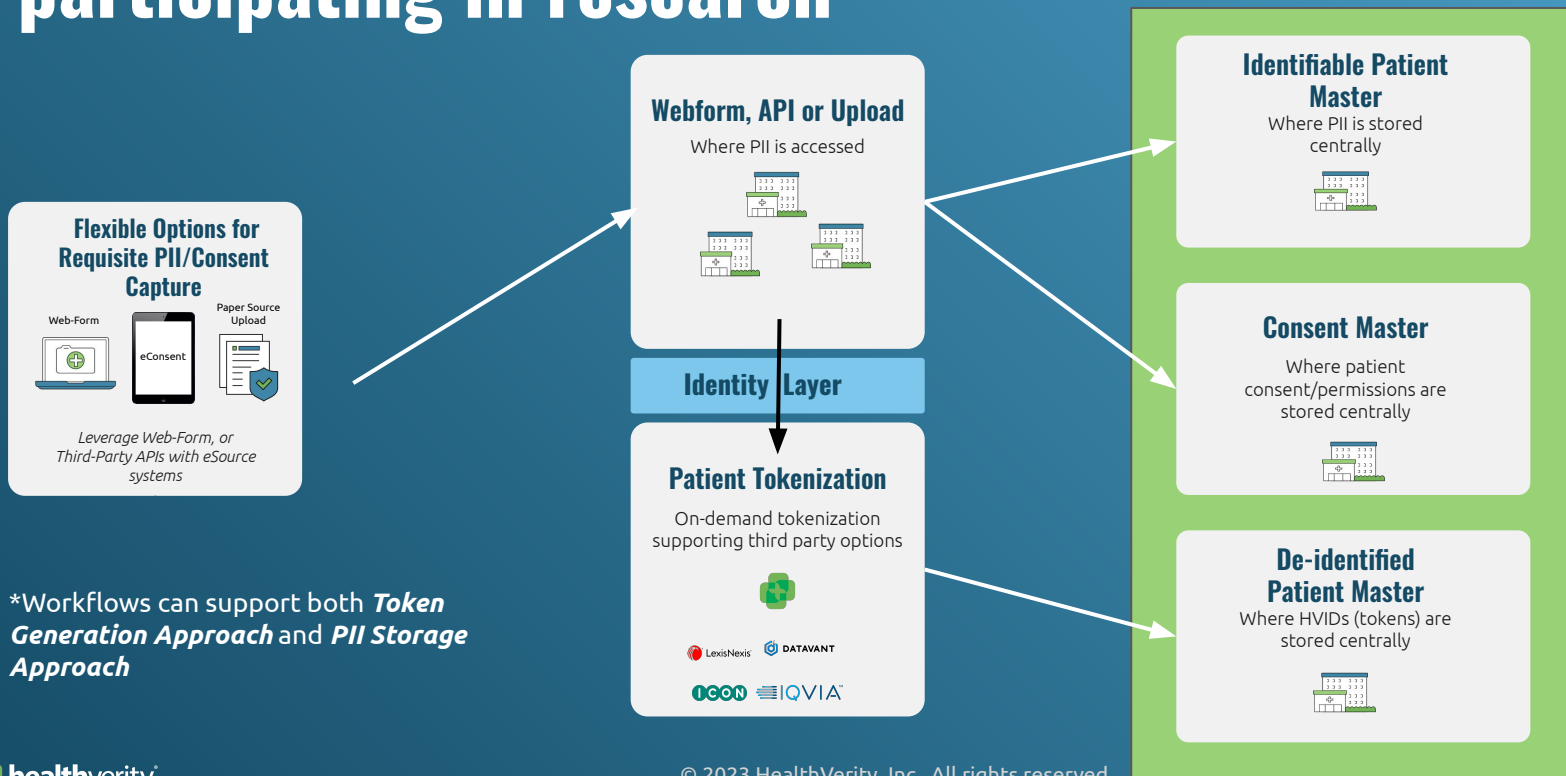
# Strategy for Synchronizing Patient Registries

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# A patient-synchronous approach for integrated evidence generation across the product lifecycle

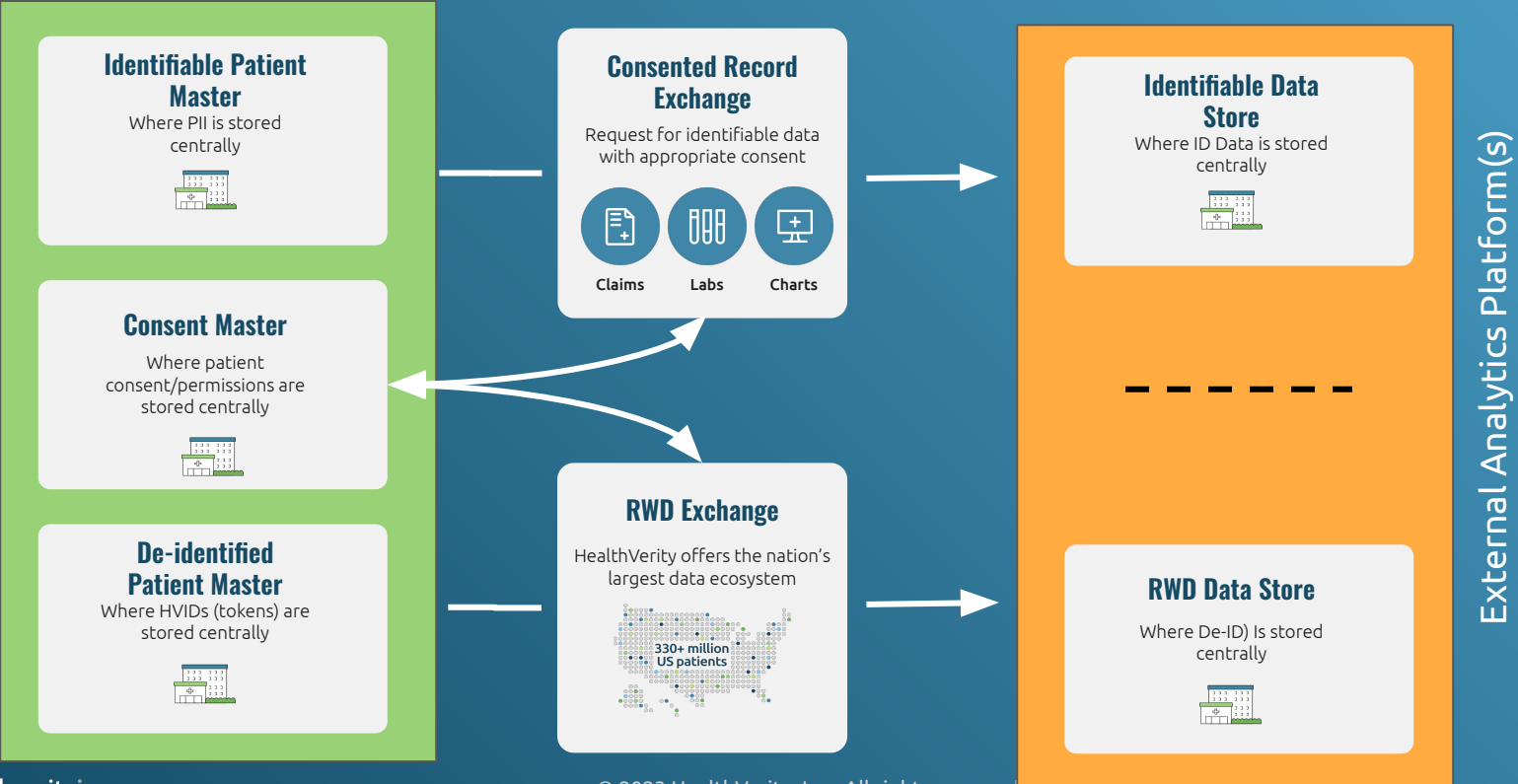


# Build a registry of patients interested in participating in research



\*Workflows can support both **Token Generation Approach** and **PII Storage Approach**

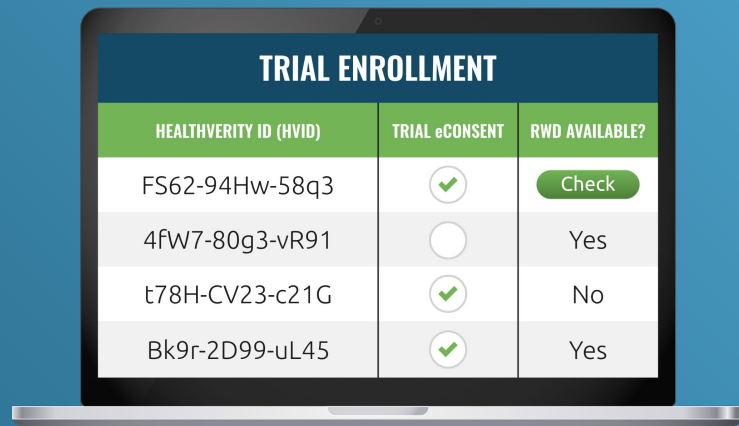
# Manage workflows for RWD and ID data exchange



# Check for RWD availability in real time

## Avoid over-enrollment and reduce costs

- Easily ensure all potential participants can be synchronized to RWD
- Seamlessly integrate into your workflow to pre-check for RWD availability from 330+ million unique patients

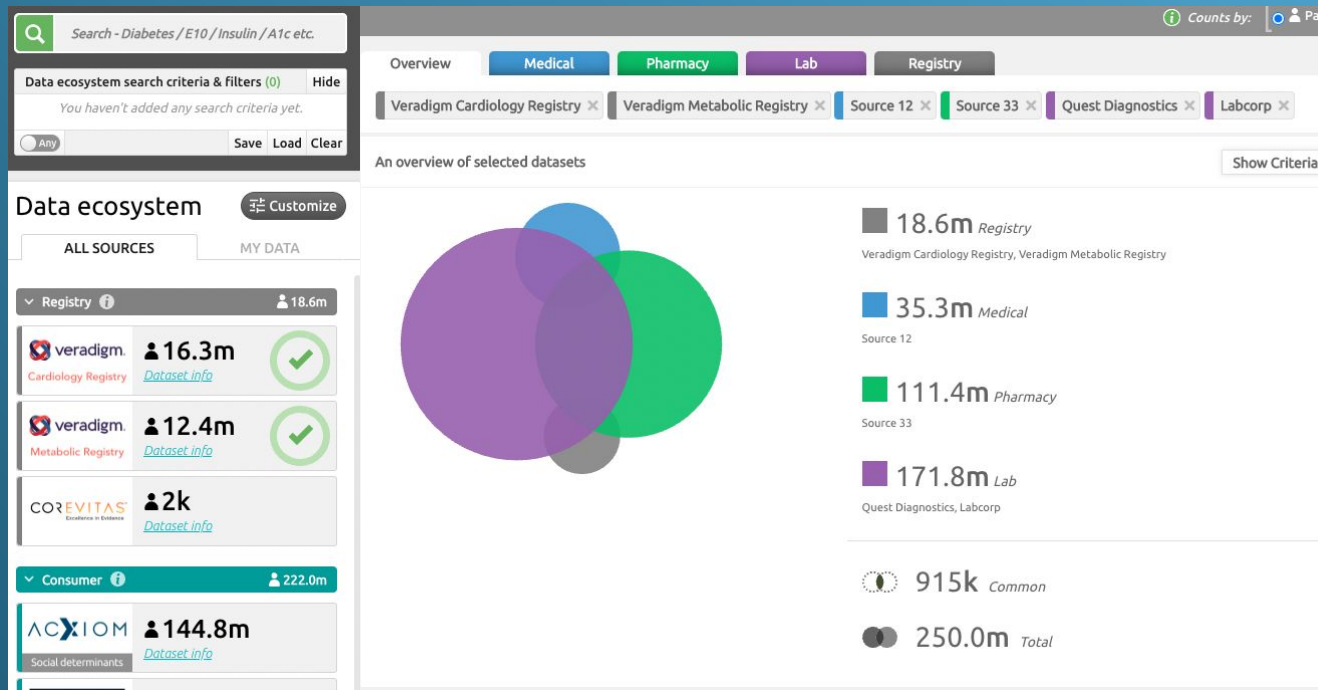


The image shows a laptop screen displaying a 'TRIAL ENROLLMENT' interface. The interface features a table with three columns: 'HEALTHVERITY ID (HVID)', 'TRIAL eCONSENT', and 'RWD AVAILABLE?'. The first row has a 'Check' button in the 'RWD AVAILABLE?' column. The second row has 'Yes' in the 'RWD AVAILABLE?' column. The third row has 'No' in the 'RWD AVAILABLE?' column. The fourth row has 'Yes' in the 'RWD AVAILABLE?' column.

HEALTHVERITY ID (HVID)	TRIAL eCONSENT	RWD AVAILABLE?
FS62-94Hw-58q3	<input checked="" type="checkbox"/>	<button>Check</button>
4fW7-80g3-vR91	<input type="checkbox"/>	Yes
t78H-CV23-c21G	<input checked="" type="checkbox"/>	No
Bk9r-2D99-uL45	<input checked="" type="checkbox"/>	Yes

# Speed to patient data discovery

- Access to the nation's largest RWD ecosystem
- On-demand overlap of patient cohorts for maximum data discovery
- Single contract across all data providers
- RWD normalized to a common data model
- HIPAA-compliant, research-ready cohorts



# Innovative Data Solutions to Drive RWE

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# Reliable evidence is needed to support the health and wellbeing of pregnant and lactating people



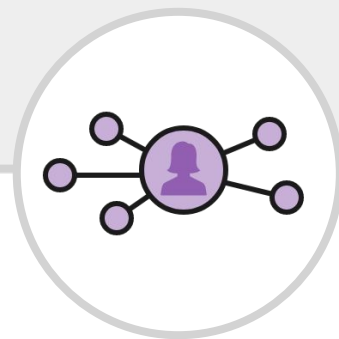
## Clinical trials

have historically excluded pregnant patients for ethical reasons



## Pregnancy registries

struggle with enrolling a sufficient number of patients, are costly, and take years to complete



## Real-world datasets

often lack critical details like race data and birth codes, and may not be able to confidently sync pregnant people to their infants

# FDA: Registries are not enough



NDA APPROVAL

**“Conduct an additional pregnancy study that uses a different design from the Pregnancy Exposure Registry (for example a retrospective cohort study using claims or electronic medical record data or a case control study)**

to assess major congenital malformations, spontaneous abortions, stillbirths, and small for gestational age and preterm birth in **women exposed to abrocitinib** during pregnancy compared to an unexposed control population.”



2022



NDA APPROVAL

**“Conduct an additional pregnancy study that uses a different design from the Pregnancy Exposure Registry (for example, a retrospective cohort study using claims or electronic medical record data or a case control study)** to

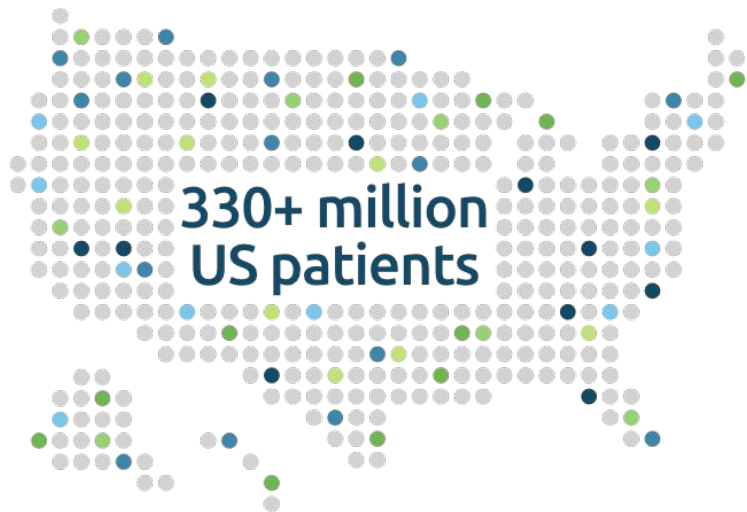
assess major congenital malformations, spontaneous abortions, stillbirths, and small for gestational age and preterm birth in **premenopausal women exposed to relugolix-containing products** during pregnancy compared to an unexposed pregnancy control population.”



2021

# MOM: Maternal Outcomes Masterset

MOM is purpose-built from Commercial and Medicaid transactions - **covering 70% of the Medicaid population** - that are fully interoperable, research ready and delivered to you



Payer data



Medical claims



Pharmacy data



Lab Results



EMR data



Chargemaster

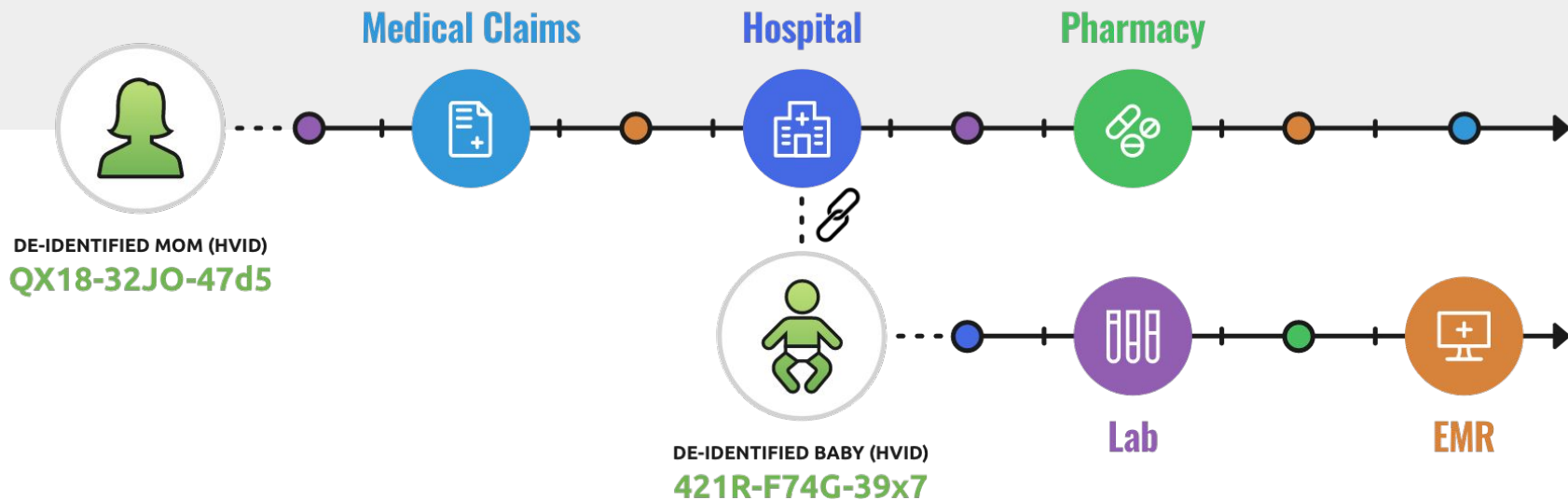
# MOM is superior to traditional pregnancy registries

	Maternal Outcomes Masterset (MOM)	Traditional Pregnancy Registry (Industry standard)
Commercial and Medicaid representation	✓	✗
HIPAA-certified from day one	✓	✗
Racial and mortality data included*	✓	✗
Flexible licensing model	✓	✗
Data delivered directly to client	✓	✗
Analytics agnostic	✓	✗

\*when available and per HIPAA certification

# MOM: matching adults to their newborns

MOM is a privacy-protected, HIPAA-compliant clinical dataset that matches de-identified healthcare records of nearly **2 million** pregnant women to their newborns



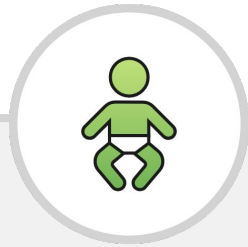
# MOM: Privacy Framework

**MOM** manages critical data elements for pregnancy related research and data transformations that ensure HIPAA compliance on day one



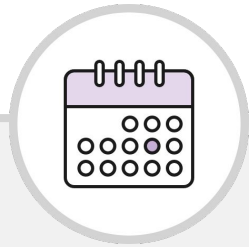
## Race / ethnicity simplified

White, Black, Asian, Hispanic, Other / Unavailable



## Pregnancy outcomes included

Diagnosis codes for birth events and other outcomes for mom and baby, including death



## Mother's Age bucketed

Mother's age is bucketed based on age at first pregnancy event. Child's date of birth is not.



## Geographic details removed

No regional information included (no zip, state, or information about the physician/facility)



## Dates shifted

Date fields base shifted randomly -45 to 45 days based on pregnancy resolution

# Racial disparities can impact maternal health outcomes

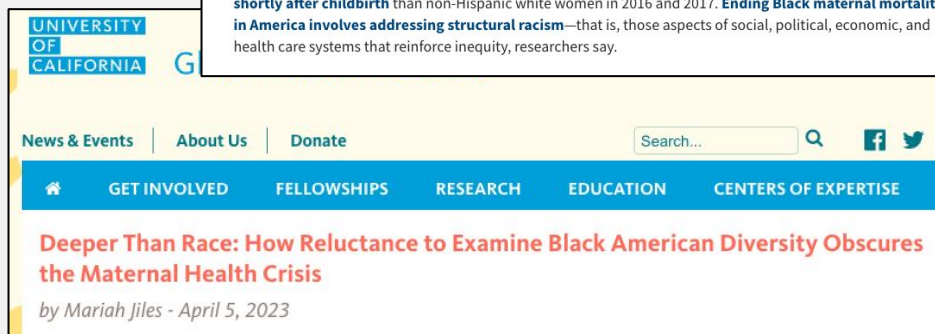
Black women are 3x more likely to die from a pregnancy-related cause than white women

- Factors such as variation in quality healthcare and chronic conditions contribute to these disparities
- SDOH such as transportation access and food insecurity influence maternal health



**U.S. Black women are over three times more likely to die in pregnancy or postpartum than white women.**

In the United States, **non-Hispanic Black women were 3.5 times more likely to die during pregnancy or shortly after childbirth** than non-Hispanic white women in 2016 and 2017. **Ending Black maternal mortality in America involves addressing structural racism**—that is, those aspects of social, political, economic, and health care systems that reinforce inequity, researchers say.







“About 10% to 20% of health outcomes are associated with health care. The rest have to do with social and economic factors, including income.”

– **Steven Woolf, MD, Professor of Family Medicine and Population Health, Virginia Commonwealth University**

# But there are many challenges to synchronizing SDOH and healthcare data...

HealthVerity solved this challenge with a HIPAA-compliant method to analyze **SDOH** and **racial attributes** in combination with healthcare data to reveal entirely new patient insights

Consumer	
	Social Determinants <a href="#">Dataset info</a>
	Social Determinants <a href="#">Dataset info</a>
	Grocery Data <a href="#">Dataset info</a>
	Obituary Data <a href="#">Dataset info</a>

# Provider Diversity Index

A breakthrough way to expand the inclusion of minority groups in research by understanding the racial and ethnic mix of patients under the care of each provider.

## Provider Demographics

NPI	Provider Gender	Practice City	Practice State	Practice Postal	Specialty	Total Patients
123	F	Moreno Valley	CA	92555	Family Medicine	108

## Overall Patient Mix

Patient Race	Patient Gender	Patient Age	Pay Type	Income Range	ICD10 Code	Count
Black	F	18-22	Commercial	\$20,000 - \$29,999	E11	2
Asian	M	23-27	Commercial	\$20,000 - \$29,999	E11	2
White	M	28-32	Medicare	\$110,000 - \$119,000	Z79	2
Black	F	33-37	Medicare	\$50,000 - \$59,1002	Z12	1
Hispanic	M	38-42	Medicaid	\$50,000 - \$59,1008	Z12	2
Asian	F	43-47	Medicaid	\$110,000 - \$119,000	E11	1
White	M	48-52	Medicaid	\$110,000 - \$119,000	Z12	2
Asian	M	53-57	Other	\$50,000 - \$59,1002	Z79	2
Black	F	58-62	Commercial	\$110,000 - \$119,000	E11	1
Hispanic	F	63-67	Medicaid	\$50,000 - \$59,1002	Z12	1
White	F	68-72	Commercial	\$20,000 - \$29,999	Z12	1
Asian	M	73-77	Other	\$50,000 - \$59,1002	E11	2
Black	F	78-80+	Other	-\$50,000 - \$59,1002	E43	2

# Obesity + SDOH

## OVERVIEW:

A pharma manufacturer was considering a product to address obesity, but the administration method was going to drive up costs to the patient

## PROBLEM:

How can we explore income, particularly those in the higher brackets, with BMI and other measures of health?

## APPROACH:

HealthVerity created a custom dataset, certified HIPAA compliant by expert determination, to combine income and healthcare data



Loss of geographic elements is a common trade-off when we want to bring in SDOH



Using an income variable that is the ratio of the HH income to the median of the patient zip lowers risk of identification and also retains utility of the income data

# Thank you!

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