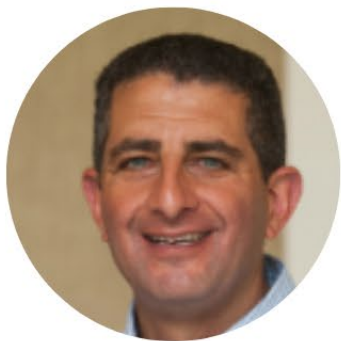EHI | EXECUTIVES FOR HEALTH INNOVATION

Using AI/Machine Learning for Patient Matching to Support Patient Safety and Improve Care

Thursday, June 2, 2022 | 2:00 PM ET

4medica®
One Patient...One Record

Establishing an Equity-Based Interoperable Data Ecosystem
Vision for the Idaho Health Data Exchange

Integration of an HIE and Social Needs Network
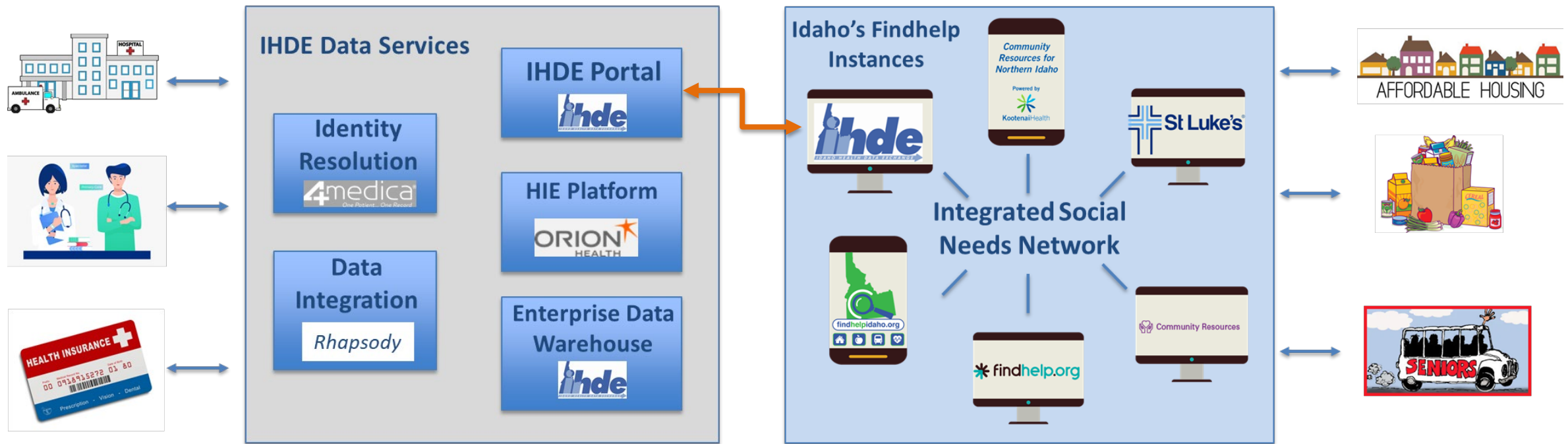
# Establishing an Equity-Based Interoperable Data Ecosystem
Reliable data is essential to achieve the vision

April 2020 – 14M Historical Records to Reconcile

May 2020 – Reduction of 14M Historical Records to 2.5M Unique Identities

June 2020 – 233,346 Potential Matches Identified to Resolve (9.33%)

Today – 2.8M Unique Identities to Maintain and Achieve 1% Duplication Rate
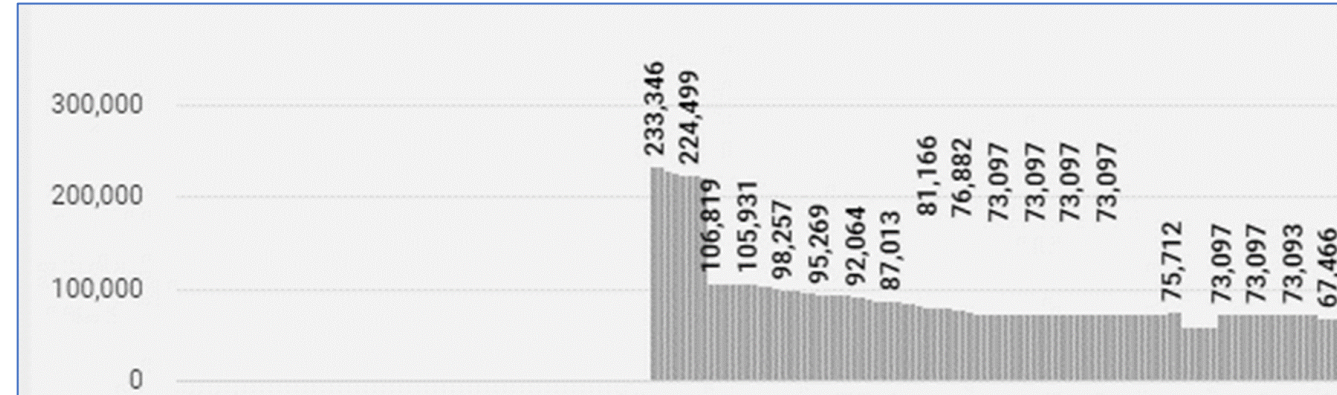
- Start Date (June 1, 2020): 216,750 Exact Duplicates (8.77%), 233,346 Potential Duplicates (9.33%)

- End Date (September 1, 2020: 67,466 Potential Duplicates & Bad "Irreconcilable" Data (1.69%) of Total Unique Identities)

- Real-time Production "Go-Live" Data (October 1, 2020): 1% Duplication Rate

Establishing an Equity-Based Interoperable Data Ecosystem
Role for a trusted neutral data utility

Convening to support more effective health services

Idaho Collaborative Partners

Objectives

- **Convene** CBOs, healthcare providers, and payers to improve coordination and more complete health services for Idaho's citizens

- **Drive adoption** and use of the platforms to support more effective services and community information exchange

- **Support** Idaho's growing value based population health models with more complete aggregated data for profiling, stratification, and proactive care

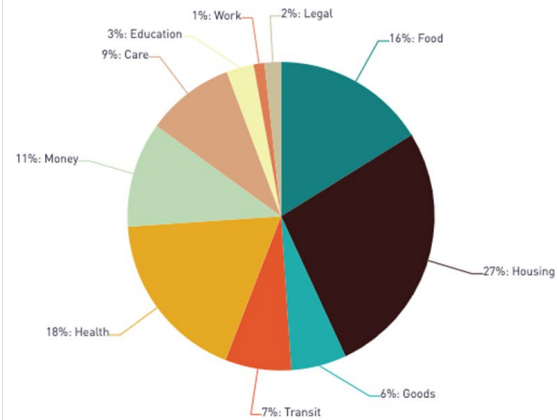# Establishing an Equity-Based Interoperable Data Ecosystem
Data guided & more complete health services

Adoption drives coordinated services

Idaho's Recent Search Activity

23,037 Total Searches
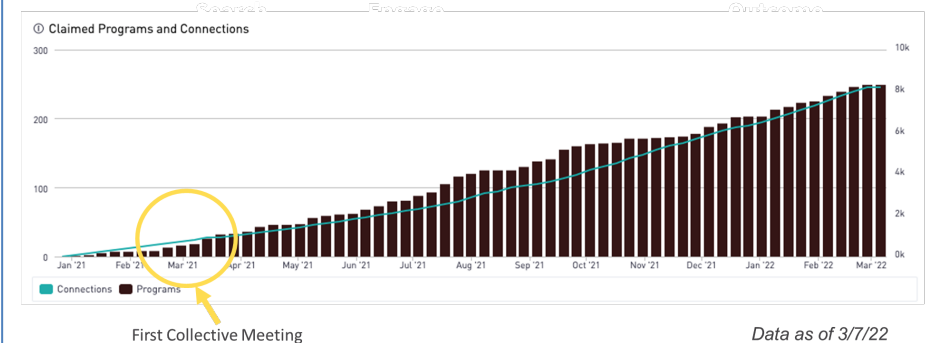
Searches by Category | 2022-01-01 to 2022-03-07

- 27%: Housing
- 18%: Health
- 16%: Food
- 11%: Money
- 11%: Care
- 9%: Care
- 7%: Transit
- 6%: Goods
- 3%: Education
- 2%: Legal
- 1%: Work

Most Common Search Terms | 2022-01-01 to 2022-03-07

TERM	DOMAIN	SEARCHES
help pay for housing	housing	789
food pantry	food	783
financial assistance	money	465
help pay for utilities	housing	453
help find housing	housing	388
emergency food	food	302
temporary shelter	housing	294
food delivery	food	289
transportation	transit	285
support groups	care	268
meals	food	236
help pay for internet or phone	housing	195
housing vouchers	housing	187
transportation for healthcare	transit	174
help pay for gas	transit	169

This data includes all searches in Idaho for 1/1/2022-3/7/22

Growing CBO Partner Adoption

Claimed Programs and Connections

First Collective Meeting

Data as of 3/7/22

Connections ▪ Programs

Idaho's Recent User Activity

Users | 2022-01-01 to 2022-03-07

520
Distinct Identified Users

7,342
Distinct Anonymous Users

Identified ▪ Anonymous

12
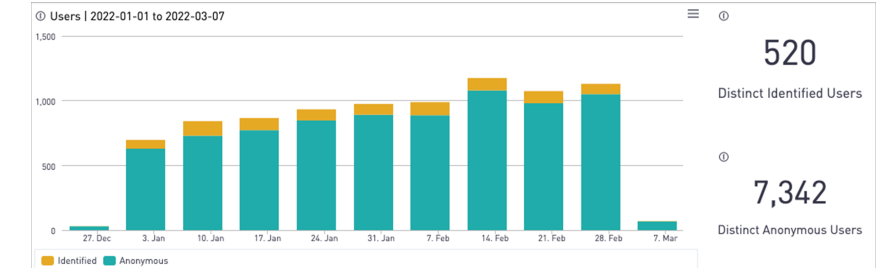
Establishing an Equity-Based Interoperable Data Ecosystem
Data quality is essential for ongoing stakeholder engagement

Ongoing Data Management Process

Superior **eMPI matching** and reconciliation

Use of automation to run "auto merge" processes with **careful review** and clean up

Data Management Protocols to help reduce bad data ingestion

Machine Learning Prediction applied and use of referential matching for enriching data quality

4medica Big Data MPI®

Application of Machine Learning to Improve Quicker Reconciliation & Accuracy

About 4medica

Duplicate patient records. Mistreated patients. Crippling costs.

At 4medica, we help you turn health data mishaps into reliable data quality, so you can operate at the highest efficiency and provide more meaningful care to those who need it most.

Founded in 1998

100+ Million Patient Identities

Process Hundreds of Millions of Transactions Per Month

Over 100+ Hospitals, Labs, Imaging Center, HIEs, HINs, and other organizations

HITRUST®
CSF Certified

4medica®
One Patient...One Record

MPI-as-a-Service 4-Layer Process

How we get below 1% duplication

10-20% duplication*

Prior to the start of any engagement, 4medica profiles the dataset of identities to design the right Big Data MPI (BDMPI) scoring.

3-8% duplication

2-5% duplication

1-3% duplication

<1% duplication

*According to the Office of the National Coordinator.

Layer 1: BIG DATA MPI®

Ground-breaking eMPI technology, compared to legacy SQL technology.

Layer 2: MACHINE LEARNING

4medica A.I. Robo-Steward™ reduces work of the data stewardship team, produces error correction and improves eMPI scoring weights.

Layer 3: REFERENTIAL MATCHING/ DATA ENRICHMENT

We apply the best data sources available to further reduce duplication and unlike competitors, we share this data enrichment with our clients.

Layer 4: COMPREHENSIVE DATA ANALYSIS

Our data science team resolves final duplicate candidates, checks for false positives (overlays) and re-runs layers 1-3.

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4medica Big Data MPI® – Match

Parent

First Name	Last Name	Birth Date	Address
CYNTHIA,CINDY	BONSON	19770913	2302 Highland Ave
Suzanne	Endsley,King,Fulton	19690414	

Child

First Name	Last Name	Birth Date	Address
Cindy	Bonson	19770913	
SUZANNE	ENDSLEY,KING	19690414	

4medica Big Data MPI® – No Match

Parent

First Name	Last Name	Birth Date	Address
MALEKAI	STOM	20110110	2417 S Twin Cave Creek
AUDREY	DITLEFSEN	20061208	174 Meadows Ln

Child

First Name	Last Name	Birth Date	Address
MALEKAI	STOM	20120110	1726 W Cherry Ln Apt B211
Laurelyn	Ditlefsen	20061208	174 Meadows Ln

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4medica Big Data MPI® – ML Prediction Trend
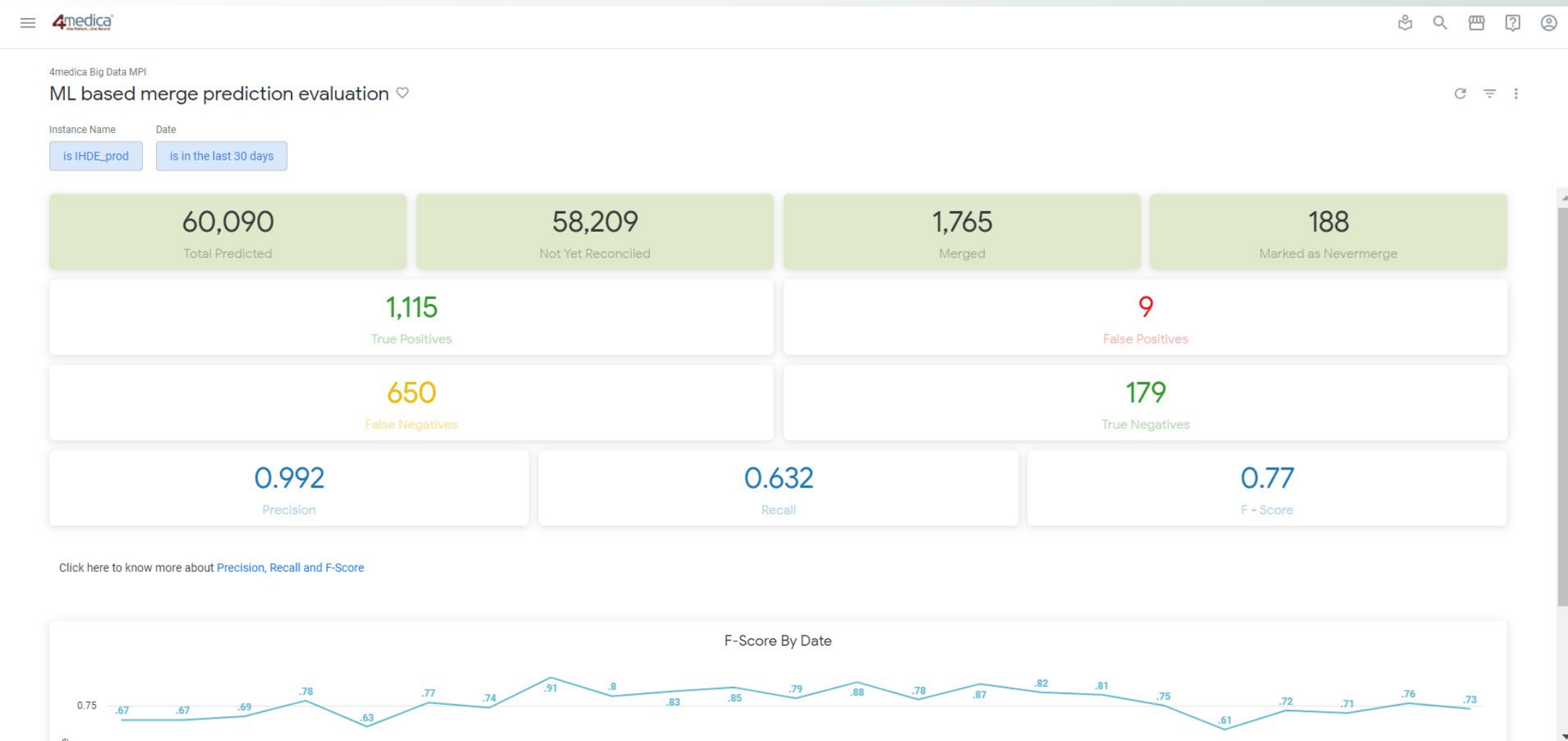
4medica Big Data MPI® – Precision, Recall and F-Score

- **Precision** is the percentage value indicating how many results are correct.

$$\text{Precision} = \frac{TP}{TP + FP}$$

- **Recall** is the percentage value indicating how many of the correct results are found.

$$\text{Recall} = \frac{TP}{TP + FN}$$

- An **F-score** is the harmonic mean of Precision and Recall values of a system.

$$F_1 = 2 \times \frac{\text{precision} \times \text{recall}}{\text{precision} + \text{recall}}$$

Thank you!

For further information, please contact us at:

info@4medica.com