

# 4medica Health Data Quality (HDQ) Assessment

**Civitas Networks for Health  
Shared Services Program**

# Agenda

- About 4medica
- Why We Still Have Data Quality Problems
- The Problem → The Solution → The Result
- 4medica Health Data Quality Assessment
- Questions & Answers / Next Steps



**We Make Your Data  
Accessible,  
Actionable  
&  
Useful**

# About 4medica



**Founded  
in 1998**

**100,000+ Million Identities  
“Golden Records”  
Direct Access to 258,000+  
Million Enriched Adult  
Identities**

**Securely Process  
Millions  
of Demographic &  
Clinical  
Transactions  
Each Month**

**100+ Hospitals,  
Laboratories, HIEs,  
HINs & Other Provider  
Organizations**



# US Healthcare | Current Situation



**GDP**

**\$4 Trillion**

In 2020, healthcare made up 17% of the US GDP



**\$12,000**

The amount the US spends per person on healthcare

## THE PROBLEM



### Disconnected

- Data Blocking
- Outdated Legacy Platforms
- Poor Data Exchange Standards

### Poor Data Quality

- Poor Identity Management
- No Universal Patient ID
- Non-Normalized Tests, Procedures, Diagnoses & Symptoms



## THE SOLUTION

**Health Data Quality**  
through Digital Transformation  
and Interoperable Data

“... can help individual health care organizations expand access to services, and deliver a more effective patient and clinician experience”

~2021 Deloitte Global Healthcare Report



## THE DATA QUALITY PROBLEM

### Identity & Record Duplication...

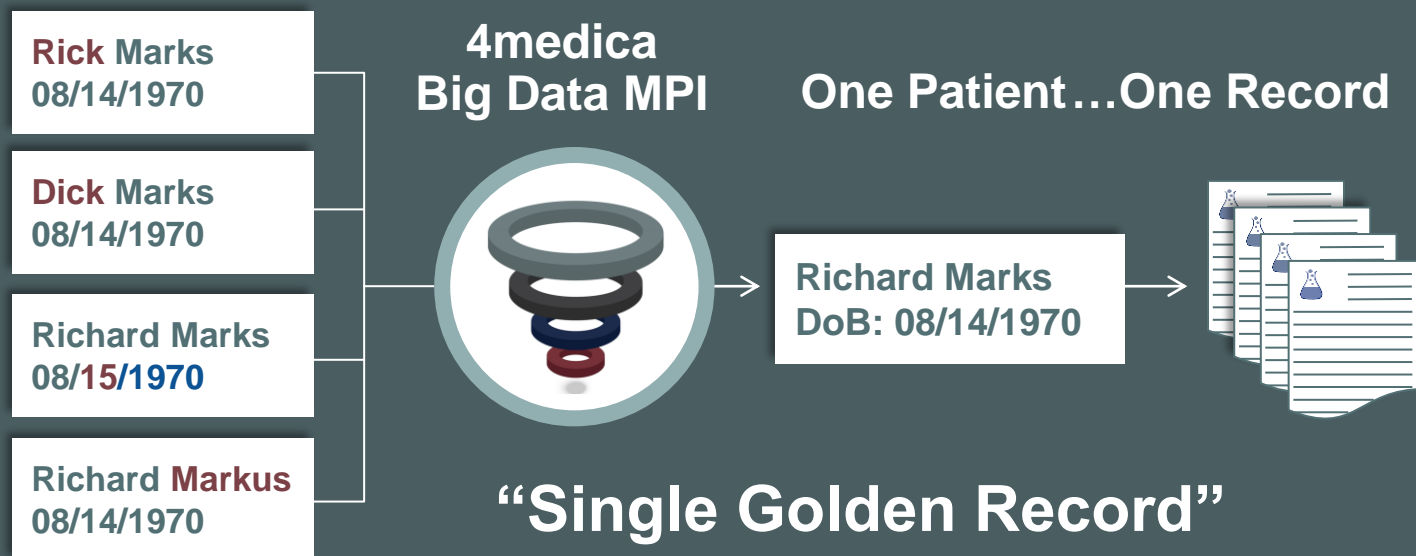
- **10 – 30% Identity Duplication Rate**...leading to incomplete longitudinal medical record for each patient.



## THE SOLUTION & RESULT

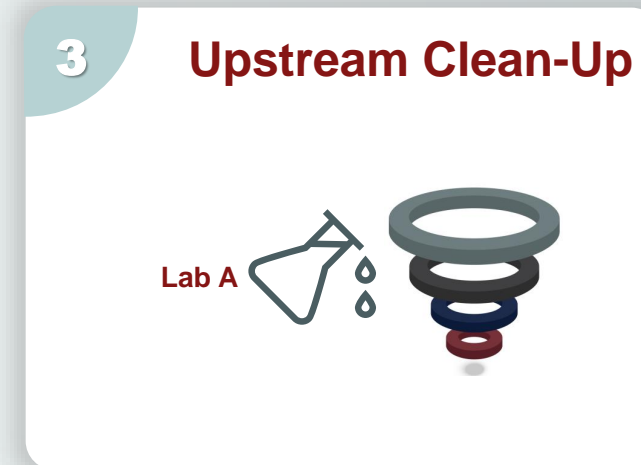
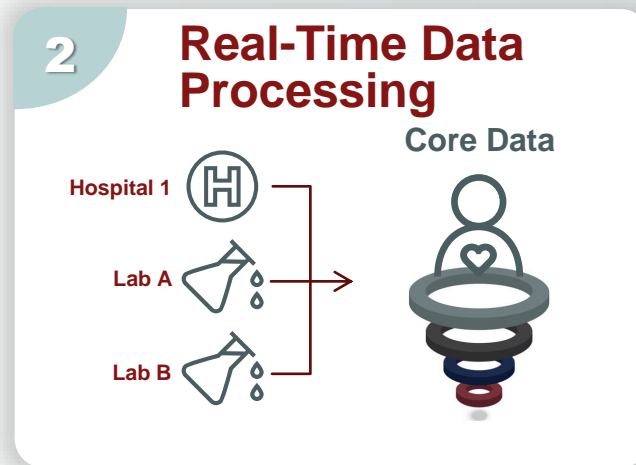
### 4medica eMPI-as-a-Service®

**10x Improvement – 1% Duplication Guarantee**





# Three (3) Steps of Identity Quality



**10x**  
**Improvement**

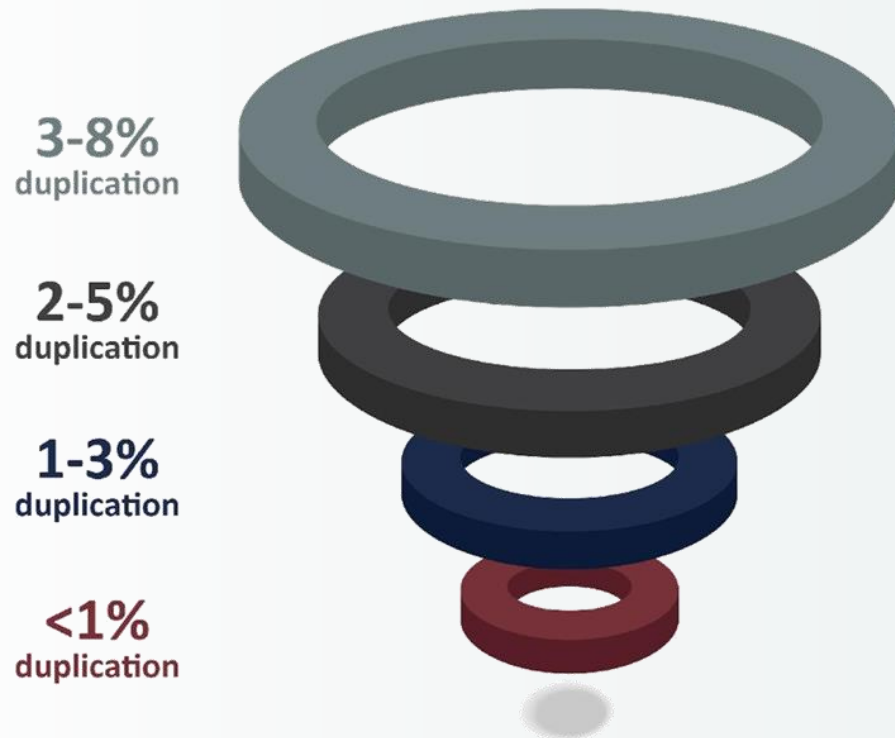
FEATURE	4MEDICA BDMPI	OTHER SOLUTIONS
Precision of De-duplication	< 1%	5% - 10%
Tuning Process	Real-time, While Running	Offline Only, Takes Weeks
Real-time Performance	Designed for Real-time	Too Slow for Real-time
Implementation Timeline	Days to Weeks	Months to Years

# 4medica eMPI-as-a-Service 4-Layer Process

## How we get below 1% duplication

10-30%  
duplication\*

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



\*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.

# 4medica Health Data Quality Assessment

Data Metrics Review



## Records Uploaded

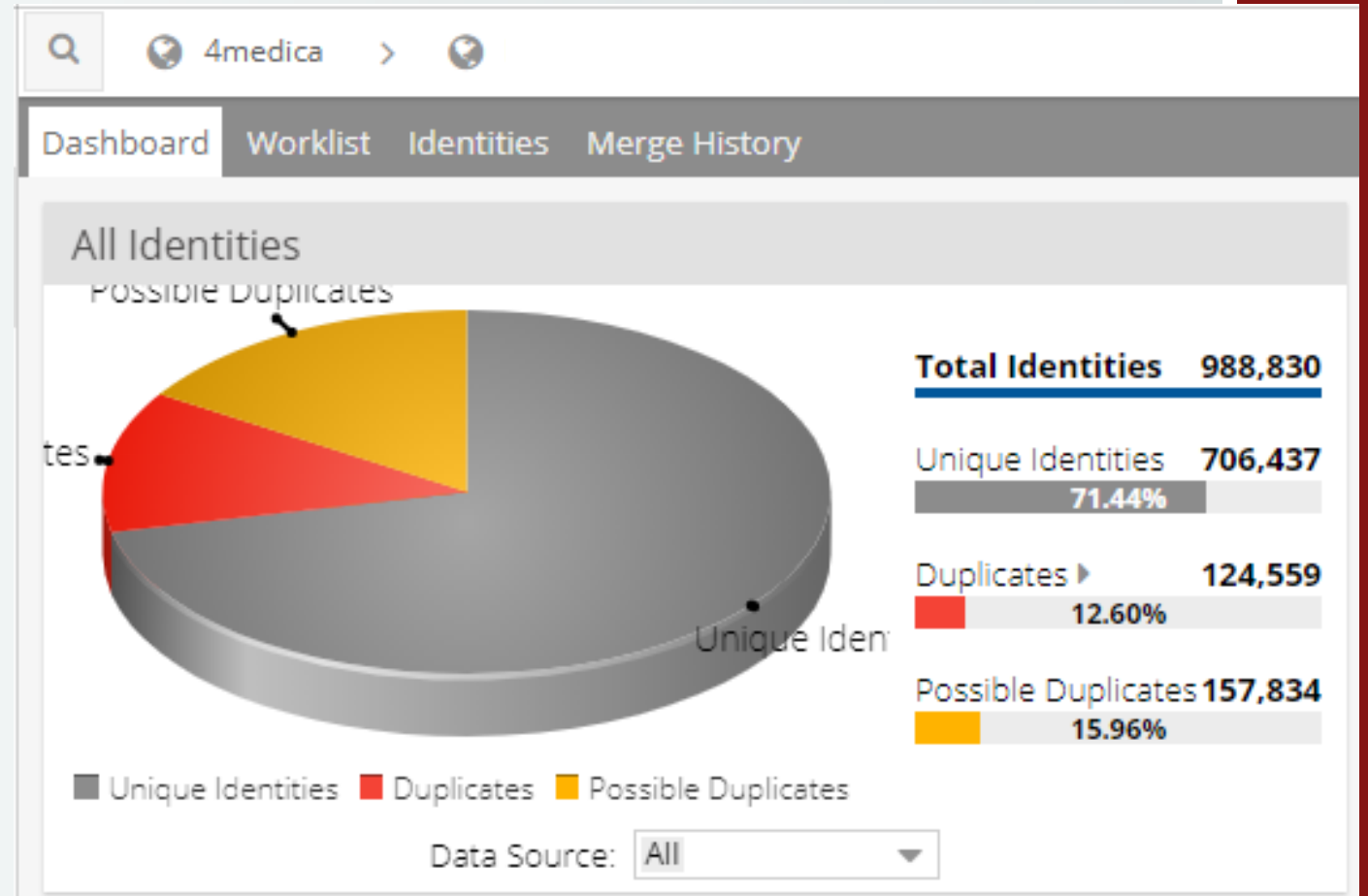


## Data Quality



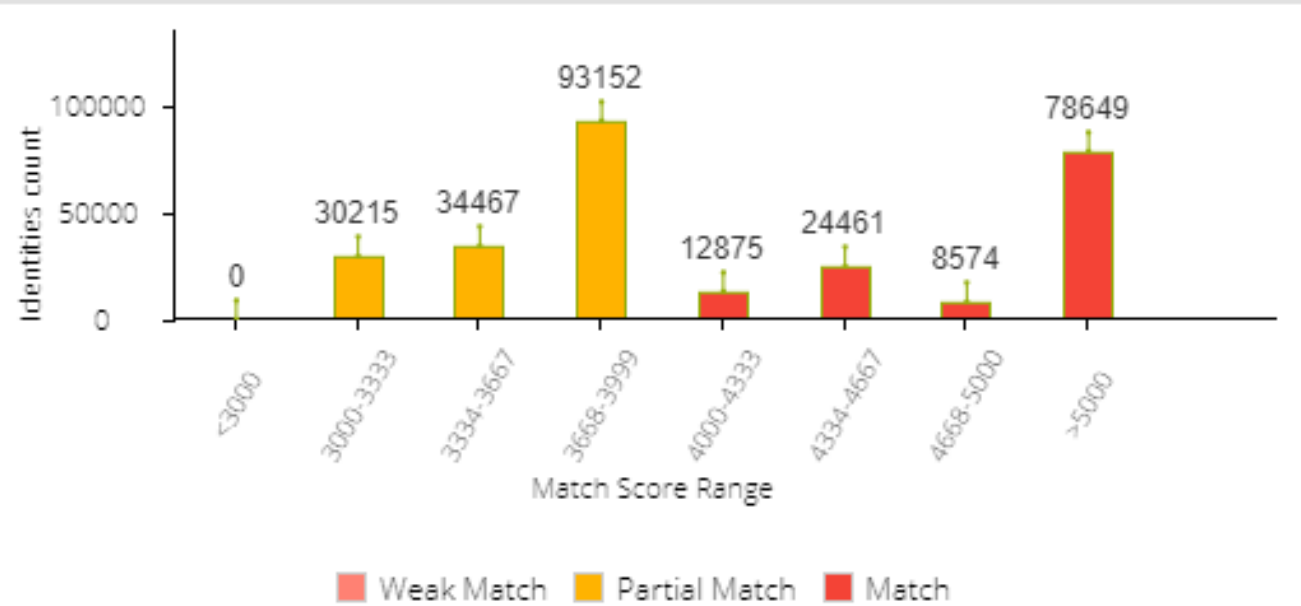
# 4medica MPI Dashboard Statistics

- Total Identities: **988,830**
- Total Unique Identities: **706,437**
- Matches/Duplicates: **124,559 (12.6%)**
- Potential Matches: **157,834 (15.96%)**



# 4medica MPI Score Distribution

Score Distribution



# 4medica MPI Validation

## Missing Demographics

- Number of records without FN, LN, DOB, Gender & Address1 – **16**
- Number of records without FirstName – **6074**
- Number of records without LastName – **8870**
- Number of records without DOB – **4**
- Number of records without gender – **4**

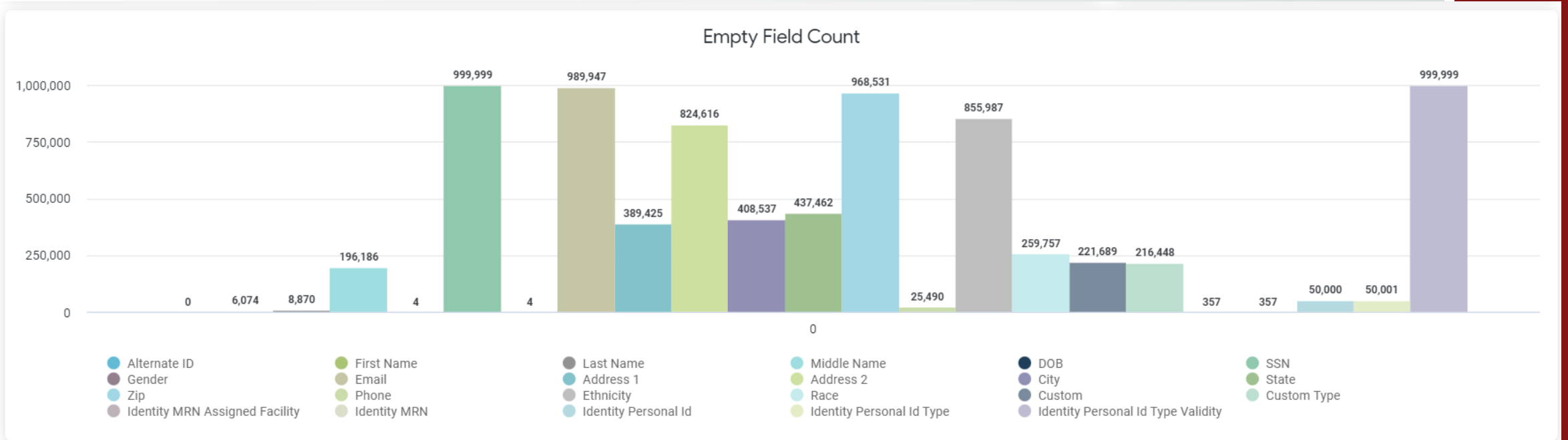
## Invalid Names

- Number of records with invalid characters in FirstName & LastName – **0**
- Number of records with invalid characters in FirstName – **592**
- Number of records with invalid characters in LastName – **383**
- Number of records with Single Digit FirstName – **814**
- Number of records with Single Digit LastName – **1302**
- Number of records with Single Digit FirstName & LastName – **43**

# 4medica MPI Validation

<b>John/Jane DOEs</b>	Number of records with LastName Doe & FirstName either John or Jane – <b>1</b>
<b>Test Patients</b>	Number of records with “Test” in FirstName – <b>99</b> Number of records with “Test” in LastName – <b>116</b>
<b>Unknowns</b>	Number of records with “UNKNOWN” in FirstName or LastName – <b>465</b>
<b>Baby Names</b>	Number of records with “BABY” in FirstName or LastName – <b>1474</b>
<b>DOB Before 01/01/1910</b>	Number of records with DOB before 01/01/1910 – <b>695</b>

# 4medica Validation Statistics – Empty Field Counts







# Let's Get Started...

- We're Here to Help Civitas & Alliance Members Achieve Best Health Data Quality
- 4medica Health Data Quality Assessment
  - Comprehensive Review of patient demographic data
  - Advise on how to clean-up duplicates identified
  - Help achieve 1% or less duplication rate
- 4medica eMPI-as-a-Service™
  - 4medica to help manage entire data quality process (on-going)

**4medica**<sup>®</sup>  
One Patient...One Record

**Resolve High Identity Duplication Rates: 4medica Health Data Quality Assessment for Civitas Members**

4medica.com/Civitas

**THE PROBLEM**

Many health information exchanges and health data organizations struggle to solve double-digit duplication rates with their legacy eMPI software and data management procedures. *Why?*

- Today's data sharing and real-time interoperability requirements are too complex.
- Using a standalone referential matching service does not solve the data interoperability, patient safety, and financial problems caused by mismatched identities.
- More in-depth analysis of data quality and sophisticated MPI technology is needed.

**4medica Solves Patient Identification and Matching With Speed, Performance and 99% Accuracy.**

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# Questions & Answers

## Next Steps

Sign-up for More Information: <https://www.4medica.com/civitas/>

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