# EXHIBIT B



## 4MEDICA'S PATENTS PENDING REVOLUTIONARY BIG DATA MPI SOLUTION

All healthcare institutions and laboratories face a lingering problem of duplicate patients entering their databases from multiple sources. With nearly 40 million patients from thousands of data sources, 4medica faced the same problem on an unusually large scale. Commercially available Master Patient Index (MPI) systems and their tools simply cannot manage such complexity and database sizes at a reasonable cost and speed.

4medica's new proprietary MPI technology can! Based on its experience with Big Data architecture, 4medica designed a revolutionary approach to solve this problem. We call it **4medica Big Data MPI**. Available either as a SaaS platform hosted by 4medica or client-hosted, 4medica Big Data MPI can be integrated into a customer's infrastructure.

Navigate Commands He	elp	4medic	<u>a1</u>		Log Out
medica	Dashboard Merge Merge H	iistory Audit Trail			
Ivering True Clinical Integration avigate X	Current Master Records		Current Duplica	te Matches	
Administrator	2,317,120		:	217	
	Last Updated: 2013-08-15 12:37:22 Last Full Scan: 4 days ago Last Manual Merge: 2 days ago				
	Last Full Scan: 4 days av Last Manual Merge: 2 days av	go			
	Last Full Scan: 4 days ay Last Manual Merge: 2 days ay MPI Activity Summary	<b>go</b> go 24 hrs 3 days	1 wk 1 mon	3 months	
	Last Full Scan: 4 days ay Last Manual Merge: 2 days ay MPI Activity Summary ≠ of manually merged	<b>go</b> 24 hrs 3 days 0 27	1 wk 1 mon 64 502	3 months 1211	
	Last Full Scan: 4 days at Last Manual Merge: 2 days at MPI Activity Summary # of manually merged # auto-merged duplicates	go go 24hrs 3 days 0 27 35 90	1 wk 1 mon 64 502 203 899	3 months 1211 2733	
	Last Full Scan: 4 days at Last Manual Merge: 2 days at MPI Activity Summary # of manually merged # auto-merged duplicates	go go 24hrs 3 days 0 27 35 90	1 wk 1 mon 64 502 203 899	3 months 1211 2733	

### **Key Differentiators**

**Search Engine Technology:** Unlike conventional MPIs, 4medica Big Data MPI is not dependent on relational databases. 4medica's revolutionary MPI is based on the Inverted Index technology pioneered by search engines. The 4medica Big Data MPI system does not require relationships between identities to be recorded and updated in a separate database of links, allowing a host of unique features and efficiencies to be applied to the task of patient de-duplication.

**Speed and Scalability:** Conventional MPIs acknowledge that search performance rapidly drops (logarithmically) when patient numbers increase. In contrast, 4medica Big Data MPI is able to scale with no significant performance drop as the numbers of

Scalable to hundreds of millions of patient records without losing speed!

Flexible rules that can be changed on the fly result in significantly fewer errors!

Significant savings on hardware and software licenses - no Oracle or MS SQL!



#### **Key Benefits**

- Reduce the Burden of False Positive and False Negative Resolution
- Contain Hardware Costs
- Reduce Software License
   Investment
- Reduce Software Support Overhead
- Save Even More with 4medica's Cloud-Hosted Option

patients are increased. The same lightning-fast search is seen with 10,000 patients or 10 million patients, while utilizing the same inexpensive commodity hardware in both cases.

**Precision:** 4medica Big Data MPI generates fewer false positive and negative matches than conventional MPIs, leading to reduced upkeep and maintenance costs. Below are some of the unique 4medica Big Data MPI properties that help achieve greater precision.

- Continuous Tuning Conventional MPIs are tuned for several weeks ONLY before they go into production. If the algorithms change the entire database must be re-scored. Therefore, conventional MPIs cannot be tuned while in production. 4medica Big Data MPI architecture allows a unique ability of continuous tuning while in production mode. Future releases of our engine will allow MPI to selftune by learning from its own mistakes.
- 2. Separate Algorithms for Each Data Source Conventional MPIs have a single set of algorithms applied to the entire database of patients. Identities from ALL incoming data sources must be scored with the same algorithms. 4medica Big Data MPI architecture allows creating separate sets of algorithms for each data source. Depending on the peculiarities of a data source, scoring can be adjusted to improve precision. For example, an obstetrical clinic has many patients whose last names frequently change as they get married. In a geriatric clinic patient names do not change and all of them have Medicare ID and middle names filled in. 4medica Big Data MPI architecture allows to setup different algorithms for each of these clinics. In the case of the obstetrical clinic last names will be valued lower and in case of the geriatric clinic Medicare IDs middle and last names can be scored higher to achieve greater precision for the entire enterprise.
- 3. Unlimited Historic Names (Aliases), Addresses, Phones, etc. Precision is further increased by utilizing unlimited historic values for each field. When patients get married, much of their record becomes difficult to identify. However, 4medica Big Data MPI keeps an unlimited list of aliases as well as other frequently changed parameters such as addresses and phone numbers. The history of each parameter can be easily reviewed in 4medica's user interface.
- 4. **Unlimited Personal IDs** 4medica Big Data MPI keeps track of unlimited IDs. These include EMR IDs, as well as IDs from multiple practice billing systems, hospitals, etc.



### Key Differentiators of 4medica Big Data MPI

- Search Engine Technology Based on the Inverted Index technology pioneered by search engines
- Speed and Scalability
   Able to scale with no significant
   performance drop as the
   numbers of patients are
   increased

#### • Precision

Generates fewer false positive and negative matches than conventional MPIs, leading to reduced upkeep and maintenance costs

### **COST BENEFITS**

- Reduce the Burden of False Positive and False Negative Resolution – 4medica Big Data MPI is not only efficient, it's inherently more precise. With this enhanced precision, 4medica's superior toolkit for rapid manual merge and unmerge yields significant time savings to an institution, leaving resources available for other tasks.
- Contain Hardware Costs 4medica Big Data MPI is efficient and scalable. Inexpensive commodity servers are able to accommodate patient populations of any size. Most production systems (fewer than 5 million patients) can be implemented on one dual core-CPU server from any major manufacturer. There is no need for a separate application server or multiple expensive Database Servers in a failover rack configuration. The cost and work associated with replacing servers every 5 years is also eliminated.
- Reduce Software License Investment 4medica is committed to open source architecture, utilizing tools that do not result in additional cost to our customers. We do not utilize Oracle DBMS or MS SQL Server which traditionally increase your investment substantially.
- Reduce Software Support Overhead There is no need to pay expensive support fees for each purchased software license. While we encourage our customers to contract with 4medica's open source partners for support, these fees are a fraction of traditional support fees to Oracle or Microsoft. Additionally, these fees are included if the customer selects a fully hosted solution.
- Save Even More with 4medica's Cloud-Hosted Option One monthly fee covers all the overhead associated with owning and maintaining the most sophisticated MPI on the market. We perform all maintenance and system updates while providing redundancy and back up when hosting your data in our Tier-1 datacenter. Large and small institutions feel that this is the most cost-efficient and prudent way to implement an MPI.

### **CONTACT US**

Call today at (310) 695-3300 to learn how you can join the 4medica Big Data MPI Revolution!

### & eMPI Implementation Analysis

An **Identity Duplication Assessment (IDA)** project produces all the elements you need for a successful eMPI implementation for your hospital organization, including:

- Proposed Architectural System Design
- ✓ Phased Implementation Process
- ✓ eMPI Maintenance Roadmap for the entire hospital organization

#### PHASE 1: LOAD, PROCESS AND ANALYZE YOUR DATA WITH 4MEDICA BIG DATA MPI



4medica's state-of-the-art Big Data MPI engine determines the rate of identity duplication in your hospital data sources. If your data permits, 4medica Big Data MPI analyzes data quality and duplication rates for each data source. You can see and search all duplicates on the 4medica Big Data MPI screen.

 ✓ Identity Duplication Score (IDS) will be generated for the entire data set you provide.

#### **PHASE 2:** ARCHITECTURAL EVALUATION & DESIGN

4medica architects evaluate and design an eMPI system architecture for your hospital organization, producing a set of architectural diagrams that detail the best possible solution for your organization. 4medica architects then collaborate with your technical team to create a phased roadmap to eMPI implementation.

- ✓ Architectural System Design for eMPI Implementation
- ✓ Phased Implementation Roadmap

### **PHASE 3:** LOGICAL ROADMAP TO ELIMINATE DUPLICATES

4medica workflow experts interview your team to identify problem areas. Using your *Identity Duplication Score (IDS*) and the data source analysis, 4medica outlines the process and resources required to create and maintain a duplicate-free environment.

- Initial patient database deduplication process
- ✓ Organization-wide MPI Maintenance Roadmap

### All-inclusive Price: Redacted

Call **(310) 695-3300 Option 1,** or email us at <u>info@BigDataMPI.com</u>, to learn more about the 4medica Identity Duplication Assessment (IDA) & eMPI Implementation Analysis.

\*THE PRICE OF ASSESSMENT WILL BE APPLIED TO THE IMPLEMENTATION COST IF 4MEDICA BIG DATA MPI IS SELECTED.



Photo of booth at the Strategic Health Information Exchange Collaborative (SHIEC) Annual Conference in Indianapolis, Indiana in August 2017:





Photo of booth at the CIE Summit held in San Diego, California in March 2018:

Photo of booth at the Strategic Health Information Exchange Collaborative (SHIEC) Annual Conference in Baltimore, Maryland in August 2019:

