

A Distinctive View across the Continuum of Care with Oracle Healthcare Master Person Index

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Introduction

The imperative to implement strategic tools to merge and manage data is stronger than ever today in the healthcare industry. Two major industry forces are converging to drive this: 1) the need to aggregate and utilize healthcare data from disparate systems in support of patient-centric management, and 2) the need to combine and preserve healthcare data from multiple information systems into a single, powerful data asset (due to increasing industry consolidation via with mergers and acquisitions).

When viewed from the enterprise level, both inter- and intra-organizational interoperability is a high priority for modern healthcare industry organizations. Fragmented information systems are the reality of every health organization. These systems create duplicated identities in ancillary departments including laboratory, pharmacy, and radiology systems, and in an increasing variety of other patient-level, health-related data sources.

There is an increased need for a single point of reference for the patient and provider. This is especially when health organizations implement Population Health Management programs and need to ensure care-coordination, improve communications, decrease medical errors, and ultimately, provide better care across the continuum.

Interoperability and Multiple Identities

Every healthcare system deals with persons or organizations in multiple roles, such as patients, providers, payers, physicians, and nurses. The healthcare organization, given the many disparate IT sources for person identification authoring systems, requires robust identification management to support patient-centric care effectively.

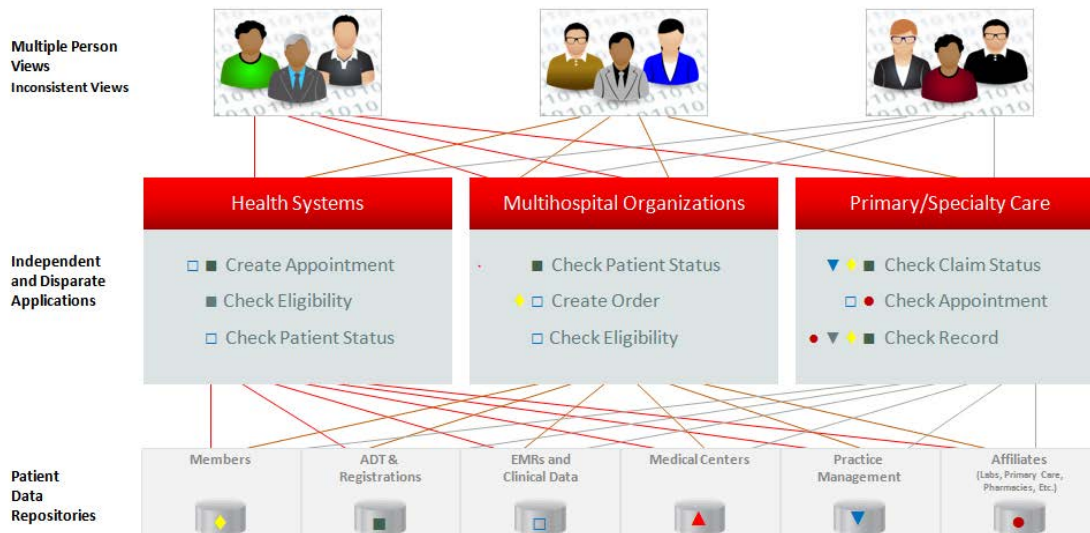



Figure 1 – Inconsistent Patient Views

As a result of the number and variety of patient data repositories, there are numerous identifiers for the same patient. Multiple views of the patient are created at the enterprise level. Due to lack of interoperability, point of care information becomes unreliable, resulting in patient and provider dissatisfaction.

This situation can be remedied with the use of a healthcare-specific, enterprise master person index (EMPI or MPI) that can store, compare, and resolve the multiplicity of person records. The EMPI application must provide the basis for a reliable source of truth that can correlate the various identifiers used across a distributed care environment, generate a distinctive and unique view of the person, and scale affordably.

Obtaining this distinctive, unified view of the patient, or of related providers, is becoming increasingly important for Accountable Care Organizations (ACOs) and for health systems that implement population health initiatives predicated on shared risk, quality improvement, and care coordination. Population Health Management only becomes especially relevant when a health system worker can drill down to the right patient for targeted intervention. This capability leads to higher patient satisfaction and better care.

The need for Master Person Index

	<p>Improve patient experience</p> <p>Many organizations struggle to correct suboptimal patient experience. Patients get frustrated completing duplicate registrations, going through the same lab procedures more than once, and/or having to repeatedly provide demographic information.</p>
	<p>Multiple and disparate data sources</p> <p>This is caused by the fact that patient data is dispersed across multiple registration systems and data stores</p>

	<p>Post-Merger Integration</p> <p>With onboarding of additional systems (due to acquisitions and mergers) the data situation gets more complex.</p>
	<p>Care Coordination, Communication, And Cross-Enterprise Information Sharing</p> <p>Because ACOs and Health Information Exchanges (HIEs) focus on care coordination and better communication, there is the need to share relevant and appropriate information within as well as across enterprise boundaries</p>
	<p>Data Quality Improvement</p> <p>In utilizing data for enterprise analytics and population health management programs, the quality of patient-centric data is mission-critical. This is particularly true in support of modern, patient-centric primary care.</p>
	<p>Federated Identities</p> <p>Healthcare systems may require continuation of federated patient identification, while incorporating and utilizing data from outside sources, (pharmacies, payers, and consumer devices.) Patient data deduplication can respect data ownership, as (some of) these authoring systems may want to continue ownership of the data that they have created.</p>
	<p>Population Health Programs</p> <p>Population Health Management becomes relevant when one can cleanly drill down to a single patient's comprehensive data to provide targeted intervention.</p>

Oracle Healthcare Master Person Index

Developed by a dedicated Sun Microsystems team, Oracle Healthcare Master Person Index (OHMPI) is a sophisticated and proven MPI product with many years of use throughout the world. OHMPI is Oracle's strategic, single-entity view solution for the healthcare domain.

The solution includes the capacity to create and manage single views of many entities including persons and patients, as well as individual and organizational providers, and can be extended to cover any entity. It has a proven match engine with optimized features for cross-referencing identifiers and presenting unique views of entities. The solution offers tremendous power, using industry leading features from Oracle technology products including: WebLogic Server, Oracle Database, Exalogic, and Exadata.

OMPI provides a complete set of MPI solution components, including a sophisticated match engine with comprehensive address matching and additional power match options, strong survivorship engine to create and manage unique views, and easy access to the information managed by the product. Oracle Healthcare Master Person Index:

- Enables healthcare providers to verify identities quickly and accurately
- Identifies patients across multiple source systems
- Provides an integrated and consistent view of person data
- Helps improve the quality of person data with web-based, single view

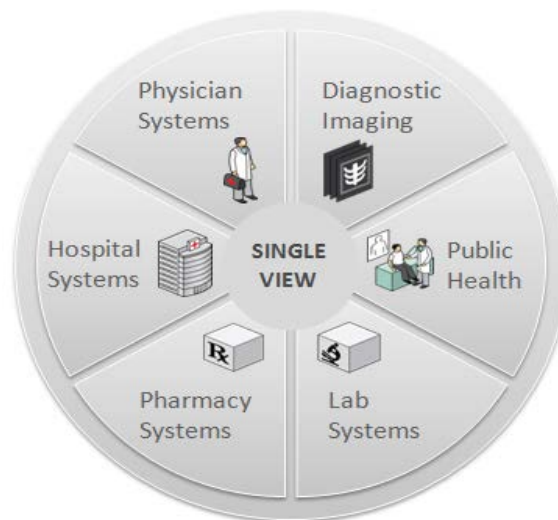


Figure 2 – Unified Patient View

OHMPI offers the healthcare industry a single and distinctive identity of a patient or other healthcare entity within and across the organization. OHMPI improves patients with care by providing a trusted, single-point of reference and a unique, unified view from disparate systems ensuring care-coordination, eliminating medical errors, increasing efficiencies, and reducing costs across the continuum of care.

OHMPI ensures the continuum of care by:

- » Automating the process of matching records of persons/entities in disparate systems
- » Creating a cross-reference index of all identifiers in all participating source systems that belong to a single person/entity
- » Maintaining the best set of demographics for each registered person/entity
- » Uniquely identifying a single person/entity in multiple systems of record, from anywhere, at anytime


Matching

OHMPI uses a powerful match engine that is based on a statistical approach. The match engine compares records containing similar data types by calculating how closely the records match. The resulting comparison weight is either a positive or negative numeric value, representing the degree to which the two sets of data are similar. As records are matched across multiple systems, OHMPI builds an index providing a cross-reference of all identifiers, as well as a single view for other applications to consume and synchronize in real time.

OHMPI's match engine has additional power match options offering further sophistication for scenarios, such as system-dependent match needs, frequency-dependent scaling of match weights, alias matching, and field-swapped matching.

Name and Address Standardization

To aid in the matching process, data in OHMPI is normalized and standardized. Normalization identifies a general alternative usage (or misuse) of words and applies the normal pattern. This might involve changing "Bob" to "Robert," or "St" to "Street." Standardization may also involve parsing a larger data set such as address (street



names, numbers, city, and state in a single, indistinct form) into its individual components. OHMPI also offers an extensive set of encoders to create and store the phonetic encoded values of any of the standardized fields. The phonetic encoded values are very useful to overcome misspelled names or words and get them into the set for matching.

Data Profiling and Cleansing

When consolidating data from various sources, assumptions cannot be made about the quality of data sets. Profiling tools are required to inspect and understand the data. OHMPI uses the canonical object model from the Master Index application to process raw data and look for patterns and frequency.

A variety of frequency analyses can be performed to deliver frequency distribution tables that can be used to define and refine matching and standardization rules. Before the initial load process, users can also cleanse the data and perform corrections and transformations to the data sets, based on their analysis of output from the profiling stage,

Initial and Real-Time Match and Load

OHMPI provides a performance-enabled framework to match and load data from various data sources effectively. Initial match and load uses an innovative, patented approach, pre-matching the data outside the Master Index application and then loading it into the appropriate OHMPI tables. The initial match and load utility performs this task in a scalable manner, enabling it to handle very large volumes of data by delegating tasks in a synchronized cluster. OHMPI also provides a real-time loading feature to add smaller sets of data into OHMPI while the application is in production. This eliminates need to stop or suspend the OHMPI application.

Conclusion

Oracle Healthcare Master Person Index is the leading MPI solution on the market. It provides healthcare organizations of all sizes with a reliable platform to develop, deploy, and manage single-view applications using a service-enabled approach.

OHMPI improves patient care through an integrated, consistent, and a single view of a person or of any other entity across the organization. This results in greater levels of patient experience and provider satisfaction, and thereby, increases engagement, loyalty, retention, and revenue.

By achieving a single view of the patient, OHMPI enables accurate and better care. It also allows a reduction in costs by avoiding medical errors and redundant care, due to duplicate instructions. OHMPI enables interoperability for population health management programs and increases care coordination through streamlined, cross-enterprise communication and information sharing. Additionally, it increases efficiencies that improve patient outcomes at a reduced cost across the continuum of care.



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