

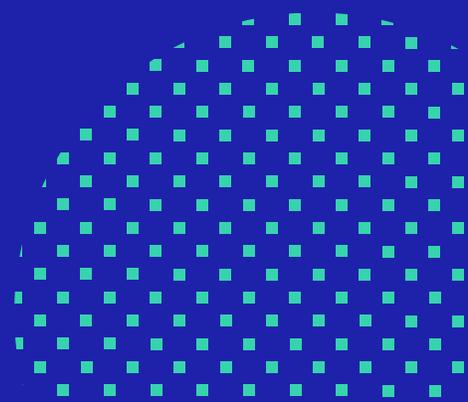


# The Perfect Match: The Need for Patient Identity Resolution to Drive Healthcare Excellence

**A HIMSS Market Insights study shows data interoperability and duplicate records remain top challenges for most healthcare leaders**

Healthcare organizations today rely on multiple systems to deliver care, from electronic health record (EHR) platforms and pharmacy software to scheduling applications and billing tools. This creates a fragmented data landscape where numerous clinical and business systems each manage patient records independently, presenting significant challenges in maintaining consistent patient identity data.

“If you don’t have proper identity data, it really undercuts everything you try to build on that,” said Kristen Nemes, Product Manager for data technology provider InterSystems. “Identity understanding is something that’s so fundamental that you almost don’t even think about it. You assume it’s correct because it’s baked in. It’s not even step one; it’s step zero.”





# Today’s healthcare systems rely on more complex EMPI solutions because of how we’re now using healthcare data.”

KRISTEN NEMES | Product Manager | InterSystems

A recent HIMSS Market Insights study reveals that healthcare leaders understand the strategic need for patient identity matching, but struggles remain, particularly with data interoperability, duplicate records and inconsistent or missing data.<sup>1</sup> They acknowledge that challenges must be overcome if they are to accomplish broader initiatives, especially around artificial intelligence (AI) implementation, workflow optimization and data exchange.

## The need for patient matching in today’s healthcare organizations

The healthcare industry recognizes proper patient matching as a critical foundation for reliable healthcare delivery and data management (Figure 1). More than three quarters of survey respondents also agreed that accurate patient identity data is closely tied with achieving their organization’s strategic goals.

Complex organizations serious about improving identity resolution should consider implementing Enterprise Master Person Index (EMPI) technologies. EMPIs collect, store and manage patient identity data from disparate healthcare systems to create a single, accurate repository for patient identification and demographic information. These systems use referential matching to link myriad patient records by comparing incoming data against a reference database.

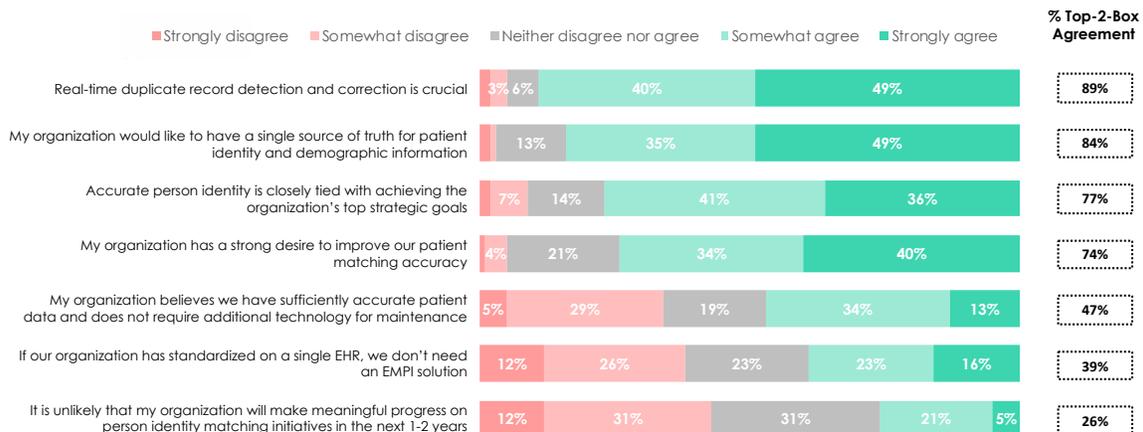
Such technologies have transformed over time as organizations acquire more patient and demographic data from the industry’s digital transformation, according to Nemes. “Today’s healthcare systems rely on more complex EMPI solutions because of how we’re now using healthcare data,” she said. That includes growing data use for AI and machine learning (ML), which was the leading strategic imperative in the HIMSS Market Insights study.

Nemes highlighted the shift from simple deterministic matching to sophisticated systems that leverage external data sources, such as referential matching, and advanced algorithms. This evolution reflects the increasing complexity of healthcare data ecosystems and the higher stakes for accurate patient matching.

Inaccurate patient matching creates two problems: duplicates (multiple records for a single patient) and overlays (data for multiple patients in one record). Some years ago, the Office of the National Coordinator for Health IT (ONC) called for healthcare organizations to achieve a 0.5% duplicate rate by 2020.<sup>2</sup> Yet years later, some hospitals report duplication rates of 22% and higher.<sup>3</sup>

**Figure 1.** Most healthcare and IT leaders expect to make progress on identity matching initiatives soon — a third of them with a technology assist — to improve patient data accuracy.

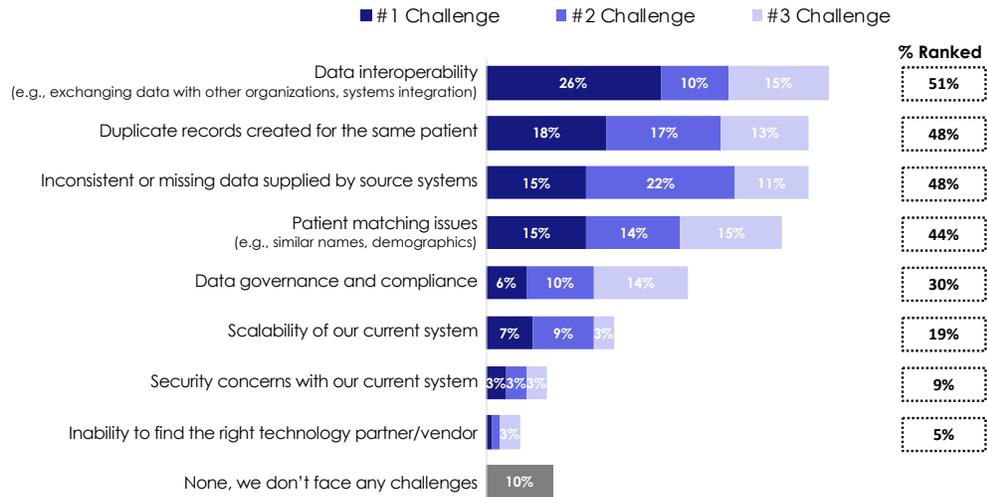
*To what extent do you agree or disagree with each of the following statements?*



Data labels <3% not shown  
Base: Total Respondents; n = 105

**Figure 2.** Patient identity management in healthcare organizations primarily struggles with data interoperability challenges, duplicate records, poor-quality source data and demographic- or name-matching limitations.

*What are the biggest challenges to improving the quality of patient record matching within your organization?*



Data labels <3% not shown  
Base: Total Respondents; n = 105

This gap represents a significant patient safety and operational challenge when nearly one in five patients has multiple records, creating a fragmented view of their medical history. It can lead to repeated diagnostic tests, contradictory treatment plans and missed critical information about allergies or medical history. “There’s also potential risks for accidentally revealing sensitive information to other people,” Nemes said. This happens, she noted, when treatment decisions for one person are based on data for another patient located within a single record.

Leaving duplicates unresolved in a system can carry serious consequences. The HIMSS Market Insights study found that 70% of organizations fear regulatory compliance risks due to inaccurate matching. Patient experience suffers too — with almost as many organizations reporting that inaccurate matching negatively affects how patients perceive their care and 67% linking poor patient experience to such record errors. Operationally, more than half of the organizations noted decreased efficiency due to identity-matching issues, as staff must spend valuable time reconciling records, creating financial and operational inefficiencies.

With the average cost of repeated medical care due to duplicate records reaching more than \$1,700 per emergency department visit and \$1,950 per inpatient stay, the financial impact alone creates a compelling case for investment in improved identity management solutions.<sup>4</sup> Beyond direct costs, the operational burden of staff time spent reconciling these duplicates further strains already limited healthcare resources.

The impact extends to direct care. Jill Brewer, the HIMSS Market Insights Lead on the study, explained: “Clinicians spend a lot of time typing up notes and trying to get

everything accurate.” That clinical time is wasted, at best, or detrimental when documentation is based on errors or omissions in patient records — mistakes that could lead to misdiagnosis or inappropriate treatment decisions.

### Primary challenges to improved patient matching

Patient identity management faces interconnected challenges, according to the study. Data interoperability stands as the foremost barrier, with just more than half of organizations struggling to exchange information across different systems. Close behind are the twin problems of duplicate records and poor-quality source data, which fundamentally undermine matching efforts before they begin (Figure 2).

### AI leading organizational priorities going forward

The HIMSS Market Insights study reveals a clear hierarchy of priorities among healthcare organizations for the next 12 to 18 months. AI/ML implementation leads organizational priorities, followed by workflow optimization, data quality initiatives and quality of care improvement (Figure 3).

Brewer noted a strong connection between those reporting high confidence in their patient matching accuracy and an organizational desire to leverage AI/ML soon. “What’s interesting about these priorities is how interconnected they truly are,” she said. “Organizations prioritizing AI and workflow optimization will need improved patient identity management, and therefore data quality, to be successful in those areas — even if not explicitly ranked at the top.”



## Interoperability is consistently a top initiative for organizations, but one of the major challenges they’re having is a lack of data standardization and data fragmentation across different systems.”

JILL BREWER | Market Insights Lead | HIMSS

Other strategic priorities revolve around improving the quality and accuracy of data itself, along with quality of care. Rounding out the top five initiatives is dealing with interoperability and data exchanges. “Interoperability is consistently a top initiative for organizations, but one of the major challenges they’re having is a lack of data standardization and data fragmentation across different systems,” Brewer pointed out. This insight helps explain why, despite rating their patient matching accuracy highly, organizations still struggle with implementing comprehensive identity management. In fact, EMPI technology alone may not fully address the issue; organizations may instead want to consider a wraparound solution that includes an EMPI.

### Next-generation implementation approaches

Next-generation EMPI technologies offer promising approaches to address these challenges while being virtually invisible to users. “The best EMPI solution is one that clinicians never have to think about — it just works seamlessly in the background while they focus on patient care,” Nemes said.

### Key technological advancements include:

**Referential matching:** This approach leverages external, reliable data sources to improve match accuracy when dealing with incomplete or misaligned records that need augmentation beyond an organization’s own system.

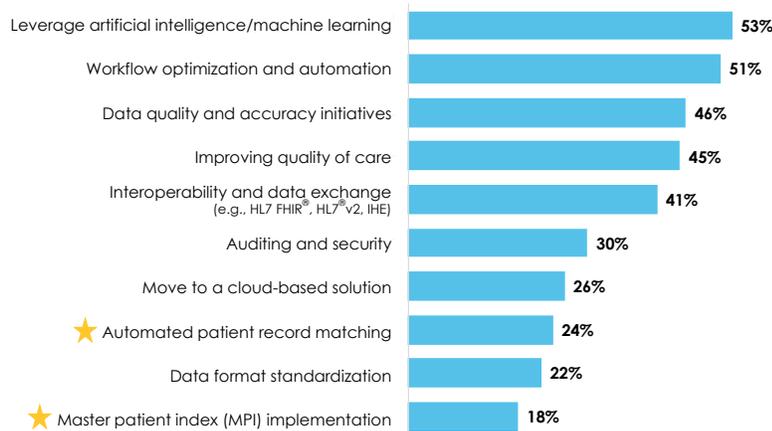
**AI/ML applications:** Machine learning algorithms can reduce the need for manual intervention in matching decisions, with Nemes noting their increasing importance in EMPI solutions.

**Data quality frameworks:** This highlights the need for a systematic approach to evaluate data quality, identifying specific gaps like missing birth dates or incomplete Social Security numbers at different sites to prioritize upstream improvements.

**Integration with clinical workflows:** Successful EMPI solutions should work invisibly in the background. Clinicians shouldn’t directly interact with the system but should automatically benefit from its effects. Implementing a wraparound solution containing an EMPI can ensure that clinicians won’t be required to log into yet another system.

Figure 3. Although MPI is currently a lower priority, it can play a leading role in achieving top-ranked goals.

Which of the following are priorities for your organization over the next 12-18 months?



Leaders cite an average of **4 areas** that are priorities for their organizations in the near term

Not displayed: ‘Something else’ (1%) and ‘None of the above, we don’t currently have any plans in place’ (4%)  
 Base: Total Respondents; n = 105

## A roadmap for EMPI implementation

For healthcare organizations looking to improve patient identity management, a strategic implementation roadmap begins with a comprehensive assessment and planning. Hospitals and health systems should establish baseline metrics for their current duplicate rate and identity management processes to understand the scope of the challenge and set realistic improvement targets. The next critical phase involves technology selection, where solutions with advanced matching capabilities, including referential matching and AI/ML, should be carefully evaluated against organizational needs and existing infrastructure, Nemes said.

Integration planning is a vital next step to ensure seamless incorporation into existing workflows and systems, minimizing disruption to clinical operations while maximizing adoption. Robust data governance must be established concurrently with clear protocols for data entry, standardization and quality monitoring to prevent new issues from emerging.

Finally, the roadmap should include a continuous improvement framework where organizations regularly evaluate metrics and adjust processes to maintain data quality over time as new risks appear and technology evolves. “EMPI

is not something that you implement once and lock the door, throw away the key and just let it cook in the background,” Nemes advised. “You need to taste the soup occasionally. You need to constantly be reassessing.”

The future of healthcare demands a comprehensive approach to patient identity management that supports the industry’s evolving priorities. Meaningful progress on AI integration and workflow optimization requires accurate patient matching to be successful. By investing in next-generation EMPI technologies, healthcare organizations can establish the foundation necessary for effective implementation of their strategic initiatives, ultimately improving patient care, operational efficiency and financial performance.

To learn more about InterSystems EMPI™, visit [www.intersystems.com/products/healthshare/intersystems-empi/](http://www.intersystems.com/products/healthshare/intersystems-empi/)

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### About InterSystems

InterSystems is a creative data technology provider for next-generation applications in healthcare, finance, and manufacturing across 80+ countries. Our platform integrates high-performance database management, smart data services, and analytics capabilities. For 47 years, InterSystems has been a pioneer of healthcare technology, providing the data platform for the world’s most proven electronic medical record systems used by health systems globally.

