Ensuring Data Integrity Through a Clean Master Patient Index

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Positively identifying patients in myriad healthcare registration systems is no easy task. The process of capturing patient demographics and the structure behind data fields varies depending upon the technology, care setting, and organization's preferences. Until standardized and uniform approaches to the patient identification and patient matching processes are recognized across the industry, healthcare organizations should continue striving for data accuracy and completeness at the point of registration, and constantly maintain the master patient index (MPI) or the enterprise master patient index (EMPI).

MPI Maintenance an Everyday Task

MPI maintenance is an everyday task. One error can cascade throughout multiple systems causing record duplicates, overlays, and overlaps. MPI maintenance programs should include:[1]

- An ongoing process to identify and address existing errors
- Advanced person search capabilities for minimizing the creation of new errors
- Mechanisms for efficiently detecting, reviewing, and resolving potential errors
- The ability to reliably link different medical record numbers and other identifiers for the same person to create an enterprise view of the person
- Consideration of the types of physical merges and the interfaces and correction routines for other electronic systems that are populated or updated by the EMPI

Maintaining one MPI is challenging enough, but today many organizations are bringing multiple MPIs together as electronic health records (EHRs) are implemented with a focus on the future of health information exchange.

A Team Approach to MPI

Leigh Williams, CPC, CPHIMS, director of revenue cycle and HIM at the University of Mississippi Medical Center (UMMC), was involved in implementing an EHR that integrated all of the organization's systems on a single platform. One of the team's greatest achievements was consolidating three MPIs, and addressing patient safety concerns along the way. UMMC is an academic medical center with five hospital, critical access, and ambulatory MPIs that needed to be merged, each on their own system. At go-live in June 2012, the MPI had 140,000 potential duplicates. Today it has less than 5,000. This reduction, combined with the improvements in care coordination and communication, make the EHR an effective patient care tool.

UMMC implemented their EHR in June 2012. The MPI cleanup started six months prior to go-live. Williams urged sites to consider the fact that the MPI is one of the first things that needs to be ready during a system implementation and is a major system goal. The technical discussions about how to bring over critical information fields started early. UMMC brought over eight to 12 fields such as first name, Social Security numbers, and dates of birth of patients. The site decided not to transfer fields such as address or telephone number, which could have been out of date. The process included an export to a common file format then a merge to a delimited text file format.

The team had to agree on all of the fields they would bring over to the new EHR, including field label names and potential duplicates. The committee members included the software analyst from the system vendor, UMMC's own EHR analysts, HIM staff (including data integrity staff), and the physician serving as the chief medical information officer. The team kept patient risk and patient safety at the forefront of all decision making.

Prioritizing Record Merges Takes Special Care

The vendor software had the potential to find duplicates, which required forethought. The team had to determine the equation for finding the duplicates and the factors involved. A weighted score based on identifiers was created so that the duplicates could be ranked. The team had to agree that if the weight exceeded threshold, the system would be allowed to auto-merge charts without any user intervention.

Of note is that the project charter was instrumental in helping define how to prioritize merges. The prioritization order was determined to be: 1) upcoming scheduled visit; 2) frequent flier; and 3) chronic care patient. The entire process required critical thought to achieve a true MPI match, especially since missteps could lead to patient safety events. No mismatch in any of these three key elements would be auto-merged.

When implemented, the system cleared 70,000 duplicates. Audit procedures were in place to check merges and today the site still has auto-merge turned on with a high enough threshold to ensure a perfect match on certain fields. Reports prioritize patients coming in for scheduled visits and organize potential duplicates for manual intervention. Weighted higher were potential duplicates related to patients with frequent visits and long-term chronic care patients.

The manual merge process at UMMC is owned by a five-person team in HIM called "Data Integrity." These merges are performed five days a week during business hours and in emergencies by an on-call HIM specialist.

The HIM manager performs audits for quality control monthly and new employees are audited on a daily basis to assist with their learning curve. Employees are able to flag a potential merge where they may have created a duplicate and select managers have the ability to post merge—merging duplicates after the patient's registration is complete—if necessary. Merges are reported back to the registration manager in the emergency department to provide a feedback loop, and the HIM director gets a report on a monthly basis.

The management of the MPI/EMPI will continue to be a core function that must be high on an organization's strategic plan to ensure proper patient identification and patient matching.

Note

1. Sayles, Nanette B. *Health Information Management Technology: An Applied Approach*, 4th edition. Chicago, IL:AHIMA Press, 2013.

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