Losing the Match Game: Study Reveals Gaps in HIM's Patient Identity Integrity Practices

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In healthcare, matching patients accurately to their medical history across multiple care sites and among various sources of data has become increasingly important as healthcare data is shared across platforms. Additionally, as clinicians need to interact with third parties and provide care in multiple care settings, the ability to precisely track healthcare services for an individual consumer, a patient population, or an individual clinician is essential to successful healthcare delivery and patient safety.

The efficacy of treatments cannot be ascertained if they are unable to be seen within the context of all the various services that are being rendered to an individual or patient population. This is achieved through accurate patient matching, which also has a significant role in patient safety, ensuring that the appropriate care is delivered to the right patient at every encounter.

Patient matching becomes more complex when patients obtain services in multiple care settings or when healthcare organizations use disparate systems to share health records electronically. Across healthcare organizations—or even within one organization—the variety of systems for capturing clinical information may create barriers to patient matching and information sharing.

There is additional complexity with patient matching and patient data integrity as it encompasses duplicate medical record numbers, overlays, overlaps or linkages, and even erroneously shared identifiers. This article will address the multiple aspects of patient data integrity as identified by the respondents of an AHIMA survey and provide recommendations for patient identity integrity management.

Figure 1

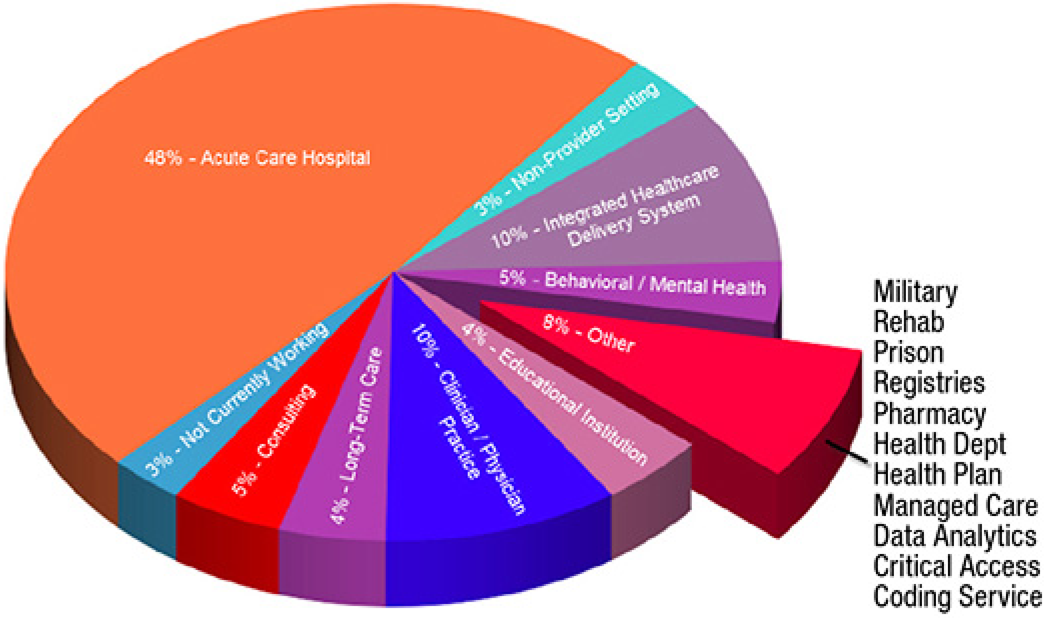


Figure 1: Respondent Care Settings
The largest group of respondents to the survey were employed in acute care hospitals, at 48 percent. Ten percent were from integrated healthcare delivery systems and 10 percent from the clinician/physician practice settings. The remaining 42 percent were either working in other settings or not currently working.

Figure 2

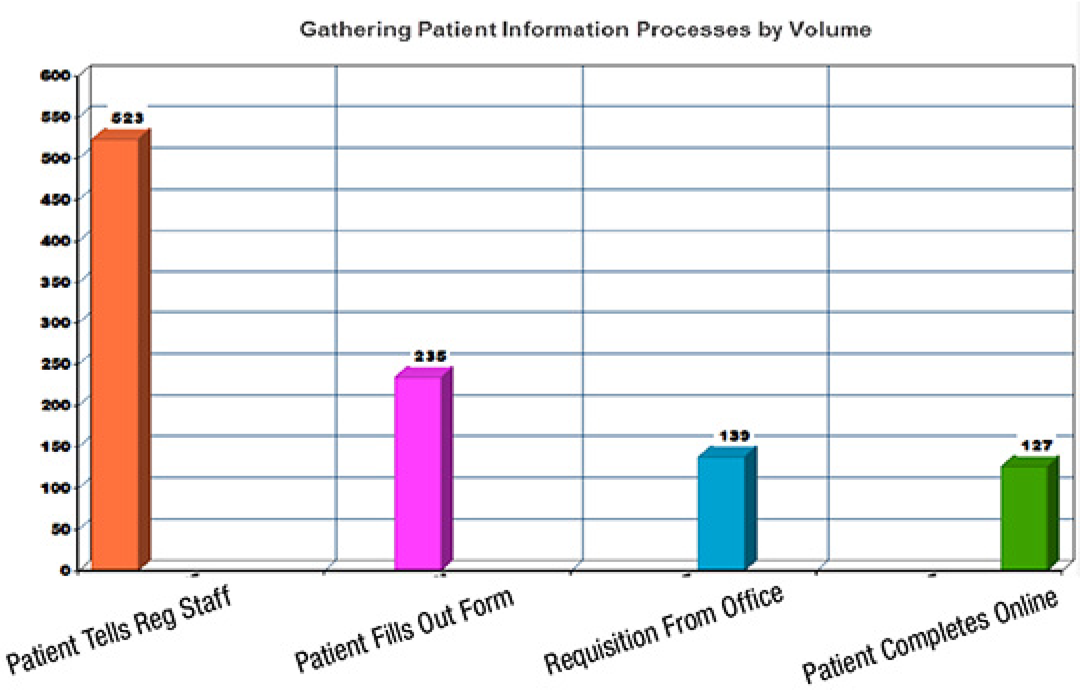
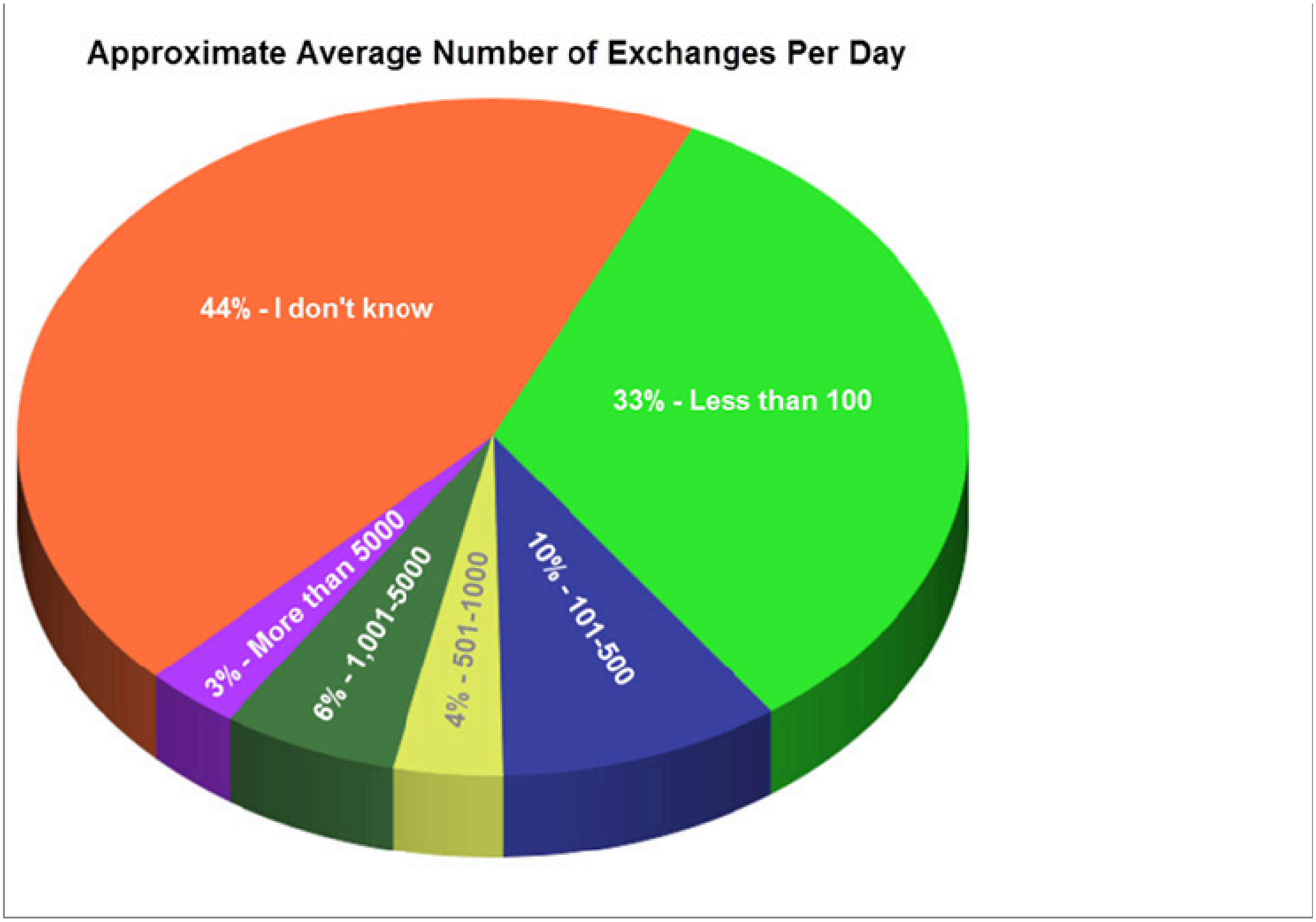


Figure 2: Methods Used for Gathering Patient Information
The most common process used to gather patient information was by recording the information the patient tells registration staff. Other processes used included asking the patient to fill out a form, requisitioning information from the office setting, and having the patient complete information online. It should be noted that these are not mutually exclusive categories. Some organizations are using two to four of these methods simultaneously.

Figure 3



AHIMA Patient Matching Survey Drivers

To better understand the patient matching efforts being undertaken by health information management (HIM) professionals across all healthcare organization types and sizes, AHIMA conducted a membership survey on patient matching. The survey illustrated the critical need to measure, monitor, and inform the marketplace regarding matching patients to their health information across multiple episodes of care no matter where the care is provided. The survey responses illustrated the importance of data and information governance encompassing patient matching. Accurate patient matching is essential to patient-centric, value-based payment initiatives and clinical care delivery.[1]

In January 2016, a subgroup of the AHIMA Health Information Exchange (HIE) Practice Council volunteered to take a closer look at the data from the patient matching survey results and provide an analysis. Throughout this article are graphical displays to help illustrate the overall findings from the survey. Before diving into the results of the survey, it is helpful to know the drivers for why this study was conducted and its importance to the healthcare industry.

Healthcare is transforming at a rate not previously seen with many different levers being applied. This transformation is occurring with the goal of advancing the Institute for Healthcare Initiatives' Triple Aim—improving care and outcomes, reducing costs, and improving health.[2]

These levers include:

- Health information exchange to ensure all information is available for care delivery and care coordination, thus freeing data that has historically been isolated and fragmented.
- Population health programs to manage the global healthcare experience in patient care, including improving clinical outcomes and managing financial risk. These programs may identify individuals and groups that will benefit from structured care coordination, specialized wellness programs, and much more.

- Analytics to advance a data-driven approach for defining best practices, expected outcomes, and effective innovation models.
- Shift to wellness-focused care programs and value-based reimbursement in contrast to the historical "treat the sick" in a fee-for-service approach.
- Personalized medicine through preferences, genomics, and wellness.

At the same time, the data explosion in all industries is mindboggling—1.7 MB of data will be created every minute for every human being on the planet by 2020. And there will be a 99 percent growth in healthcare data by 2017—meaning the healthcare industry is literally doubling the amount of health data created every two years.[3] Yet, most don't have a handle on the quality of their foundational data—who is the patient, has he/she been accurately identified at the various points of their health and wellness care, and has the organization created the trusted, single view of patient/consumer data to support the various transformation activities?

Creating the complete view of patient data to support healthcare transformation activities starts with a comprehensive view of the patient across the enterprise—within each system the patient should have a unique health record number—even before trying to integrate or aggregate data across an enterprise.

Metrics will need to be applied to measure the effectiveness of the healthcare transformation activities, and measuring the quality of patient identification should be consistently instituted to stay in step with the industry at a minimum. But the importance of patient matching to the initiatives noted above illustrates that metrics should be proactive and lead the industry on the journey to robust data interoperability.

This is visible in the Office of the National Coordinator for Health IT's (ONC's) Interoperability Roadmap, which states "Goal for 2018-2020—All organizations that match electronic health information have an internal duplicate record rate of no more than two percent at the end of 2017 and 0.5 percent at the end of 2020."[4]

Also, in a presentation to the National Health Policy Forum by Dr. David Kendricks, MD, MPH, principal investigator and chief executive officer with the My Health Access Network, it was suggested that organizations develop "key elements of a health IT stack for value-based health systems, including data quality and provenance, patient attribution, and data aggregation and normalization."[5]

Project Sequoia called out "patient matching and identity management as a requirement to the success of nationwide data exchange, with specific examples of challenges and metrics."[6] It also suggested that "organizations move to prevention" of duplicate record creation versus the current method of back-end data stewardship.[7]

HIM professionals must take steps to address "how" organizations can accurately identify a person in a market where "perfect" does not exist, nor will it exist even in the world of biometrics or the establishment of a national patient health identifier. As healthcare becomes a data-driven, wellness oriented environment it is time to call the question and begin consistently measuring the accuracy of patient data through governance in order to build trust.

In order to accurately address the issue of patient matching integrity, it is essential to first understand the importance of information governance and data governance in managing these processes. AHIMA's definition of data governance states, "data governance goes a step beyond information governance and looks at the actual data within a health record or website.

"This type of governance is handled at the department level, managed by the 'owner' of the data, such as HIM, and establishes the standards and stewardship principles used to ensure the data are correct, trustworthy, and used in an appropriate way in a facility."[8] Solid data governance practices include the development of policies and procedures that ensure data entry is being done consistently and accurately, and that the right patient receives the right care at every encounter.

Failure to enact the changes that are needed means the billions of dollars the US is investing in healthcare transformation may produce suboptimal results.

Patient Matching Study Explanation and Purpose

Accurate patient matching underpins and enables the success of all strategic initiatives in healthcare.[9] Nationwide initiatives designed to improve the efficiency, safety, and quality of healthcare delivery are driving the adoption of interoperability.

ONC identified patient matching as a key component for interoperability in June 2014. Patient matching was also later identified as a key component of the ONC Interoperability Roadmap, which was issued after the survey had already taken place in November 2015.

For an in-depth discussion of suggested best practices in patient matching at the registration department, refer to the *Journal of AHIMA's* October 2016 issue Practice Brief.[10]

Figure 4

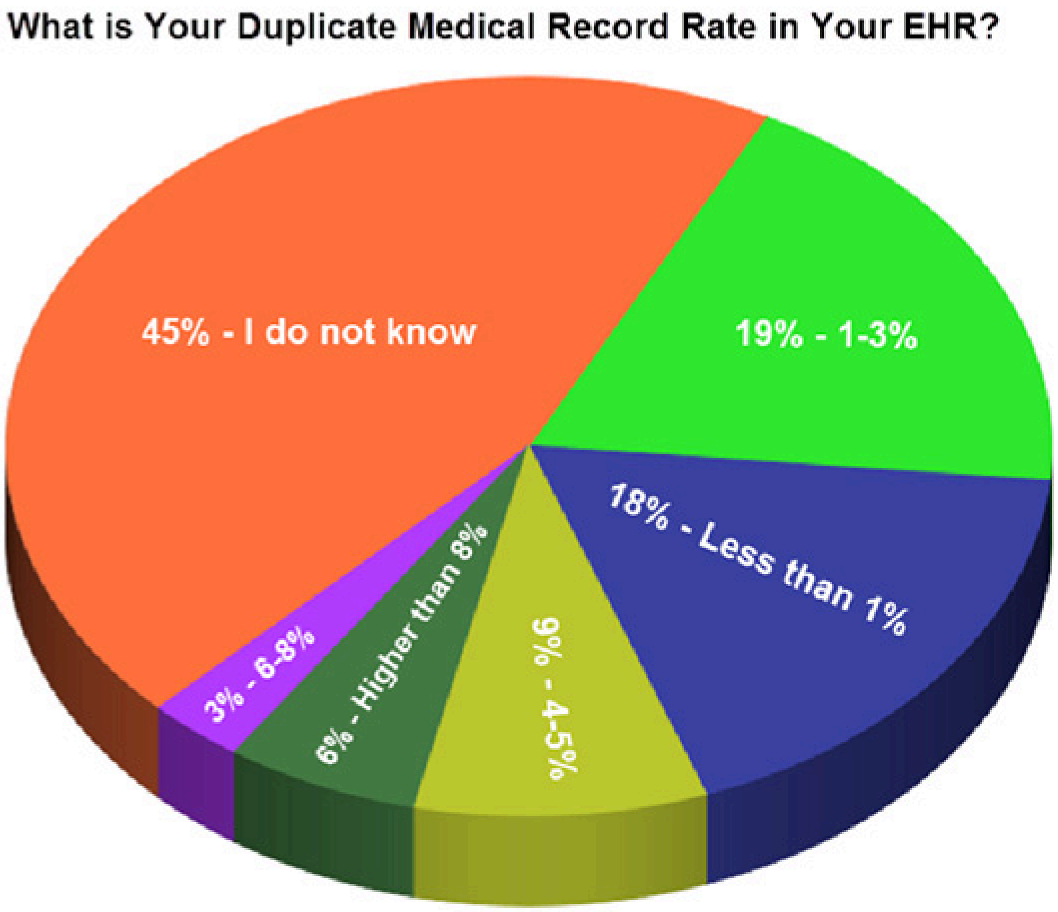


Figure 4: Duplicate Medical Record Rate
When asked to quantify their duplicate medical record rate, 45 percent of respondents (as shown above) answered that they did not know what their duplicate medical record rate was. This indicates a need for greater HIM involvement in process development and oversight of duplicate rate measurement. Additionally, it indicates a significant need to understand and prioritize meeting the ONC error rates as articulated in the ONC Interoperability Roadmap.

Figure 5

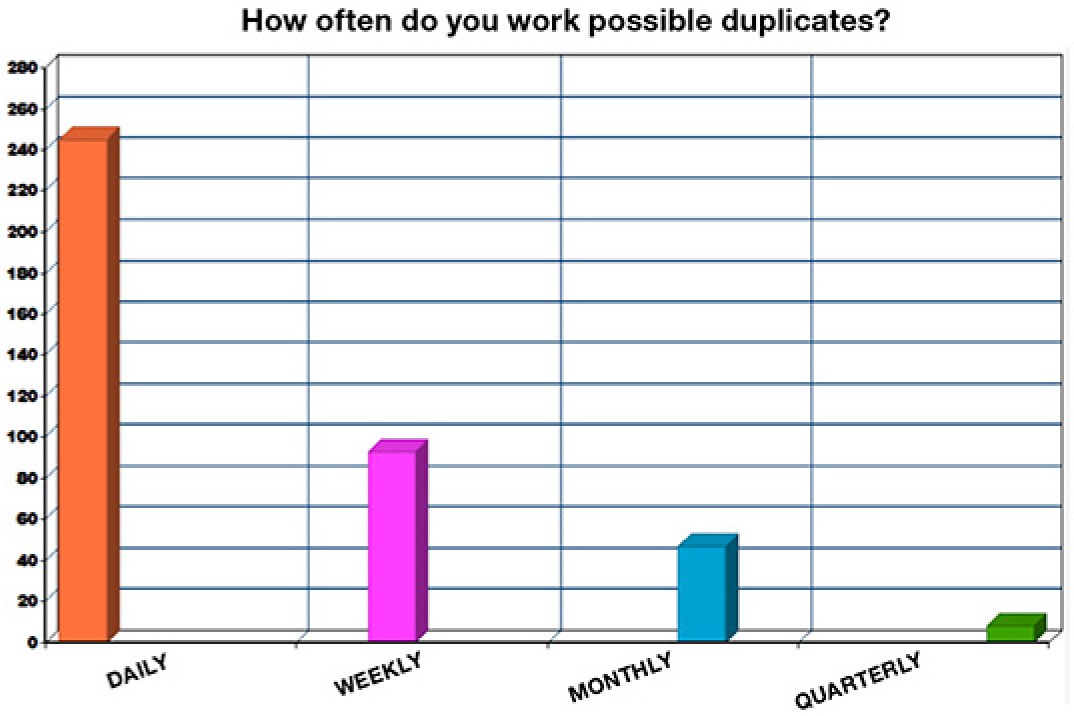


Figure 5: How Often are Duplicates Worked?

Study Results

As mentioned earlier, in the fall of 2015 members of the AHIMA Health Information Exchange Practice Council launched a survey to gather information on the barriers to accurate patient identity (i.e., patient matching and linking) as identified by its membership. The goal was to understand and bring attention to challenges faced with governing patient identity to accurately identify and link patients to a single record of care.

The AHIMA survey was launched and answered by over 800 HIM professionals from multiple care settings. Cursory results were published in a January 2016 *Journal of AHIMA* article entitled, "Survey: Patient Matching Problems Routine in Healthcare."[11]

As suspected, the results showed a clear need for information governance to improve data quality and data integrity within healthcare facilities. The survey responses showed that 72 percent work on mitigating duplicate records on a weekly basis, only 47 percent have a quality assurance step in their registration process, and there is a general lack of resources available to adequately correct duplicates.

As part of the study respondents were asked questions about measuring data quality and their rate of information exchange. When asked "Do you measure data quality?" 43 percent of the respondents answered "yes" and 57 percent answered "no." In addition, when asked "Do you have a QA step?" 47 percent answered "yes" and 53 percent answered "no." Both of these measures indicate additional opportunity for organizations to improve processes that ensure data quality.

A total of 56 percent of respondents indicated that they electronically exchange patient records. This correlates with a recent ONC Data Brief that revealed about half of hospitals had necessary patient information electronically available from providers or sources outside their systems at the point of care.[12] As indicated in Figure 3 above, however, 56 percent of respondents could quantify the average number of exchanges per day, while 44 percent did not know how many records were being electronically exchanged on a daily basis. This again may suggest that there is a need for greater HIM involvement and stronger information management processes around data exchange practices.

When asked "Do you work your possible duplicates regularly?" 467 respondents (57 percent) answered "yes" and 348 respondents (43 percent) answered "no." Given the high use of patient data as outlined earlier, the "no" percentage is alarming and clearly an area for improvement. However, this answer is inconsistent with the 72 percent of respondents that report working duplicates weekly, thus further exploration is needed to understand the variation in the responses received. Of those organizations that are working possible duplicates on a regular basis, the majority are working them on a daily basis (see Figure 5 above).

Better Biometrics, Process Management, IG Needed for Patient Identity Matching

When asked "Do you use biometrics during patient registration?" only four percent responded "yes," with a resounding 96 percent indicating "no." While biometrics have the future potential to reduce duplicates and increase the accuracy of patient matching, the survey indicated that there has not been widespread adoption of biometrics for patient identification employed to date. For example, by enabling software to scan the unique markings found within fingerprints, in veins of the palms of hands, or in scans of the retina, healthcare organizations can quickly and conveniently identify patients with biometrics. Biometrics are unique to each individual and will not change over time. Using these types of biometrics for patient identity in healthcare helps ensure reliable patient matching.

In order to share electronic health information across disparate systems, the healthcare industry must reduce, if not eliminate, data integrity issues with patient identity. In order to reach this lofty goal, strong information governance practices should be adopted, such as standardized policies and procedures for entering and/or changing patient data, health record duplicate/creation rate measurement, and continuous education/re-education for those individuals or departments creating duplicate records. Additionally, organizations should use due diligence to understand how auto-linking will occur within their organization. This should be complementary to IT, HIM, and clinical operations.

The relationship between governance of patient data and the need for information governance in healthcare is inherent in discussing the need for accurate patient matching. There are information governance principles, developed by AHIMA and based on ARMA International's Generally Accepted Recordkeeping Principles® and IG Maturity Model (available at www.arma.org), that can be deployed to help organizations embrace a culture of patient identity integrity—principles such as "Integrity" and "Protection," as well as discussing the concepts of data lifecycle management.[13]

AHIMA's Information Governance Principles define integrity as: "The information generated by, managed for, and provided to the organization has a reasonable and suitable guarantee of authenticity and reliability. Integrity of information, which is expected by patients, consumers, stakeholders, and other interested parties, is directly related to the organization's ability to prove that information is authentic, timely, accurate, and complete. For the healthcare industry, these dimensions of integrity are essential to ensuring trust in information."

AHIMA's Information Governance Principles define protection as: "An information governance program must ensure the appropriate levels of protection from breach, corruption, and loss are provided for information that is private, confidential, secret, classified, essential to business continuity, or otherwise requires protection."

The concept of data lifecycle management (governance and stewardship) includes the phases of data capture, stewardship, use, information sharing, archiving, and purging. Of course the data may not pass through each phase, but understanding how the data flows and how it will be used is critical to managing the integrity of said data.

Recommendations for HIM Patient Identity Practices

Information governance is needed for organizations to develop standard practices and have consistency in data collection. Without information governance HIM professionals are unable to clearly communicate the criticality of data consistency and the ability to successfully exchange data. Along with information governance is the need for standardized policies on how patient data is collected at the time of registration.

However, as evidenced by the survey results, it is clear that this is not solely a registration issue, but an enterprise problem involving patient identification and matching. AHIMA's Health Information Exchange Practice Council recommends the standardization of primary and secondary data elements. In the *Perspectives in Health Information Management* article "Patient Matching in Health Information Exchanges," Figure 1 highlights recommended primary and secondary data attributes that will facilitate accurate patient matching.[14] The article's Appendix A also provides further details of the primary and secondary data attributes, and Appendix B offers a sample naming convention policy to help provide structure to data entry. These policies and procedures for record creation, demographic changes, and default information may also be helpful when assessing algorithm logic to identify duplicates.

For example, if your organization has a standard rules-based algorithm that assigns 10 points for a Social Security number match, but the matching values are 111-11-1111, then the algorithm will likely detect a higher amount of false positive matches (i.e., records that are not the same person). Partnering with IT to determine what pieces of current policy and procedures can be built into an EHR to better serve the organization will be helpful.

Monitoring the medical record duplicate rate is another area of focus that is extremely important to keep an eye on. If this rate is not monitored, there is no way to know how well or poorly an organization is performing. The measurement should include how many duplicate medical records are being created, the time of day the duplicate was created, the area where the duplicate is created, as well as the user who created the duplicate.

For more information on calculating duplicate record rates, refer to the AHIMA Practice Brief entitled "Managing the Integrity of Patient Identity in Health Information Exchange (2009)."[15]

It is also important to note that organizations need to be cautious when comparing results because algorithms may not be set up the same across organizations, nor may the same algorithm product be used. Comparing the duplicate rates alone is misleading and not representative of how well or poorly a facility is doing.

Education and re-education is a critical component to successfully reducing duplicate medical records. In order for end users to prevent mistakes on the front end, they must first be aware of the mistakes they are making. Measuring and assessing identified duplicates for trends will provide direction for the education needed. A solid partnership between HIM and registration/patient access or a registration quality committee is a great place to begin these efforts. For centralized and decentralized registration areas, a registration partnership or registration quality committee allows managers and supervisors to discuss items that directly impact them and can help provide direction on education materials and help drive follow-up at an organization level.

Finally, given the real time and retrospective use of data nationally, all healthcare professionals, including but not limited to HIM professionals, must address patient matching problems holistically and proactively to achieve the ultimate goal of patient safety and effective, cost-efficient healthcare.

Notes

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Article citation:
Dooling, Julie A; Fernandes, Lorraine M.; Kirby, Annessa; Kadlec, Lesley; Landsbach, Grant; Lusk, Katherine; Munns, Megan; Noreen, Neysa; O'Connor, Michele. "Losing the Match Game:

Study Reveals Gaps in HIM's Patient Identity Integrity Practices" *Journal of AHIMA* 87, no.10 (October 2016): 39-47.
