

## Summary of CHIME Survey on Patient Data-Matching May 16, 2012

In a survey conducted by the College of Healthcare Information Management Executives (CHIME), respondents provided a glimpse into one health information technology's most daunting and understated challenges: patient data-matching. As correctly pointed out in a 2009 report, patient matching is a foundational component to the exchange of electronic health information – which, in turn, is a critical component for improved care coordination and quality improvement.

CHIME's survey of 128 healthcare CIOs and other senior healthcare leaders sought information regarding the current state of matching methodologies; average costs of dealing with mismatches and some sense of how hospital efforts are translating with those of partnering exchange organizations.

Although the survey is only a snapshot of how hospitals around the nation are approaching this challenge, it is clear that an assortment of different paths is being pursued. Survey respondents indicated that a majority of hospitals currently use some kind of unique patient identifier (64.8%) to match patient data. Meanwhile just over half of respondents (50.8%) indicated they use probabilistic algorithms to match patient data. Other approaches employed deterministic (34.4%) and biometric (5.5%) matching strategies.

Many of these strategies were used in conjunction with one another. Nearly forty-two percent of respondents said they relied on two or more strategies to match patients in their hospitals and just over thirteen percent said they used three or more strategies. While hospitals are pursuing various approaches to accurately match patients, it is not known what impact these strategies are having on patient safety and clinical efficiency. One important indicator might be found in estimated error rates.

**“Matching patients to their records is a foundational component of electronic health information exchange. As the nation moves forward with the adoption of health information technology, the development of appropriate standards and policies for patient matching will be critical to ensuring quality clinical care and patient privacy.”**

–Excerpt from, “Privacy and Security Solutions for Interoperable Health Information Exchange, Perspectives on Patient Matching: Approaches, Findings and Challenges,” an RTI International report submitted to ONC and AHRQ, published June 30, 2009

A false positive match occurs when two truly non-matching records are declared to match, while a false negative match occurs when two truly matching records are declared to be a non-match. While a majority of CIOs believe their false negative and false positive error rates are at or below industry standard,<sup>1</sup> a considerable percentage believe their health records have rates that far exceed 8 percent.

And what are the implications for such error rates? According to survey respondents, nearly one-fifth say they can attribute at least one adverse event to a patient mismatch within in the last year. For the purposes of this survey, “adverse event” was defined as a negative consequence of care that results in unintended injury or illness. Although more granular frequency information was not gathered, many respondents indicated that more than one event attributable to patient data-matching errors had occurred within the last year.

Less important, but also worth mentioning, is the monetary cost component of reconciling records and merging disparate or duplicate information. According to survey respondents, just over three full-time equivalents (FTEs) are needed to perform such work. Although some respondents indicated that this type of “data cleansing” was a marginal component of other duties, many respondents said they had 2 or more dedicated personnel.

The last category for which respondents were asked to provide information concerned their efforts to match patient data vis-à-vis health information exchange organizations. According to survey results, over three quarters (76%) of CIOs are engaged with a local, regional, or national organization that facilitates interoperability among providers, states and other stakeholders. While most CIOs indicate their exchange partner is using probabilistic matching algorithms (41.4%) nearly an equal number are using deterministic (28.9%) or some type of unique patient identifier (24.2%). However, nearly a third of respondents were unsure how their exchange partner was approaching patient data-matching.

### **Policy implications:**

Despite years of development, no clear strategy has emerged to accurately and consistently match patient data. The results of this survey suggest that now, more than ever, action is needed to ensure the right data is matched with the right patient.

These findings suggest that a majority of hospitals are employing unique patient identifiers (64.8%) concurrent with other matching strategies. Of the nearly 65 percent of CIOs reporting use of unique identifiers, over half (58%) are using at least one other strategy – probabilistic, deterministic, biometric, etc. Yet, even with the use of such varied strategies, false negative and false positive error rates are still unacceptably high.

Unintended injury or illness attributable to patient data-matching error is a considerable, and growing, problem in this era of health information exchange. And with a substantial portion of CIOs involved with HIEs that use differing approaches to data matching, we can expect the inconsistency and variability inherent to healthcare IT systems to persist – and become more endemic – without national leadership and consistent standards.

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<sup>1</sup> Identity Crisis: An Examination of the Costs and Benefits of a Unique Patient Identifier for the U.S. Health Care System, RAND Corporation, 2008 (pg. 16)