Getting to Know You: Patient Matching Efforts Gain Traction in Industry, but Congressional Roadblock Remains

By Allison Viola, MBA, RHIA

Since congress passed an omnibus appropriations act for fiscal year (FY) 1999, Public Law 105-277, the Department of Health and Human Services (HHS) has been prohibited from spending funds to promulgate or adopt any final standard providing for the assignment of a unique health identifier for an individual (except in an individual's capacity as an employer or a healthcare provider) until legislation is enacted specifically approving the standard.[1] Although there has been a ban on developing a unique patient identifier solution or an effective patient matching strategy for almost 20 years, private industry has not held back efforts to engage in patient identification and matching initiatives.

With a ban on unique patient identifier solutions firmly in place by law, the passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act, enacted as part of the American Recovery and Reinvestment Act (ARRA) of 2009, was signed into law to promote the adoption and meaningful use of health information technology (health IT). The passage of this law injected billions of dollars towards the adoption, implementation, and meaningful use of electronic health records (EHRs).

Accelerating the implementation and use of EHRs, mobile applications, medical devices, and telehealth assists in improving healthcare costs and patient safety, reduces duplicative tests, and increases patient engagement—among other benefits. With the deployment of such technologies, however, comes the increased need for accurately identifying and matching patients across disparate systems in order to yield the benefits they are supposed to bring to patients, providers, and other caregivers.

In December 2016, Public Law 114-255, also known as the 21st Century Cures Act, was enacted and authorized $6.3 billion in funding, mostly for the National Institutes of Health (NIH).[2] More specifically, Section 4007 Government Accountability Office (GAO) Study on Patient Matching directed the GAO to conduct a study to review the policies and activities of the Office of the National Coordinator for Health Information Technology (ONC), as well as other relevant stakeholders and appropriate entities, to ensure appropriate patient matching to protect patient privacy and security with respect to EHRs and the exchange of electronic health information. Beginning in December 2017, the 21st Century Cures Act also directed the GAO to evaluate current methods used in certified EHRs for patient matching based on performance related to factors such as the privacy of patient information, security of patient information, improving matching rates, reducing matching errors, and reducing duplicate records.

The GAO should assess whether ONC could improve patient matching by taking steps such as defining additional data elements to assist in patient data matching, agreeing on a required minimum set of elements that need to be collected and exchanged, requiring EHRs to have the ability to make certain fields required and use specific standards, and other options. Finally, GAO must submit to Congress a report regarding the findings of the study no later than two years after the law was enacted.

Private Industry Steps Up to the Challenge

Despite Congress' efforts to prevent HHS from developing a solution to "promulgate or adopt" a standard for the assignment of a unique patient identifier, private industry has stepped up efforts to address this gap within health IT—though the success of these initiatives has varied. For example, the College of Healthcare Information Management Executives (CHIME), established in 1992 as a non-profit professional organization for chief information officers and other senior healthcare IT leaders, launched the "CHIME National Patient ID Challenge" in early January 2016. This challenge presented a $1 million global competition aimed at incentivizing innovators to develop a private, accurate, and safe system to achieve 100 percent accuracy in identifying a patient. A variety of use case scenarios were provided to the contestants and were grouped into two broad categories. In the first category, Identification and Use Case Scenarios, potential solutions needed to address situations

such as a patient trying to use a stolen insurance card, a non-English speaking patient, a patient arriving at the care location without identification, and other scenarios.

The second category addressed security and fraud management, where potential solutions needed to address scenarios such as theft of enrollment data, activity on a deceased patient's record, breach of patient data hub, and others. In addition to the scenarios, contestants needed to provide detailed responses to questions dealing with support for privacy and anonymity, patient enrollment and identification, security and fraud management, scalability, adoptability, implementation, and other valuable features and functionality that would be considered value-added to differentiate an organization's solution.

Guidelines in this challenge included looking for the best plan, strategies, and methodologies that accomplish:

- Easily and quickly identifying patients
- Achieving 100 percent accuracy in patient identification
- Protecting patient privacy
- Protecting patient identity
- Achieving adoption by the vast majority of patients, providers, insurers, and other stakeholders
- Scaling to handle all patients in the US

In May 2017, CHIME announced the finalists who were selected to proceed to the Prototype Testing Round (two rounds) that lasted several months. A grand prize winner was expected to be announced by the end of 2017, but in November CHIME suspended the challenge, saying the contest "did not achieve the results we sought to this complex problem," according to a CHIME press release. In the challenge's place, CHIME will be developing a Patient Identification Task Force that aims to find a national patient identification solution that "accurately identifies a patient 100 percent of the time." CHIME encouraged participants in the challenge to join the task force. The four finalists were:

1. Michael Braithwaite—proposal achieves patient identification through the use of multiple biometric technologies.
2. Bon Sy—proposed solution identifies patients by analyzing a combination of behavioral and biometric information.
3. Team HarmonIQ Health System—proposed solution uses blockchain, public ledger, Fast Healthcare Interoperability Resources (FHIR), and encryption/hashing technologies to identify patients.
4. Team RightPatient—innovation uses photos and biometric third-party and other data to enable patient identification.

In 2015, ONC published "Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap."[3] Within this report, ONC specifically calls out healthcare industry challenges with respect to patient matching and the imperative it serves to interoperable health records and the nation's health IT infrastructure. To enable a continuum of care for patients and consumers, providers must be able to accurately match health information from disparate sources to experience true interoperability. Not only is this required for patient care, but also for privacy and confidentiality, as well as to reduce adverse safety events and healthcare costs (estimated at $60 per case) associated with manually correcting mismatched records or repeat tests resulting from a lack of health IT interoperability.

As part of its 2017-2018 Policy Principles, the Healthcare Information and Management Systems Society (HIMSS) identified "Supporting Care Transformation" as one of their principles, and, more specifically, that "Congress should immediately direct HHS to study patient data matching solutions; such study must include the impact of: implementing a national-level UPI; how a national-level solution might impact locally-based solutions currently underway; and how various levers (federal mandates, public-private collaboration, etc.) impact progress towards solution." In late 2017, HIMSS continued their support for discovering a patient matching solution through a call to action for HHS and the broader health IT community to demonstrate leadership in several areas such as "Achieve Nationwide, Ubiquitous, Secure Electronic Exchange of Health Information – Standardize and Adopt Identity Management Approaches."[4]

The call to action highlights the need to streamline identity management so that it addresses the foundational needs of interoperability and achieves ubiquitous and secure data integration. Establishing a common framework for patient identity matching is critical for ensuring further consistency across disparate trusted exchange solutions. HIMSS has called on the community to advocate for identifying, testing, adopting, and implementing standards and their algorithms for matching patients among clinical and claims data sets.

The Pew Charitable Trusts (Pew), an independent nonprofit research and policy organization that is the sole beneficiary of seven individual trusts, has recently launched several research projects aimed at discovering how to better integrate industry-

wide standards into the process of solving the patient matching puzzle. Believing that patient matching is essential to interoperability, Pew is assessing whether the use of specific data standards for demographics such as name and date of birth would improve the accuracy of matching as well as examining whether individuals can be involved in matching their records.

In addition to conducting research, Pew is conducting focus group interviews with patients and healthcare facilities to better understand how patient matching is viewed and to determine what other identification and matching solutions may be used. In August 2017, Pew submitted a letter to ONC seeking their support in prioritizing improvements to patient matching and effective use of standards when developing a trusted exchange framework that allows for interoperable exchange of health data.

While Funding Ban Continues, Congress Eases Restrictions

In April 2017, a coalition of 25 healthcare organizations, associations, and academies—including AHIMA, CHIME, HIMSS, and the American Medical Association, sent a letter to Congress urging lawmakers to end the ban on HHS funding and implementing a national patient identifier. In May 2017, Congress approved an appropriations bill that funded the federal government for the rest of fiscal year (FY) 2017 and within the bill, Congress highlighted the need for a consistent patient data matching strategy. Despite recognizing the need for a strategy, the Appropriations Committee continued its prohibition against "HHS using funds to promulgate or adopt any final standard providing for the assignment of a unique health identifier for an individual until such activity is authorized. The Committee notes that this limitation does not prohibit HHS from examining the issues around patient matching."[5]

This relaxation of the federal ban on studying patient matching in part led ONC to begin to take action. In addition to CHIME's efforts to push the industry forward in accurately identifying and matching patients, ONC announced its own challenge in April 2017 and opened the competition in June 2017 "to bring about greater transparency and data on the performance of existing patient matching algorithms, spur the adoption of performance metrics for patient data matching algorithm vendors, and positively impact other aspects of patient matching such as de-duplication and linking to clinical data."[6]

ONC's challenge focused on the provision of a large test data set, provided by ONC, where participants had the opportunity to run their algorithms against this data set, which "reconcile correctly." Up to six winners were selected with cash prizes totaling $75,000, and they were awarded to participants whose algorithms generated the highest F-Scores (a measure of accuracy that factors in both precision and recall) as well as algorithms with the best recall (least missed matches), best precision (least mismatched patients), and the best first F-Score run performance. ONC selected the winning submissions from over 140 competing teams and almost 7,000 submissions using the ONC-provided dataset. The winners, announced in November, include:

- Best "F-score":
    - First Place ($25,000): Vynca
    - Second Place ($20,000): PICSURE
    - Third Place ($15,000): Information Softworks
- Best First Run ($5,000): Information Softworks
- Best Recall ($5,000): PICSURE
- Best Precision ($5,000): PICSURE[7]

Whether responding to continued calls from industry stakeholders to support and fund efforts for patient matching initiatives or understanding the impact on interoperability of EHRs, lawmakers are taking legislative steps to address this missing foundational component to connect patient information across systems. In their FY 2018 budget bill, members of the House of Representatives Committee on Appropriations have proposed a $22 million reduction in ONC's budget. In a report outlining provisions in the bill, however, lawmakers acknowledge that within the Medicare system the lack of a patient matching system results in "duplicate procedures and poses a significant patient safety risk." The committee called on the Centers for Medicare and Medicaid Services to report to Congress, not less than 12 months after the date of enactment of the appropriations bill, on the "impact on care improvement, reduction in costs, estimated saved lives or reduction in errors, and improvements in patient safety if hospitals were required to use a patient matching system as a requirement for participating in the Medicare program."[8]

The report also acknowledges there is a lack of a consistent approach to matching patient data and encourages ONC to collaborate with private industry stakeholders to develop a "coordinated strategy that will promote patient safety by accurately identifying patients to their health information."[9] No other guidelines were outlined in the report such as timelines or other expectations. Although the 2018 budget is still under consideration, it is clear that the healthcare industry is seeing a wave of support for patient matching initiatives led by the private and public sectors.

Even though Congress had yet to pass a final bill on FY 2018 appropriations as of press time, lawmakers did vote to extend 2017 spending levels for 10 weeks into the new fiscal year in order to buy themselves more time. That extension, known as a continuing resolution, expired on December 8, and it was not clear whether lawmakers and the White House would be able to reach a 2018 spending agreement by that date. If they could not, Congress would have to pass another continuing resolution to avert a government-wide shutdown.

Both the House and Senate versions of the FY 2018 appropriations bills specifically address a unique health identifier. According to the bill text, "SEC. 510. None of the funds made available in this Act may be used to promulgate or adopt any final standard under section 1173(b) of the Social Security Act providing for, or providing for the assignment of, a unique health identifier for an individual (except in an individual's capacity as an employer or a health care provider), until legislation is enacted specifically approving the standard." The House bills will ultimately have to be reconciled with versions passed by the Senate before the direction for FY 2018 is ultimately known.

As the health IT industry and other industries await final direction from Congress on whether it will support the assignment of a unique health identifier for an individual, efforts are actively underway to address this critical issue through public-private initiatives. Whether it is a direct call to action or conducting studies to demonstrate the significance of accurately identifying and matching patients to prevent adverse events, their financial impacts, and duplication of tests—the industry continues to move ahead. It remains to be seen if Congress will soon understand the role patient matching has in ultimately achieving true interoperability.

Notes

1. US Government Publishing Office. "Public Law 105–277 Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999." October 21, 1998. www.gpo.gov/fdsys/pkg/PLAW-105publ277/pdf/PLAW-105publ277.pdf.
2. Congress.gov. "H.R. 34 - 21st Century Cures Act – Public Law No: 114-255 - SEC. 4007. GAO Study on Patient Matching." December 13, 2016. www.congress.gov/bill/114th-congress/house-bill/34/text.
3. Office of the National Coordinator for Health IT. "Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap." www.healthit.gov/sites/default/files/hie-interoperability/nationwide-interoperability-roadmap-final-version-1.0.pdf.
4. Healthcare Information and Management Systems Society. "HIMSS Call to Action: Achieve Nationwide, Ubiquitous, Secure Electronic Exchange of Health Information." October 18, 2017. www.himss.org/news/himss-call-action-achieve-nationwide-ubiquitous-secure-electronic-exchange-health-information.
5. Congress.gov. "H.R.244 - Consolidated Appropriations Act, 2017." May 5, 2017. www.congress.gov/bill/115th-congress/house-bill/244?q=%7B%22search%22%3A%5B%22HR+244%22%5D%7D&r=1.
6. Office of the National Coordinator for Health IT. "Patient Matching Algorithm Challenge." www.patientmatchingchallenge.com.
7. Department of Health and Human Services. "HHS Names Patient Matching Algorithm Challenge Winners." November 8, 2017. www.hhs.gov/about/news/2017/11/08/hhs-names-patient-matching-algorithm-challenge-winners.html.
8. House.gov. "Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Bill, 2018: Report." https://appropriations.house.gov/uploadedfiles/23920.pdf.
9. Ibid.

Allison Viola (allison.viola@kp.org) is director of health IT policy at Kaiser Permanente, based in Washington, DC.

Article citation:
Viola, Allison F.. "Getting to Know You: Patient Matching Efforts Gain Traction in Industry, but Congressional Roadblock Remains" *Journal of AHIMA* 89, no.1 (December 2017): 20-23.