



Holistic Health Records and the Drive for Value

HOW BETTER DATA CAN GENERATE NEW INSIGHTS AND WORKFLOWS

For nearly two decades, digitizing existing health records has been an article of faith that would pave the way to better outcomes, bend the cost curve and lead to more efficient care. But, despite today's near-total adoption of interoperable EHRs, progress on healthcare's Quadruple Aim – improving the patient care experience, clinical experiences and population health, while reducing per capita healthcare costs – has remained frustratingly slow.

Some observers are beginning to suggest that the problem may be baked into the current generation of EHRs themselves. Originating from efforts to standardize billing and coding practices, provider-sponsored health records, they argue, have focused too narrowly on digitizing the data they create rather than incorporating data from new sources that can contribute to a fuller reflection of patient health.

“The data that go into a patient record usually reflect the episodic patient encounters, lab results and other touchpoints created when patients are sick – when they see a doctor or go to the hospital,” observed Donald Kosiak, MD, Chief Medical Officer, Leidos. “The transactional, business background of an electronic health record is a well-known and well-studied phenomenon.”

The result: an interoperable *sick* record with outmoded, disruptive workflows that frustrate clinicians and leave patients in the dark about their treatment and overall health journey. With spiraling costs and worsening outcomes, there has never been a greater need for a more holistic health approach that offers new care alternatives and better options for personal wellness.

INTRODUCING THE HOLISTIC HEALTH RECORD

In contrast to the episodic EHR, Kosiak envisions a longitudinal health record that not only incorporates traditional clinical data, but also integrates a variety of nontraditional data sources, such as information about a patient's nutrition, financial health and work experiences, etc. It's an approach that is informed by a greater



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Donald Kosiak, MD | Chief Medical Officer | Leidos

appreciation for the social determinants of health, as well as research and development conducted by Leidos Human Performance Solutions.

“Why is it that if I know your ZIP code, I can tell more about your current health status than I can from your genetic code?” Kosiak asked. “The reason is that there are 8,760 hours in a year, of which you might spend 10 or 15 hours interacting with your health system. But, what you do in those other 8,700 hours really impacts your outcomes and how you perceive your health status. That’s where the opportunity is – how to incorporate data from those other 8,700 hours into a record that represents the whole patient.”

That was the challenge Leidos took on in its work for the U.S. Department of Defense (DOD). Because 70% of military-age U.S. citizens are not eligible to serve because of obesity, behavioral health issues, drug use or other physical limitations, the DOD is highly invested in maintaining the longevity and level of readiness in its existing personnel, said Michael Lumpkin, a former Navy SEAL who has served as Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict and as Under Secretary of Defense for Policy.

Lumpkin, who now heads Leidos Human Performance Solutions, said the DOD has found that traditional EHR data alone lacks the ability to generate useful predictions about individual and population readiness. Instead, it found that the most valuable insights emerged when nontraditional sources of data – financial and behavioral data, for example – were integrated into a longitudinal, holistic health record.

“The DOD is awash in data, but it suffers from data hoarding like other institutions do,” Lumpkin said. “Yes, there’s a lot of data, but it hasn’t been well-integrated. We’ve found that robust predictive models only arise when you have all the relevant data in one place.”

As an example, he points to suicides. In the military, the strongest predictors of suicidal ideations are financial. “One’s finances can routinely be represented by a FICO

score, but nowhere did that feed into a health record,” Lumpkin said. Thus, military healthcare providers lacked a critical tool for their mission to maintain the health, wellness and readiness of each individual in their care.

In addition to integrating disparate data into a single record, the DOD has also identified important benefits of a long-term, longitudinal record of care that spans multiple institutions.

“You have a cohort that generally comes together around 18 to 21 years of age, and ... [they stay] for 20, 30 or 40 years before transitioning to the Department of Veterans Affairs,” Lumpkin explained. “When you have an entrance baseline and a longitudinal cohort of that duration, the power that data yields in accurate analytic and predictive models is significant.”

LESSONS FOR THE PRIVATE SECTOR

Lumpkin and his colleagues suggest that the DOD experience holds important lessons for the private sector, as well.

“First, we need data, beyond traditional health data, and we need to have it aggregated in one place,” Lumpkin said. “A traditional health record is point to point, a person to their doctor. It says nothing about a person’s workplace or what they do that impacts their health and well-being. Workplace data, nutrition data, the social determinants of health – it’s just not part of the record that has been sorted and maintained.”

Karin Beckstrom, Senior Product Manager, Leidos Health Growth Solutions, sees several private-sector opportunities for new or nontraditional sources of information.

“Mental health is closely tied to *all* health outcomes,” she said, offering one example. “How is a patient feeling today? How are they coping? What is their current stress level? The answers to these questions provide actionable opportunities to help a patient before their health deteriorates.”



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Michael Lumpkin | Vice President | Leidos Human Performance Solutions

Beckstrom also emphasized the importance of ZIP codes, to the extent that they can provide relevant details about access to healthcare providers and pharmacies, or access to good nutrition and nutritional education. She also included patient-supplied continuous data streams from wearables and other devices that patients use.

“In order to integrate those kinds of data, we need to standardize the input and collection of data,” she continued. “Standards like FHIR can do a great job of enabling data from remote patient monitoring, fitness tracking and information from patient questioning. It can lower the cost of collecting and tending to the data, benefiting everyone on the value chain.”

Financial data – as a leading social determinant of health – would also make a substantial contribution to the holistic health record, according to Scott Muns, Leidos Health Growth Solutions. A record that omits financial data will not be holistic, especially if the record is used to manage population health.

“We all know that our finances dictate what kind of healthcare we can access and receive,” he said.

OWNERSHIP AND ACCESS

Although holistic health records differ from traditional EHRs in terms of data sources and inputs, Muns emphasized two other key distinctions: ownership and how the data is used.

“Part of the value of a holistic health record is to enable the patient to control their own information, what’s done with it and where it goes,” he said. “Provider-sponsored health records may give you a snapshot of what that provider has done. But, at the end of the day, there are many patients who receive care at a variety of different organizations, urgent care and home visits, and increasingly get it from CVS and Walgreens.”

According to the model Muns and his colleagues are working toward, the individual patient controls not only who has access to the record, but also who contributes to it. The holistic health record should include data from every healthcare provider, as well as from other sources of the patient’s choosing. If patients want wearable fitness tracker data in the record, that’s their prerogative, Muns said.

The same holds true for sharing that data. If employees want their employer to access part of the record – to improve workplace safety or benefits, for example – they can choose to do that. As long as the patient consents, data should be available to providers, insurers or application developers creating new tools for health and wellness.

“Every healthcare organization today will tell you that the patient owns the data,” Muns said. “But, they don’t act that way. They control the information, they control who it’s distributed to and they control how it’s used.”

With tools for granular sharing of selected data from their holistic record, individuals could someday use apps that inject complex artificial intelligence and machine learning algorithms into their daily lives.



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This level of intelligence could help people make better decisions – at the point of choice – that affect their health and well-being.

Beckstrom lists a half-dozen domains that would benefit from this: improved nutrition education, physical and mental resilience development; more affordable medical insurance and health savings, more accurate health risk assessments, enhanced social supports and greater workplace safety.

Kosiak sees advantages for healthcare providers, as well. For instance, some integrated delivery systems are already getting closer to incorporating these data points into their current EHR, he said.

“But, I look forward to a complete deployment of a holistic record that has, first, all or most of the data that is needed for predictive interactions,” he said.

“And, second, a means of injecting predictive capability into the clinical workflow in a way that doesn’t just disrupt the clinician, but actually provides value as they work.

“It’s not a technology problem,” Kosiak continued. “It’s regulatory. It’s willpower. It’s about who pays. The technology to do this already exists, and the data that we need to ingest and inject into workflows exists. We just need the will to move ahead.”

To learn more about Leidos Human Performance Solutions and holistic health records, visit leidos.com/human-performance.



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