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I f healthcare in the United States can evolve into a "learning" system, both patients and medical institutions will benefit. Providers will be able to learn from the care they provided so they, and the system as a whole, can continuously improve care delivery.

But none of this can happen without open data sharing, which facilitates the free exchange of medical tests, results, and information among institutions, patients, and providers.

At Intermountain Healthcare, the Oncology Precision Network (OPeN), an initiative to end cancer, allows physicians in 11 states, 79 hospitals, and 800 clinics to share data involving approximately 50,000 new cases per year. It's changing the world of oncology by collecting, storing, and sharing genetic data. This massive network allows its members to make new diagnostic associations, which are then shared among medical professionals.

The advantages offered by a learning healthcare system are tremendous. With open data sharing, medical professionals can review information from patients, cross reference similar medical conditions and other factors across a vast data set, and draw conclusions based on these findings. They can then test and evaluate which treatments are most effective across a large number of patients.

Adopting open data sharing also holds the potential to lower the overall cost of healthcare in the country, which now stands at over \$3 trillion annually. If open sharing were enabled in just 10 percent of that \$3 trillion, it would surpass the knowledge gained by all of the funded clinical research in the US.

But there are significant challenges. Today, the majority of patients don't have open access to their own medical records and data. Healthcare systems hold the data. And many health systems see each other as competitors, not collaborators, locking data away rather than sharing it openly. That mindset must shift.

More important, the way the medical data is currently collected, stored, and even reviewed isn't standardized. Consequently, codes that correspond to diagnoses, measurements, and lab tests vary widely. Imagine if the manufacturing industry didn't adhere to consistent names for different kinds of steel or glass. Interoperability, made possible through code standardization, needs to be encouraged, and providers must embrace collaboration for the common good.

Another barrier to creating a learning healthcare system through open data sharing is the current reimbursement structure. It discourages change since institutions are mostly paid under a fee-for-service model. That's a financial incentive to perform as many procedures or tests as possible, instead of keeping costs low and treatment more efficient.

Aligning incentives with best practices is critical to success. Open data sharing can enable more productive and inexpensive medicine, but the reimbursement system needs to evolve in order to incentivize a decrease in the number of procedures. At Intermountain Healthcare, around 30 percent of care is now within bundled or capitated payment models. Within the next few years, the percentage will continue to increase. New reimbursement models could kickstart a powerful shift toward the widespread adoption of open data sharing.

Patients and providers will benefit when the flow of medical information among providers and health systems is open and unencumbered. It will also be a boon for science. Inevitably, new research possibilities will emerge to usher in original solutions for diagnostics and treatment. More efficient and effective medicine is possible if this collaborative spirit and the technology that enables it are embraced by the healthcare industry.

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