



Solving the Health Data Interoperability Riddle

A Conversation with Dr. Jay Schnitzer

March 2018—MITRE's VP and Chief Technology Officer, Dr. Jay Schnitzer, speaks about the challenges and potential solutions for improving data interoperability for healthcare, and MITRE's neutral role in bringing the right partners and the right health data systems together to solve a tough problem.

Q: What role do you play at MITRE to modernize healthcare?

Schnitzer: I basically have two roles. I oversee our internal research and development efforts, and I'm also the senior physician and senior subject matter expert on things medical and clinical. I bring those two points of view to MITRE in terms of thinking about interoperability and questions around it for the future. We're thinking about technologies and how they can help address the challenge of improving patient care. We, at MITRE, are in a unique position to be able to tackle those very complicated questions.

Q: What do you see as the major benefits of electronic health records—or EHRs—to patients and to providers or others in the health ecosystem?

Schnitzer: The promise of electronic health records has always been to harness the data that exists around the patient to be able to give better clinical care back to that patient—better quality, lower cost, and better outcomes more efficiently, and ultimately, provide that benefit back to the patient.

Q: Are we there?

Schnitzer: Even though EHRs have become ubiquitous in the United States—by most reports over 80 percent of patient data is contained in electronic health records somewhere—we have not seen metrics that show there's been the positive impact we were hoping for in clinical quality and better outcomes for patients. That's the holy grail. We aren't there yet. The question, then, is why not, and what do we have to do to get there?

Q: What has kept us from living up to the promise of electronic health records?

Schnitzer: It's all about interoperability, but it's complicated. There are discussions about who owns the data in EHRs. There is not enough sharing and not enough technology around making sharing possible. We have mountains of data available to us now in many places and in many forms. We have too much data, in a certain sense, because we can't process it as human beings. The data is in different locations in different formats, caught in silos. We lack the ability to bring that data together and work with it to convert it to knowledge, to understanding, and eventually to



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wisdom and better decisions. We aren't anywhere near where we need to be on that trajectory. And it's all about the lack of ability to share data well and to interoperate among our data systems.

Q: Why is interoperability so important to better care for patients?

Schnitzer: Interoperability is key to the success of using the data for the benefit of patients and advancing clinical care. We hope that improved interoperability will lead to better understanding of the data. We have huge amounts of data. We believe that if we could harness that data, we would achieve new and better insights into better patient outcomes. We're not there yet.

Q: Given the lack of interoperability, is the technology hindering patient care in any way?

Schnitzer: It's not hindering patient care, but it's not helping either, yet. We've all seen examples of what I'm talking about in our own lives, and as it pertains to ourselves, our families, and our friends. I've been on both sides of the fence, as a patient and provider. As a patient I've sat with my primary care physician in a clinic or an examining room, and seen my provider, who has the best of intentions of delivering excellent care, spend most of that time staring at a computer, typing into it. As a provider, I was in the same boat. It was my job as the physician to make sure I captured the patient data. I had a set time with the patient and huge pressures to go from one patient to the next to make sure I had enough throughput in each day. I had to document it carefully for billing and quality-of-care purposes. As a provider, you spend significant time on the documentation and not nearly as much time paying attention to the patient sitting there with you. You lose eye contact, you lose that feeling of connectedness. It's true for the provider and it's true for the patient. I've seen both and everybody has experienced it.

Q: Why has data interoperability been such a challenge? What is MITRE's unique role in helping to address it?

Schnitzer: The healthcare ecosystem is a complex space with many players. Think about your own doctor, your own network, your own clinic. The healthcare delivery system is part of it. It goes beyond that to the payers and insurance companies. The system also includes the federal government, which is involved in multiple layers. It's a payer, a regulator, a funder of research, and provides other functions as well. The ecosystem also includes not-for-profits, foundations, manufacturers, both of pharmaceuticals and drugs as well as devices and other biologics. There is a commercial, for-profit component, as well as academic health centers, the education system, and I could go on.

All these different pieces of the ecosystem have different functions. Ideally, they should work well, play well, communicate well together. They don't. They compete. They have little territories that



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they protect. Some own the data, some don't. Patients are in the center of this ecosystem. They have a huge role to play as well. If you really want to have interoperability, you've got have a system that allows sharing across all of those sometimes-competing components of the ecosystem.

At MITRE, we have an opportunity, because of our objectivity. We don't manufacture or sell anything, ever. We aren't providing patient care. We're not a funder. We can be an unbiased, trusted intermediary in the conversation and in the whole concept of communicating and sharing data across these organizations. We, MITRE, have the technical depth of knowledge and experience to take on the interoperability challenge. We have expertise in how to do that.

Q: The Department of Veterans Affairs is currently tackling the interoperability question with respect to the future state of its electronic health records. Why?

Schnitzer: Think about the care veterans receive. Some of them receive all their care within VA facilities, some within the civilian private sector, and many receive care at some mixture of both. Increasingly, going into the future, it's very likely that more and more veterans are going to receive this type of hybrid care—a mix of care in VA and care in the community. It's imperative for that care to be maximally beneficial and of highest quality for the veteran, that there be interoperability between the VA and all the provider systems in the community. We are helping VA to work on that problem.

Q: Most organizations guard their data, either because it is sensitive or proprietary. What unique role can MITRE play in convincing them to share it?

Schnitzer: Some challenges benefit from a collaborative, industry-wide approach involving sensitive, often proprietary, data. We must convince stakeholders to share their data with a trusted partner that can maintain a secure repository of very sensitive, very important data, safe from cyber breaches or leakage. Not too many organizations can play that special role. Even fewer have a real track record of having done it. MITRE has done it since long before we were even involved in healthcare. In supporting the federal government, we are trusted with data that is very sensitive—in some cases highly classified. That data we've kept secure and safe for very, very long periods of time. We know how to do it. We've done it.

Q: Can you offer an example of a major challenge that required collaboration across many stakeholders where you saw the community come together to solve an issue?

Schnitzer: One example exists in the aviation industry. MITRE has a track record of taking a very difficult problem—aviation safety—and serving as the trusted custodian of competitive, sensitive, and proprietary industry data. The industry wanted to improve aviation safety. Those who were thinking about it creatively determined that one approach involved analyzing the precursors to an event, rather than forensics after an event occurs. The Aviation Safety Information Analysis and



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Sharing system, which MITRE created and maintains for the Federal Aviation Administration, is designed to collect anonymous airline incident and safety data. It uses this and other data, such as position tracking, weather, and maintenance records, to understand the circumstances of individual events. The data enables them to identify patterns that contribute to airline incidents and accidents. Airlines weren't keen on sharing that data at first, because it really is their most vulnerable, important information. But we created a trusted environment. Having done that, we have been able to move the needle on aviation safety by understanding precursors to events in ways that would not have been possible otherwise.

Q: How can MITRE apply that experience to healthcare?

Schnitzer: What we really want to move to in the future is the ability to take real data from one place and bring it to another where it is equally usable and understood. That doesn't exist today, not on a grand scale and not across all organizations. Having that data and that ability would provide a complete understanding of the status of a patient at any point in time—where they've been, where they're going, and what's really going on with them clinically, and we could make better-informed decisions.

The questions, challenges, and problems described around data sharing and interoperability and the future are really hard. If they were easy, they would have been solved by now. They haven't been. It's going to take the best and the brightest to work on this. None of us is going to have all the answers. We've got to consider input from all the different constituents, stakeholders, and players. We've got to harness the wisdom and the creativity and the intellect of the best and the brightest among us, and we've got to do it together.

If our efforts succeed in helping to create better health data interoperability and data sharing, it will take us to a state where patients receive better care with better clinical outcomes and better health. That surely forms the foundation for a safer world.



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Data Interoperability

Dr. Jay Schnitzer is vice president and chief technology officer at The MITRE Corporation. He is also MITRE's senior physician and senior subject matter expert in medical and clinical solutions, with an M.D. from Harvard Medical School and board certified and re-certified in surgery and pediatric surgery. In his dual role, he directs MITRE's independent research and development program and oversees creation of solutions to improve patient care and reduce provider burden using technology.

