



From fragmented data to trusted AI: How health systems are building the foundation



Healthcare organizations are racing to adopt AI, but most still can't vouch for what it's built on. A 2025 federal data [brief](#) found roughly one in five hospitals don't even know whether their predictive AI models have been evaluated for bias. The reason: unclean data, fragmented records and interoperability gaps that make AI results inconsistent, hard to trust and nearly impossible to scale beyond a pilot.

To explore what it takes to move from fragmented sources of unclean data to trusted, actionable insight and impact at scale, Becker's Healthcare and InterSystems hosted five clinical and data leaders:

- Romil Chadha, MD, chief medical information officer, UK HealthCare (Lexington, Ky.)
- Conrad Gleber, MD, associate chief medical information officer, University of Rochester Medical Center (N.Y.)
- Julie Smith, MSHI, NI-BC, CEN, head of global healthcare market strategy, InterSystems
- Albert Villarin, MD, VP, chief medical informatics officer, Northwell Health (New Hyde Park, N.Y.)
- Emily Webber, MD, chief medical information officer, Indiana University Health and Riley Children's Health (Indianapolis)

Data is foundational

AI may be the technology drawing large investments, but panelists agreed that data remains the determining factor in whether those investments succeed. Without accurate, complete and well-governed data, even the most sophisticated AI tools struggle to deliver meaningful results.

Many organizations are discovering that their data foundation is not yet ready to support enterprise AI. According to Ms. Smith, common challenges include inconsistent data quality, incomplete records, poor timeliness, fragmented governance and a lack of transparency into how information is collected and managed.

Rather than treating data preparation as a one-time cleanup effort, health systems increasingly recognize it as an ongoing operational capability. "Across the industry, health systems are realizing they need to clean their data and are doing a lot of cleanup manually, which is not sustainable," Ms. Smith said. "We need a way to clean it that is automated, has quality assurance and is transparent. Then, when we apply AI to the data, we have the validation that's required."

Dr. Webber summarized the challenge simply: “Data is the fuel for AI.” But many organizations only recognize weaknesses in that foundation after deciding on an AI partner product and attempting to deploy it. By then, implementation stalls as teams confront data quality issues that should have been addressed earlier, delaying value realization while consuming additional time, resources and investment.

When data and AI come together

Today, organizations are bringing together fragmented structured and unstructured data in enterprise data lakes, warehouses and cloud platforms. As health systems collect more clinical, operational and financial information, the challenge is no longer simply capturing it – it’s integrating, governing and making sense of it across the enterprise.

“There’s even more information than we thought,” Dr. Villarín said. Bringing together the growing quantity of data, along with new data elements and new sources of data, continues to challenge organizations.

Once that information is aggregated and governed effectively, however, AI can help organizations analyze far more data than traditional methods allow, surfacing relevant insights and answering complex questions much more quickly.

Panelists also emphasized that AI is only as effective as the consistency of the underlying data. “The same data has to go to every place in the organization,” Dr. Chadha said. Whether a patient is seen in the emergency department, a specialty clinic or a primary care practice, clinicians need access to the same complete and reliable information. Without that shared foundation, AI risks producing fragmented insights rather than enterprise-wide value.



A path to success

While some organizations are building enterprise-wide data platforms, others have chosen to begin with a small number of well-defined AI use cases and prepare the necessary data around them. “Most of the clinical use cases that are emerging are things we could not do without AI versus where AI could do the same process faster,” Dr. Webber said.

Many healthcare organizations initially approached AI with broad ambitions before defining the specific problems they wanted it to solve. As the technology has matured, leaders have recognized that successful AI initiatives begin with a clear use case rather than the technology itself. “Now we all understand AI is not going to solve it all,” Ms. Smith said. “We need to know exactly what problem we’re trying to solve and then apply the solution to it.”

Governance is also crucial in scaling AI with trust. Some organizations aren’t approving or starting pilots until first knowing the governance exists, the data is ready and the infrastructure is in place to scale successful pilots. Clinician buy-in is equally important to ensure successful pilots move into production and deliver value across the organization.

Overcoming skepticism requires building trust around what systems are being used and why they are inserted into workflows.

"Traceability and transparency is part of what builds trust," Ms. Smith said. "You have to have both and you have to have it with a foundational base of quality for the problem you're trying to solve. It doesn't have to be quality for all of your data; it has to be for the specific problem."

That trust is especially important at the front line. According to Dr. Gleber, providers are often skeptical when new solutions are thrust upon them. "For the front-line clinician, when this fails, they inherently distrust the system, stop using it and organizations completely lose adoption," Dr. Gleber said.

Even organizations with strong data governance and clearly defined AI strategies face another challenge: ensuring information moves seamlessly across systems.



Why interoperability matters

Deriving actionable insights from data requires more than just aggregating data on a one-time basis. It requires constantly being able to share updated data from multiple sources via real-time interoperability.

For health systems, interoperability is essential in pulling together data for state and federal agencies, like CMS, and payers. Interoperability is also necessary because patients aren't just in one place and don't see just one clinician at one organization. Patients' clinical data needs to be available wherever a patient is. "It is something patients, healthcare systems and healthcare leaders should demand," Dr. Chadha said.

The scope of interoperability has expanded significantly over the past decade. What once focused primarily on exchanging a limited set of clinical information has evolved into integrating clinical, operational and administrative data across the enterprise to create a more complete picture for clinicians and AI applications alike.

"We started with a tiny subset of clinical data. Now, we're talking about more robust clinical data and the rest of the enterprise data," Ms. Smith explained. "To do interoperability right, all of the different data sources that used to live separately must be combined together and must be usable."

As these clinical and data leaders look ahead, they see AI success as less about adopting the latest technology and more about building the right foundation and executing with discipline. That means identifying the right opportunities, aligning every initiative with the organization's mission, thoughtfully defining where human expertise and AI each add the most value, and starting with focused use cases that build trust before scaling.

To view this webinar on-demand, please [click here](#).