



CHIME President and CEO Russell Branzell moderated the roundtable. Contributing to the discussion were DrFirst representatives Kunal Agarwal (President, Enterprise Solutions) Colin Banas, M.D., M.H.A. (Chief Medical Officer), and Larry O'Toole (Senior Vice President, Growth and Enterprise Solutions).

Participating CHIME members:

**Jonathan L. Manis**  
CIO,  
CHRISTUS Health

**Novlet Mattis**  
Chief Digital Information  
Officer,  
Orlando Health

**Albert Oriol**  
CIO,  
Rady Children's Hospital

**Will Weider**  
Former CIO,  
PeaceHealth

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## INTRODUCTION

Healthcare technology solutions provider DrFirst recently convened a roundtable discussion with members of the College of Healthcare Information Management Executives (CHIME) to explore strategies for managing the ever-growing influx of data entering today's health systems from patients, health information exchanges, and elsewhere. Chief information officers touched on the challenges and opportunities that this data presents to clinical teams, along with the strategies and vendor partnerships necessary to supply meaningful, complete, and actionable data across the enterprise.

## SUMMARY

The years that followed the push toward meaningful use of electronic medical records ushered in an era of tremendous digital transformation, with clinicians transitioning from a lack of reliable and complete data at the point of care to a deluge of data. The World Economic Forum has estimated that the [average annual data produced per hospital per year has reached petabyte \(1 million GB\) level](#) - with as much as 97% of it going unused.

This volume of data is poised to multiply with the acceleration of interoperability and information sharing under the 21st Century Cures Act and the [Trusted Exchange Framework and Common Agreement \(TEFCA\)](#). Soon, patient physiological information, patient reported outcomes, home monitoring devices, and a host of third-party applications will contribute to the corpus of clinical data. And as if these data sources aren't enough on their own, the regulatory environment and proliferation of proprietary systems also brings additional data formatting and structuring requirements. This makes it equally chaotic and frustrating for clinical teams to ingest and use data.

Today's health systems have little choice, though. Achieving success in risk-based contracting and improving outcomes depends on managing patients throughout their care journey - a process that's nearly impossible without a longitudinal patient record. Data also drives more informed business decision-making, which is all the more critical amid ever-tightening margins

and an increasingly competitive market. Roundtable participants discussed how their organizations are managing data today, how they foresee these strategies shifting in the future, and how they're working to support access, interoperability, and transparency.

## THE BIGGEST DATA MANAGEMENT CHALLENGES

Generally speaking, roundtable participants said their organizations are beginning to get a handle on managing data. They're working on what data should be centralized vs. localized, how to improve the quality and accessibility of data, and how to make data more "consumable" for clinical and administrative end users. They're also navigating the difference between what's possible and what's necessary; this helps to avoid rushing to develop products that, it turns out, many people want in theory, but few will use in practice.

Amid this work, participants identified five overarching data management challenges.

**Inconsistency.** Data from external sources is of little use to hospitals if the time, resources, and money required to aggregate and standardize it doesn't make the juice worth the squeeze. "I don't want to have to worry about consuming 20 different types of glucometer data because everybody produces it their own way," said Albert Oriol, CIO at Rady Children's Hospital. "I also don't want the data in your platform. I want that data to interact with the individual patients' data in my [electronic medical record]."

**Loose interpretation of standards.** Even when data standards have been established, vendors and health systems have been free to interpret them as they wish, noted Colin Banas, M.D., M.H.A., CMO at DrFirst. The Continuity of Care Document, for example, comes with many variants, meaning one health system's CCD likely looks different from another. This is akin to an appliance manufacturer deciding to give a plug a capacity for 95 volts even though the industry standard in the United States is 110 volts, said Russ Branzell, president and CEO of CHIME.

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**Jonathan L. Manis**  
CIO  
CHRISTUS Health

**Unproven value.** "The value proposition for using clinical data must be better quantified; provider organizations will invest and make resources available where there is value," said Jonathan L. Manis, CIO at CHRISTUS Health. "We need a business model that incentivizes and rewards systems for predicting and preventing diseases, not just for doing clinical procedures and treating diseases after they manifest. Until the business model is more appropriately aligned with the clinical model, this will continue to be a significant challenge." Technology leaders often have to "jump through the window of opportunity" over and over before the organization sees the value of data and information, Oriol said. "In other words, getting there still requires a bit of a 'build it and they will come' approach."

**Limited resources.** Executives often tout the desire to use data on the same level as retail or technology companies, but healthcare's vastly different spending priorities make these comparisons irrelevant. "All these companies that know

everything about me and can predict what I need are spending up to 40% of their revenue on IT and data because it drives their business. How do you compete with that in terms of financial resources and human capital?” said Branzell.

**A poor foundation.** Any successful project begins with a solid foundation – and that’s a struggle for healthcare technology leaders. “As we try to get our foundation right, we have to compete with different priorities,” said Novlet Mattis, CDIO, Orlando Health. “We want to focus, to take an intentional approach to data quality, standardization and governance as foundational tasks, but the organization’s demand for reporting products to meet immediate business needs competes against the same resources we need to build a solid foundation.”

## DEALING WITH A NEW ERA OF DATA SHARING

Amid the challenges, PeaceHealth CIO Will Weider provided valuable perspective: “I became a CIO in the pre-EMR age. The fact that we’re now electronically sharing 100 million records a year without real effort is amazing to me.”

Information sharing is becoming an even bigger priority for two reasons: [TEFCA](#) and the [information blocking rule](#). In the words of the Office of the National Coordinator for Health IT, TEFCA sets “a universal floor for interoperability” to enable the secure exchange of clinical information, while the information blocking rule as defined by the 21st Century Cures Act “made sharing electronic health information the expected norm in healthcare.”

At an organizational level, there’s some concern about what the rules mean, and what penalties a hospital may face for failing to appropriately share data. Philosophically, roundtable participants saw less reason to be concerned, if for no other reason than the benefits of information sharing for providers as well as patients.

“There’s not a clinician I’ve ever interacted with who wouldn’t give an arm and a leg to get or provide data that would be helpful to their patient getting better care,” Oriol said. “We’re going to need to get there iteratively through a bit of trial and error.”

Branzell agreed. “I see a lot of positive things happening from the patient perspective coming out of these regulations. We used to not share doctor’s notes. We used to not share mental health records. We used to hold onto test results until we had a chance to review them. Now, we’re giving these things to the patients that they need – and deserve.”

Banas of DrFirst built on the example of sharing notes. The information blocking rule gives patients the right to access all electronic protected health information they’re entitled to under HIPAA. While this went into effect in October 2022, it was decades in the making. It built on the success of the [OpenNotes](#) study that began in 2010 with 10,000 patients at three health systems. And OpenNotes itself stemmed from a 1973 *New England Journal of Medicine* [article](#) calling for every patient to have access to their medical records.

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Managing a Deluge of Data: CIO Strategies to Make Information Accessible to Clinicians



As OpenNotes gained momentum, skeptical providers feared a deluge of angry phone calls from patients. It never happened. “It was the biggest nothing burger of all time,” Banas said. In fact, in many instances it was helpful, as patients were more informed about their conditions or even found errors in the records.

“I think there’s a similar path to success,” he continued. “A hospitalist not having outside records, spending time on the phone to pass over the release of information and waiting for the fax to come in? That’s insane. Information sharing is going to make a difference to patient care.”

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Multiple CIOs pointed to the pandemic as an important example of this.

“During COVID, we were pumping data left and right, both internally and externally,” Oriol said. “We were coordinating with immunization registries, the state, and the county. We were checking our supplies, our vaccines, and our tests. We were supplying this information in real time – and it was driving day-to-day decisions.”

Weider said the pandemic gave health systems “real clarity of purpose” about what was most important to measure.

Manis added that this helped organizations set their priorities – moving away from the volumes of data that may be of interest and importance to individuals, such as some types of activity data from wearable devices, smartphones and connected fitness equipment, and toward “the data sets that are most relevant and most important for maintaining wellness, managing chronic conditions, or providing clinical care.”

## A ROLE FOR VENDOR PARTNERS

For even the most advanced health systems, data management isn’t something that can be done alone. Technology partners have an important role to play in helping organizations refine data aggregation, storage, and management strategies, and to help them turn data into insight.

It’s also a delicate role: Vendors need to strike a balance between standardization, which makes both the software and the data it consumes the same no matter where it’s being used, and customization, which allows health systems to collaborate and innovate in their own way. “Where are the guardrails?” Oriol said. “I don’t have an answer.”

Manis said vendors – especially those with a national footprint – are well positioned to educate and instruct health systems on how to best leverage and use their products.

“What would be especially helpful is to have the vendor community step up and help us understand how we could be more efficient and how we could be more responsive to those that we exist to serve. I expect vendors to help educate and offer recommendations when they believe they see improvement opportunities,” he said.

## A ROLE FOR VENDOR PARTNERS CONTINUED

“As health systems, we all offer similar services – we admit patients, we treat patients, and we discharge patients. Best practices exist. It makes no sense that we all do the same basic things in so many different ways.”

Another area of distinction for technology vendors would be to do the dirty work of data aggregation and normalization.

“I can’t physically fund, build, and support integrations to consume data from the thousands of different types and models of monitors and biomedical devices that exist in the market today and will proliferate for home health,” Oriol said. “If you can give me one feed for glucose, instead of one feed for each device measuring glucose, that would provide value.”

## PRACTICAL ADVICE FOR MOVING AHEAD

Given the abundance of data within healthcare organizations, along with the possibilities that it presents for clinical, financial, and operational decision-making, technology leaders could be tempted to boil the ocean in their efforts to aggregate data and put it to use.

Oriol prefers a more methodical approach: “This is a situation where we need to build the momentum. Eventually, things will come when we can take big chunks of the problem at a time. For the foreseeable future, though, it’s gradual and incremental progress.”

What does this progress look like?

- Mattis is coupling an effort to build a data platform including a data warehouse in the cloud with talent acquisition (the organization recently hired a chief data officer) and creating an enterprise-wide data strategy to include data governance and self-serve capabilities.
- Amid an enterprise-wide EMR migration, Manis is reviewing which resources are best centralized and which should be localized under the organization’s hub-and-spoke data infrastructure.
- Weider revisited dashboards that had been developed by request for capacity management but saw little use. By making data actionable, usage increased – as did positive feedback from operations staff. “It’s helping them manage their day. It’s helping them identify which patients should be leaving, and what’s keeping them from leaving.”
- In addition to building his team, Oriol has focused on developing data sharing principles, standing up a data literacy program, and forming a data governance council. “We’ve taken this approach of recognizing that as an organization, we’re very entrepreneurial. So, a hub-and-spoke model works for us,” he said. “It’s important to enable the organizational DNA and not fight against it.”

## CONCLUSION

Industry trends and government regulations are pushing healthcare systems to both take in and more readily share data. While data aggregation and normalization pose significant challenges for organizations operating with tight margins and primarily spending their IT dollars elsewhere, prudent technology leaders see this environment as an opportunity. The sooner an organization can put in place a data management strategy, the sooner data sets can be harmonized and put to use for initiatives that demonstrate the value of data that is meaningful and actionable.

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## CONCLUSION CONTINUED

When it comes to data, it can be hard for healthcare executives to understand that rallying an organization around data standardization and governance can reap benefits when they are steadfastly focused on margins in a difficult economy. Emphasizing how data can save money, improve care quality, or streamline operations, even on a small scale, will provide a value proposition that earns buy-in as well as trust. As progress continues, the transition to data-driven decision-making can be advanced and enhanced, backed by an organizational culture that respects the importance of data governance – and understands data’s role in improving care delivery for all.



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