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PitchBook Data, Inc.

John Gabbert Founder, CEO

Nizar Tarhuni Vice President, Institutional Research and Editorial

Paul Condra Head of Emerging Technology Research

Institutional Research Group

Analysis

Rebecca Springer, Ph.D.
Senior Analyst, Healthcare Lead
rebecca.springer@pitchbook.com

Aaron DeGagne, CFA
Analyst, Emerging Technology
aaron.degagne@pitchbook.com

pbinstitutionalresearch@pitchbook.com

Publishing

Designed by **Julia Midkiff**

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EMERGING TECH RESEARCH

Takeaways From the 2023 HIMSS Conference

PitchBook is a Morningstar company providing the most comprehensive, most accurate, and hard-to-find data for professionals doing business in the private markets.

Key takeaways

Generative AI

- Says Justin Norden, Partner at GSR Ventures: "Even if you completely froze the tech now, GPT-4 is transformative for healthcare."
- HIMSS attendees waited in extraordinarily long lines for three things: Starbucks, the chance to pet rescue puppies, and Nuance's DAX Express demo.
- Open-source AI models increasingly pose a competitive threat to incumbents in both NLP and generative AI. There are big caveats, though, including privacy concerns, variable performance, and the scarcity of top AI and data science talent.
- In the short term, the key applications for generative AI in healthcare IT are clinical documentation workflows, patient engagement, and revenue cycle automation.

Interoperability

- ONC policy is fueling an interoperability gold rush, with care coordination applications taking center stage.
- But many vendors are building infrastructure ahead of use cases.

State of the market

- In the current climate, there are three main routes to successfully sell into health systems:
  - Revenue cycle technology that directly increases reimbursement.
  - Workforce augmentation or technology that drives significant, immediate workforce efficiency improvements.
  - Mission-critical software turnover.
- VCs are moving more slowly, too. Although we have not yet released our Q1 2023 healthcare IT and digital health VC deal figures, we believe they will come in at or near three-year lows.
- Meanwhile, profitable and near-profitable companies will act opportunistically to acquire technology at a discount in the next one to two years.

Other themes

- While many telemental health startups in the direct-to-consumer and employer markets struggle to establish sustainable financial models, promising new players are emerging with alternative approaches—including in digital therapeutics.
- Growing denial rates, new CMS rules, and AI buzz have shone a spotlight on prior authorizations.
- By contrast, price transparency has yet to generate significant company creation or compelling applications.
- Last but not least, a talk on UMass Memorial Health's hospital-at-home program drew an audience of around 150 and enthusiastic applause at the 4:00 p.m. slot on Thursday—a testament to the industry's continued interest in site-of-care innovation.

Introduction

From April 17 to 20, vendors, health system leaders, and investors gathered for healthcare IT's largest conference. Healthcare Information and Management Systems Society (HIMSS) 2023 drew 35,000 attendees to Chicago, up from 2022's figure of 30,000 digital and in-person registrants. Many of the attendees we spoke with were excited about opportunities to connect with existing clients and prospects on the sale floor, as well as to find and engage with potential partners. Unlike HLTH, which caters toward VC investors and their portfolio companies, the HIMSS conference floor is dominated by large vendors. However, we had engaging conversations with companies at every stage, from founder-owned businesses seeking their first capital infusion, to early- and late-stage VC-backed companies, to PE-backed platforms, to leading strategics.

Generative AI

Most conversations we had at HIMSS included at least some discussion of ChatGPT and generative AI. Announcements by major players dominated conference headlines:

Epic and Microsoft extended their strategic collaboration via an Azure OpenAI Service integration. Epic selected Microsoft Azure to host its private electronic health record (EHR) cloud in 2014 and more recently has begun migrating some customers to the Azure public cloud. One pilot is currently underway at three academic medical centers, using OpenAI's technology to automatically draft responses to patient messages—responding to these messages has become a significant drag on provider time, prompting some health systems to bill for more complex responses.[1] Another pilot, not yet initiated, will enhance Epic's self-service reporting tool, SlicerDicer, with natural language queries.

Microsoft-owned Nuance announced Dragon Ambient eXperience (DAX) Express, an automated clinical documentation application using GPT-4. Nuance's preexisting Dragon products were Dragon Medical One, a straightforward dictation tool

1: "More Health Systems Charging for MyChart Messages," Becker's Health IT, Naomi Diaz, November 28, 2022.

The Epic-Microsoft/Nuance-OpenAI partnerships triangle represents the clear industry leader in healthcare generative AI applications. However, conference-goers speculated that open-source generative AI models like GPT-4 would democratize the space, including by accelerating the development of lower-cost alternative products by startups and health systems.

used by roughly half a million providers, and DAX, a full-service ambient clinical documentation tool with quality control review and a high degree of customization. The new DAX Express product sits between these two solutions in terms of pricing and provides ambient clinical documentation with no human in the loop. Over time, Nuance intends to continue improving the performance of DAX Express until it reaches the level of full-service DAX, thereby allowing more health systems to utilize ambient clinical documentation.

The Epic-Microsoft/Nuance-OpenAI partnerships triangle represents the clear industry leader in healthcare generative AI applications. However, conference-goers speculated that open-source generative AI models like GPT-4 would democratize the space, including by accelerating the development of lower-cost alternative products by startups and health systems.

Would-be challengers face several hurdles, however. GPT-4 is not specifically trained for clinical documentation and is easily outperformed by DAX Express. Obviously, privacy and security are essential; GPT-4 is not HIPAA-compliant, while DAX Express is. We heard that some health system leaders are worried about unauthorized—and non-HIPAA compliant—use of ChatGPT by physicians, although the actual extent of the problem is unknown. Transparency and explainability are table stakes for any clinical AI healthcare solution; GPT-4 offers neither. Finally, for health systems and smaller startups, it can be difficult to hire top-tier AI and data science talent with both the healthcare and technology experience to engineer compelling solutions.

We believe the most successful solutions in the near term will focus on patient engagement applications such as postvisit summaries, automated appointment and billing reminders, and explanations of bills and laboratory results. For instance, RamSoft announced a patient engagement app that allows patients to ask questions about diagnostic and screening imaging procedures.

Select AI clinical documentation companies

Company	Last deal type	Last deal date	Most recent valuation ($M)	Lead investor/acquirer
Nuance Communications	Acquired	March 4, 2022	$18,800.0	Microsoft
Intelligent Medical Objects	Buyout	May 11, 2022	$1,500.0	Thomas H. Lee Partners
Suki	Series C	September 3, 2021	$400.0	March Capital
DeepScribe	Series A	December 7, 2021	$180.0	Index Ventures
Abridge	Series A1	August 11, 2022	$132.5	Wittington Ventures

Source: PitchBook • Geography: Global
*As of April 25, 2023

Interoperability

If generative AI was the buzziest theme of HIMSS, interoperability was the most ubiquitous. Healthcare's data silos problem is difficult to overstate, yet the industry's transition toward value-based care is predicated on the ability to utilize holistic, longitudinal, and real-time patient data. The healthcare IT community—and the federal government—have welcomed the Fast Healthcare Interoperability Resources (FHIR) protocol as healthcare's first easy-to-use, application programming interface (API)-based data exchange standard. However, adoption by providers and especially payers has proceeded slowly, and federal regulators have stepped in to push the industry toward greater interoperability. Recently:

- December 31, 2022, was the deadline for health IT developers certified by the Office of the National Coordinator for Health Information Technology (ONC) to provide their customers with FHIR-based APIs, as mandated by the ONC's 21st Century Cures Act Final Rule, issued May 1, 2020.[2]
- Also mandated under the 21st Century Cures Act, the Trusted Exchange Framework and Common Agreement (TEFCA) was published on January 18, 2022. TEFCA provides a technical and policy framework for the nationwide exchange of health information via Qualified Health Information Networks (QHINs).

Overall, HIMSS exhibitors voiced enthusiasm for the regulatory push toward interoperability, and some announced new certifications. For instance, post-acute IT vendor PointClickCare announced that its PAC Network Management Solution has earned HITRUST certification for information security, and Health Gorilla announced it has been approved as a QHIN.

In conversations around interoperability, we observed a paradox. Significant demand exists for high-quality interoperability solutions, with numerous startups growing quickly amid ample greenfield space. However, because providers and especially payers have lagged in their adoption of APIs, some companies are also building interoperability infrastructure that has limited near-term use cases. This paradox is a result of the complexity of connecting patient journeys across institutions that range from virtual care providers to sprawling health systems to small behavioral health or skilled nursing facilities running legacy practice management systems. While we are bullish on the industry's need for better interoperability—especially given the push toward value-based care—the level of regulatory attention to the space brings material stroke-of-the-pen risk. We also worry about FHIR interoperability startups whose client base indexes heavily on API-native digital health companies, given the dislocation underway in the venture funding market.

Data quality is a key problem in interoperability that is often overlooked: It is not very helpful to exchange incorrect or incomplete data. In general, EHR data quality diminishes as one moves away from academic medical centers and toward safety net hospitals. One of our favorite hidden gems of HIMSS was 4medica, which offers

2: The ONC's Certification Program is important because some healthcare providers can qualify for financial incentives from the Centers for Medicare & Medicaid Services (CMS) by demonstrating "meaningful use" of an ONC-certified vendor, per the 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act.

an MPI to reduce duplicate patient record creation at intake and improve existing EHR data quality from an industry average of 20% duplication to less than 1%. The company provides a FHIR API for integration into patient intake systems, but can also deploy via Health Level 7 (HL7) V2 or even screen scrape if needed, making its product accessible for smaller hospitals.

Select healthcare data interoperability companies

Company	Last deal type	Last deal date	Most recent valuation ($M)	Lead investor/acquirer
Datavant	PE growth	July 28, 2021	$7,000.0	New Mountain Capital et al.
NextGate	Buyout (Add-on)	March 15, 2022	$615.0	Lyniate (Hg Capital)
Health Gorilla	Series C	March 7, 2022	$350.0	SignalFire
Zus Health	Series B	February 22, 2023	$190.0	JAZZ Venture Partners et al.
4medica	N/A	N/A	N/A	N/A

Source: PitchBook • Geography: Global
*As of April 25, 2023

Pockets of resilience in digital behavioral health

Against a backdrop of financial woes for prominent digital behavioral health companies, we were encouraged by several conversations with companies that have landed on more sustainable business models to address the immense need for expanded access to behavioral healthcare.

In digital therapeutics (DTx), the promise of innovative treatment has run up against the reality of limited payer coverage—as underscored by Pear Therapeutics' recent bankruptcy. We believe DTx solutions that are less dependent on net new reimbursement decisions may have a more immediate impact.

In digital therapeutics (DTx), the promise of innovative treatment has run up against the reality of limited payer coverage—as underscored by Pear Therapeutics' recent bankruptcy. We believe DTx solutions that are less dependent on net new reimbursement decisions may have a more immediate impact. At HIMSS, we heard from virtual behavioral health startup Cognoa, which has a virtual diagnostic tool for autism and is developing a companion digital therapeutic. Solving the challenge of diagnosing autism is a key first step because autism diagnoses are often delayed into late childhood.[3] Because many states require insurers to pay for the testing and treatment of autism, offering digital diagnostics along with a digital therapeutic is a logical pairing. Solutions such as Cognoa's that integrate with traditional healthcare services—diagnostic is a tool for specialty and primary care providers—may have lower barriers to adoption because they supplement and enhance, rather than replace. Another autism startup, hybrid autism care provider Cortica, recently raised $75.0 million in a deal led by Optum Ventures. Cortica also offers both diagnostic and treatment solutions, and the company's funding round is a sign of robust investor interest in virtual behavioral health despite market headwinds.

Other digital treatments could be combined with diagnostic tools to create resilient test-to-treat models that generate demand for the digital therapeutic, thus creating less dependency on awareness marketing. Digital therapeutics that can be used in tandem with drug treatments to adjust and optimize medication dosing is another approach for DTx companies that is less reliant on payer coverage decisions. New

3: "Why Autism Diagnoses Are Often Delayed," Child Mind Institute, Caroline Miller, September 16, 2022.

regulatory developments such as the Access to Prescription Digital Therapeutics Act (pending in Congress) could change the paradigm for DTx companies focused solely on virtual treatment solutions. In the meantime, we think DTx that can effectively be paired with other aspects of care, such as diagnostics and drug treatment, could be a beachhead for greater adoption of digital therapeutics in the future.

In more traditional telemental health, Iris Telehealth, which provides virtual psychiatrists to augment health system workforces, is growing quickly and projects it will reach profitability in Q4 2023—allowing the company to look toward opportunistic M&A as market dislocation continues over the next one to two years. Iris Telehealth has steered clear of the crowded payer and employer markets, focusing instead on health systems because of the immense demand for better behavioral health services in-system and reduced per-patient acquisition costs (although sell cycles have lengthened). The company also attracts and retains mental health professionals by avoiding "Uberization" of its workforce: hiring W2 employees and assigning them long term to specific geographies and patient populations that they are interested in working with, thus resulting in better patient care and more satisfied clinicians.

Select virtual behavioral health companies

Company	Last deal type	Last deal date	Most recent valuation ($M)	Lead investor/acquirer
Array Behavioral Care	PE growth	January 9, 2023	N/A	CVS Health Ventures
Cortica	Late-stage VC	April 17, 2023	N/A	Optum Ventures, Deerfield Management
Iris Telehealth	Series B/B-1	April 14, 2022	$190.0	Concord Health Partners, Columbia Pacific Advisors
Blue Note Therapeutics	Series A	September 9, 2021	$133.0	JAZZ Venture Partners
Cognoa	Series B	March 15, 2022	$87.0	Morningside Ventures
Limbix	Series A2	December 7, 2021	$64.0	GSR Ventures
Neuroglee	Series A	September 9, 2021	$54.0	Openspace Ventures

Source: PitchBook • Geography: Global
*As of April 25, 2023