



Digital Health
Highlights

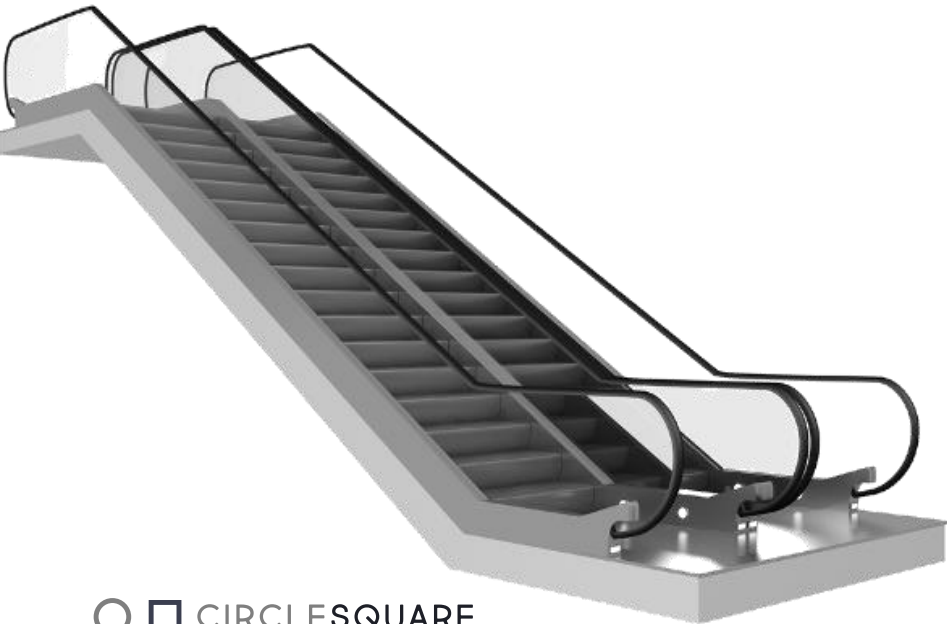
March 2024



INFRASTRUCTURE | INTELLIGENCE | ENGAGEMENT

The Ups and Downs of Digital Health

Digital Health Highlights
March 2024



From the co-editors...

Enterprise EHR Foundation

The technologies that are helping physicians document patient visits are still trending way up. Microsoft's Nuance and Abridge are leading the way. Niche EMR vendors are up this month as KLAS Research confirms that in some markets, for example, EMRs for pediatric practices, the specialty-focused solutions outperform the broad-market solutions.

Healthcare Analytics and Intelligence

Analysis from multiple AI trackers see these three sectors leading the Gen AI market: (1) drug design, (2) EHR documentation and coding, and (3) clinical image analytics. We will be increasing our coverage of health and technology in China. This month we highlight a China national research institute-built chatbot based on Meta's LLM, which can answer doctors' questions with up to 95% accuracy. Transaction trends for the month include population health acquisitions and cognitive assessment for Alzheimer's.

Consumer Health and Technology

Virtual care is up this month as a Rock Health report finds it has become a ubiquitous part of the modern healthcare paradigm. Virta, a virtual personalized nutrition therapy platform, released results of a study that found it to be an effective offramp for patients on GLP-1s. On the flip side, diabetes management apps are down this month via a systematic review that found they do not deliver benefits that justify their cost.

Stakeholders

It was a mixed bag for retail health clinics this month as Fair Health reports that utilization climbed by 202% by 2022. That comes on the heels of a Trilliant Health analysis that finds retailers are encountering obstacles in scaling and integrating acquired primary care entities. In pharma transactions, both AstraZeneca and Novo Nordisk made \$1b+ acquisitions—with AZ inking two north of \$1b.

Michael Lake

*Michael Lake and Dave Lake
Co-editors Digital Health Trends*

About this report, Digital Health Highlights

This report includes excerpts from our monthly corporate subscription service, Digital Health Trends.

We've flagged a handful of stories for this highlights version that we hope you find useful. We also hope you will see the value in having access to the full report, like the awesome companies listed to the right do.

If you'd like pricing information on our subscription services, which would give you and your company access to the full contents of our reporting each month, please email me at: dave.lake@circlesquareinc.com.

Thanks, and enjoy the issue.



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Three niche solutions vie for market share via revenue cycle analytics

Notable transactions in the digital health foundation

Stakeholder Trends

Retail health clinic utilization climbed by 202% by 2022

Retailers are encountering obstacles in scaling and integrating acquired primary care entities

Rx news: Kroger sells specialty Rx biz, Lilly partners with Amazon on D2C effort

A look at the companies hoping for a slice of the weight loss drug gold rush

The top 10 drugs losing US exclusivity in 2024

A pair of AstraZeneca deals lead the month in M&A in stakeholder segments

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Pharma is witnessing a surge in excitement over AI solutions

China's national research institute has built a chatbot based on Meta's LLM which can answer doctors' questions with up to 95% accuracy

AI helps diagnose eye diseases in primary care settings

Top 2023 innovations rated by Fierce Medtech

Should medical imaging solutions build or partner or acquire AI platforms

Notable transactions in health analytics include oncology real world data and analytics, cognitive assessment, population health, and dental AI

Consumer Health and Technology

KLAS offers an early look at standalone patient self-scheduling solutions

EHR-based self-scheduling tools increase engagement, capture revenue

Virtual care has become table-stakes and is here to stay for patients and providers

Study finds telemedicine clinic Virta Health is an effective off-ramp for GLP-1s

Food is medicine facilitated by digital behavior change platforms creates an opportunity for comprehensive obesity treatment

69% of US patients are uncomfortable being diagnosed by AI

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Satisfaction with the UK public health system has hit an all-time low

Coalition aims to provide guidelines for the responsible use of AI in healthcare

Montana ranked as the best state to practice medicine, Hawaii named worst

Healthcare innovation in India is poised to become a \$60b opportunity by 2028

The 10 best hospitals in the world, according to Newsweek

Recent market dynamics in technologies that are helping physicians document patient visits



Meditech embeds Microsoft's Nuance DAX Copilot into its Expanse EHR platform

DAX Copilot integrated in MEDITECH Expanse uses proven conversational, ambient, and generative AI to draft clinical notes during in-person and telehealth patient visits for immediate physician review. DAX Copilot significantly reduces the time and cognitive burdens of clinical documentation that are associated with clinician burnout and enables physicians to focus on delivering personalized care to more patients each day.

More than 200 orgs use DAX Copilot to alleviate clinician burnout and improve patient care.



Epic partners with Microsoft's Nuance DAX Copilot, and Abridge, a startup competitor

Nuance and Microsoft recently announced that DAX Copilot was going to be fully embedded in Epic's Haiku and Hyperdrive to provide Epic users easy access to the DAX copilot solution and more (video below).

[Click here to open a YouTube Video \(23min\) discussing other aspects of the Epic and Microsoft relationship](#)

Epic has also partnered with startup Abridge (\$850m valuation) to co-develop automated medical scribes that record patient exams and help draft the doctor notes in the EHR. 73 Epic customers are using ambient AI tools.



Playback Health partners with Northwell Health to launch AI-driven clinical documentation

Playback Health positions as the lowest cost alternative to market leaders for AI-driven clinical documentation and is partners with HCA. Features include

Time Savings: With Notes, providers can save up to three hours per day on clinical documentation, allowing them to redirect their focus toward patient care and improving overall workflow efficiency.

Precision and Accuracy: The AI-driven feature enhances the accuracy of clinical documentation, reducing errors and ensuring a more comprehensive and reliable patient record.

Adaptability: Notes adapts to various medical specialties, ensuring that healthcare providers across diverse disciplines benefit from its capabilities.

Editorial: The ability to capture information with ambient speech during a patient visit and integrate it directly into an enterprise EHR offers huge savings in physician time and easing emotional burnout. Microsoft's Nuance is leveraging integration into the EHRs of the two dominant market leaders in large systems (Epic) and community hospitals (MEDITECH). Playback Health surprises with two important enterprise customers, HCA and Northwell. Northwell is standardizing its EHRs on Epic. And HCA is a long-time MEDITECH user and a Google partner. Abridge is also an emerging key startup competitor, having raised \$200m+ at a \$850m valuation, and an Epic partnership to compete with Nuance for its 2700 hospital customers. **Nvidia** is an Abridge [research partner](#) and also invests in the company.

Retailers are encountering obstacles in scaling and integrating acquired primary care entities

In terms of scale, it is unlikely that retail and D2C primary care models can scale to meet the needs of every American.

Under a traditional primary care model, the typical panel is 944 patients per primary care provider, versus the patient panel for new primary care entrants averaging 584.

Scaled nationally to the US population of 334 million, the new entrant primary care model would require an additional 218,000 primary care providers to meet the needs of every American under these models.

With CVS's planned addition of up to 60 Oak Street Health clinics this year, it will be informative to measure their success in scaling their value-based primary care operation as compared to Walgreens' initial investments in VillageMD expansion. Similarly, it will be informative to monitor the impact of the closure of VillageMD clinics across "nonstrategic" markets on Walgreens' financial performance for 2024.

The profitability of emerging next gen retail-operated primary care models is contingent upon the sale of ancillary services, notably pharmacy sales.

While adding a fully scaled primary care operation is critical to the closed loop systems these retailers seek, they are facing the same challenges as traditional primary care operators.

Reported information for new primary care entrants compared to US primary care model

	Actual US primary care market	VillageMD	Oak St. Health	one medical	New entrant model applied
Sites of care	--	217	177	221	121,770 <i>(would require under New Entrant Model)</i>
Primary care providers	354,110	1,335	614	967	572,318 <i>(would require under New Entrant Model)</i>
Primary care patients served	334,233,854 <i>(Total Population)</i>	850,000	181,000	796,000	334,233,854 <i>(Total Population)</i>
Patient panel per provider	~944 <i>(Providers/Population)</i>	636	295	823	584

trilliant health Average number of providers per site: 4.7
Average patient panel per provider: 584

Provider deficit: 218,000

Editorial: "Whether retailers can, or even want to, integrate comprehensive services into transactional models," says Trilliant Health's Sanjula Jain, PhD, "is an open question. The transactional nature of most consumer-centric primary care models threatens to commoditize traditional relationship-driven healthcare practices. The more success that large retailers realize from creating closed-loop systems like Apple's app store, the more detrimental to the business models for traditional primary care providers and overall care coordination for Americans." The full report is available via subscription, but an excerpt is available at the link below. **Walmart**, which has 48 Walmart Health centers in five states, said this month it will add 22 new locations in 2024, deepening its presence in Texas while opening new sites in Missouri.

A look at the companies hoping for a slice of the weight loss drug gold rush



Zealand Pharma and **Boehringer Ingelheim** are jointly developing an injectable that mimics the same GLP-1 gut hormone as Wegovy and Zepbound and another hormone—which has produced strong results in mid-stage trials as both an anti-obesity drug and a treatment for fatty liver disease



San Diego-based **Viking Therapeutics** revealed promising data from a mid-stage trial of experimental drug VK2735, which suggested it rivaled—and outperformed—Novo and Lilly drugs when given as a weekly injection; it expects to release early data on an oral version by the end of March



Terns Pharmaceuticals is developing an oral weight loss drug targeting the GLP-1 hormone and expects to release 28-day data on weight loss from an early-stage trial in the second half of 2024



San Francisco startup **Structure Therapeutics** is also working on an oral GLP-1 drug—a larger mid-stage trial is slated to launch this year and a late-stage trial is planned for 2026—which showed promise in a mid-stage trial, though the data underwhelmed investors



Altimmune released promising mid-stage trial results for injectable drug pemvidutide—which is in the same class as Wegovy, Ozempic, Zepbound and Mounjaro—and the firm is actively looking for a global partner to help with late state trials and to help launch the drug

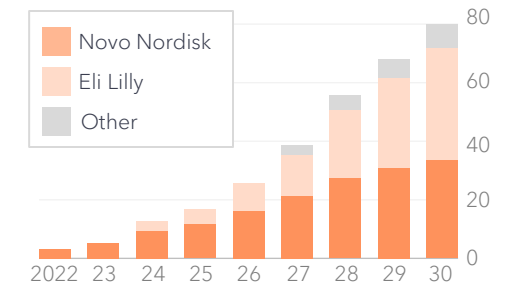


Pfizer scrapped two weight loss pills last year—a once-daily pill, due to elevated liver enzymes and a twice-daily pill, due to strong side effects in a mid-stage trial—but the company is determined to “play and win” in the space, with plans to develop danuglipron as a once-daily formulation to ease side effects



California biotech **Amgen** is hoping for a slice of the market with MariTide, a monthly injection that is taken less frequently than popular weekly treatments and also appears to help some patients maintain weight loss after they stop taking it, a key issue emerging for patients on current treatments

Sales of anti-obesity medicines, \$b



Editorial: It will be years before **Novo Nordisk** and **Eli Lilly** have serious competition for their popular weight loss treatments on pharmacy shelves, however neither are resting on their laurels. Both are refining existing medications and developing next generation drugs to shore up their position in the future. It can take between ten and 20 years to usher a new drug through all three phases of clinical trials and most drugs ultimately fail during clinical testing. Other companies are using M&A rather than R&D in hopes of getting in. **Roche** inked a \$2.7 billion deal for weight loss drug developer **Carmot Therapeutics**, whose once-weekly injection, CT-388, is in the same class as Lilly’s Mounjaro and Zepbound, while **AstraZeneca** paid up to \$2 billion for an experimental pill from Chinese firm **Eccogene**.

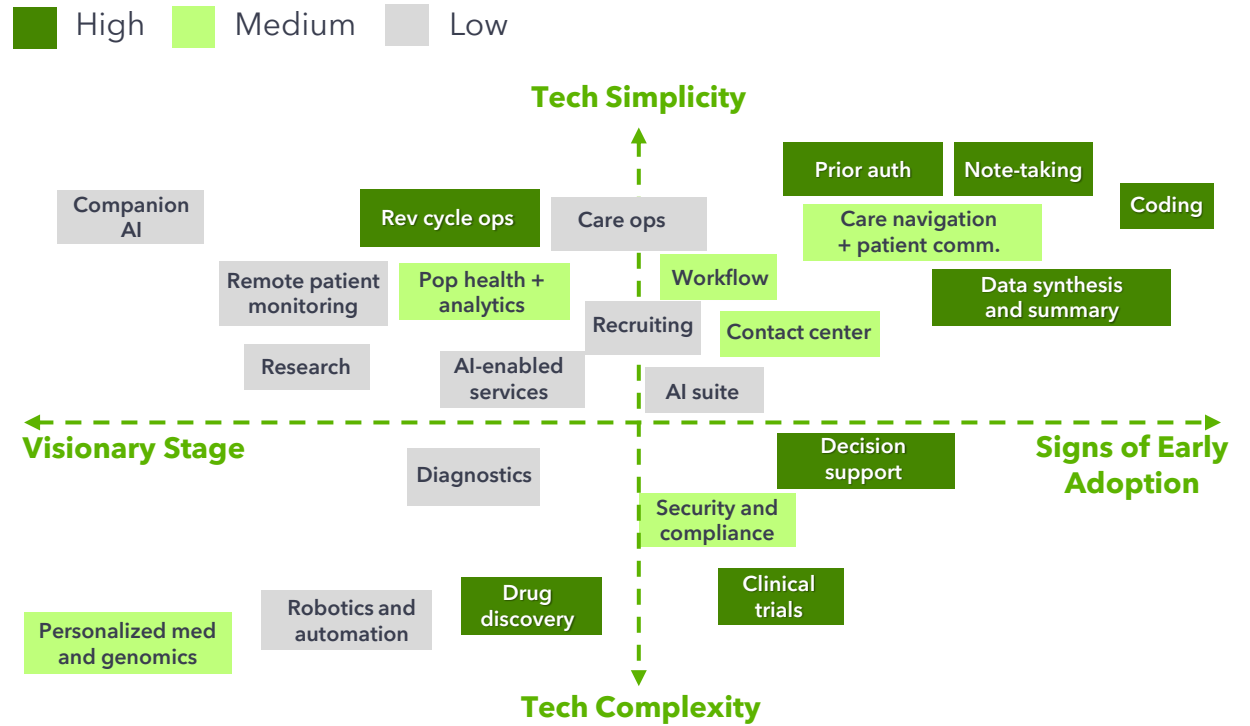
Re-imagining the healthcare delivery journey with generative AI

AI Checkup analysis of the current state

Good News. Dark green represents not just venture dollars, but customer dollars flowing into AI products in the space. We are encouraged by the potential leapfrog technologies that have been built, and, perhaps uniquely, how many of those solutions have been on the provider side, a segment semi-notorious for long sales cycles, endless pilots, and competing stakeholder paralysis. Our current read is that these AI solutions have risen to the top of the prioritization stack because they are solving need-to-have problems and providing ROIs that are measured in months, not years.

Opportunities. On the other hand, much of the 2x2 remains light green and gray. This is not to say that innovation is not happening in these areas; we have met with fantastic entrepreneurs building companies in each of these segments and expect more entrants in these areas. While certainly possible we have missed a breakout company or two in these areas (if so, please reach out!), our observations are that the customer traction is trailing that of the green segments. And in the gray areas, our view is that the best innovation is yet to come.

Current areas of AI investment and revenues



Editorial: Authors Nick Chedid, MD, Ambar Bhattacharyya, and Justin Norden, MD publish a comprehensive analysis of the current moment in healthcare AI. The overview 2X2 tracks venture capital investment and also customer spend. Their detailed analysis uses a three-section journey model: (1) pre-hospital care, (2) inpatient care, (3) post-hospital care. This article focuses on pre-hospital outpatient care are the areas of pre-visit planning, intra-visit workflows, referrals, and patient panel management (asynchronous care).

EHR-based self-scheduling tools increase engagement, capture revenue

The study, published in JMIR, evaluated an electronic health record (EHR)-based self-scheduling tool, Fast Pass, at UCSF to understand the impacts on the ability to fill cancelled appointment slots, patient access to earlier appointments, and revenue from visits that may otherwise have gone unscheduled.

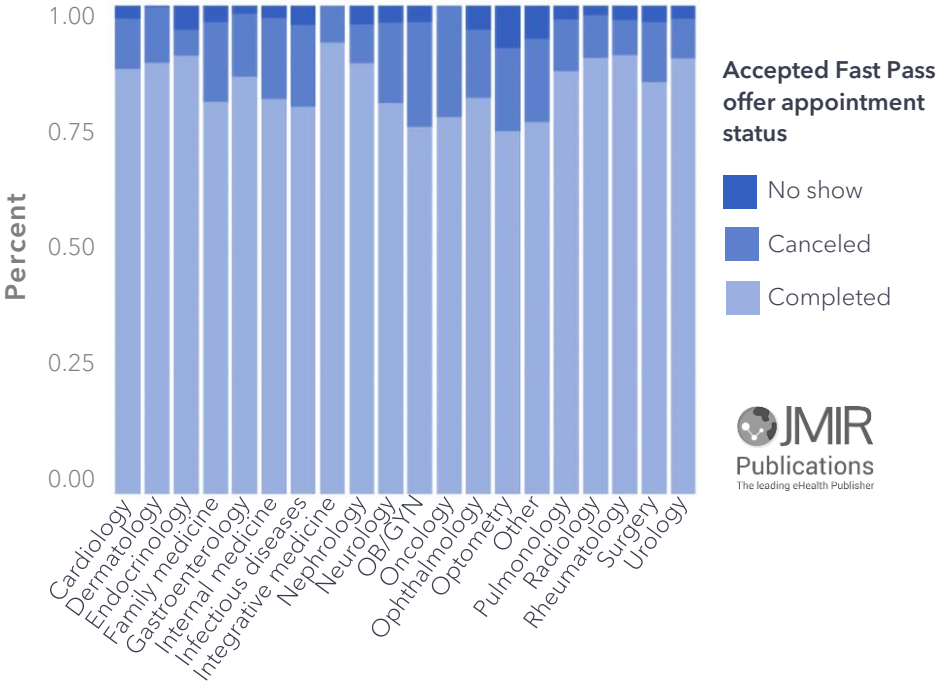
To use Fast Pass, a patient opts into the program through their patient portal and elects to receive notifications through email, text, or both regarding earlier appointment slots as they become available. Fast Pass offers are sent in batches in the evening to multiple patients for a single appointment slot, and patients have 12 hours to sign up for the earlier slot, after which the offer expires.

The overall completed appointment rate from the Fast Pass offer was 84.2%. Patients were seen a median of 14 days before their originally scheduled appointment and represented \$3 million in professional fees across the nine-month study.

Rheumatology, endocrinology, and nephrology had the highest rates of completed appointments using Fast Pass offers, while optometry, obstetrics and gynecology, and infectious diseases had the lowest percentage. *See chart at right.*

While the tool afforded patients the opportunity for an earlier appointment and provided the opportunity to capture revenue from cancelled appointments, the patients accepting the offers were more likely to be older, male, and English-speaking, suggesting that these digital tools could exacerbate inequities in access.

Outcomes of accepted Fast Pass offers: no show, canceled, and completed



Editorial: As an existing module within the Epic EHR, included as part of the MyChart patient portal, there was limited integration necessary for Fast Pass, as would be required with a third-party vendor. While the Fast Pass tool had previously been available through Epic, there had been no enterprise-wide implementation effort at UCSF to facilitate its use. UCSF Health is a large academic health system with three campuses, over 1000 inpatient beds, and nine primary care practices serving approximately 90,000 patients.

Diabetes management apps do not deliver benefits that justify their cost

A systematic review by the Peterson Health Technology Institute found that digital tools used to manage diabetes with the help of finger-stick blood glucose readings don't result in clinically meaningful improvements over standard care. Rather, they don't reduce healthcare spending — they drive it up.

Despite finding that some populations may benefit, the report concludes that current evidence doesn't support broader adoption for most products.

The report examined products from eight companies, which it separated into three buckets. The biggest included companies like **Livongo** and **Omada**, which provide app-based automated and human support for lifestyle changes. **Glooko** uses remote patient monitoring to help physicians track blood glucose between visits, while **Virta** focuses on glucose tracking to support nutritional ketosis.

Most of these interventions did provide some improvement in blood glucose levels for patients with diabetes compared to typical care but did not meet a clinically-meaningful threshold.

The report recommends that purchasers interested in adopting digital solutions for managing diabetes ask companies to guarantee results and show data backing it up.

Ratings for digital diabetes management systems

- Positive
- Moderate
- Negative
- Higher evidence certainty
- Lower evidence certainty

	Clinical effectiveness	Economic impact	Summary rating
Remote Patient Monitoring Glooko	● Results: Small but meaningful reduction in HbA1c Evidence certainty: Higher	● Net increase in spending —current provider reimbursement exceeds cost savings from avoided care	● Current evidence does not support broader adoption
Behavior and Lifestyle Modification DarioHealth, Omada, Perry Health, Livongo, OnDuo, Vida	● Results: Small but meaningful reduction in HbA1c Evidence certainty: Higher	● Net increase in spending —current solution pricing exceeds cost savings from avoided care	● Current evidence does not support broader adoption
Nutritional Ketosis Virta	 Results: Clinically meaningful reduction in HbA1c sufficient to achieve remission in some patients Evidence certainty: Higher	● Initial net increase in spending with potential for long-term savings	● Evidence supports broader adoption with ongoing evidence generation

Editorial: The assessment is the first out of the Peterson Health Technology Institute, a nonprofit launched last July with the goal of independently evaluating costs and clinical outcomes for digital health products. While the research proposed several valid points for payers to pay attention to, [Research2Guidance argues](#) that the assessment has several limitations. As noted by the DTx Alliance, the study relies on small sample size and predictive models for cost savings, disregarding readily available real-world evidence. The report also lacks rigorous analysis of the long-term cost savings of digital diabetes solutions. These solutions typically take a holistic approach to metabolic and cardiovascular health, to adopt and sustain healthy behaviors to continuously decrease HbA1C levels.

Why the tech industry won't disrupt healthcare

To remain financially viable and thrive in an era that is more demanding of those who deliver care, health systems need to follow a playbook like that used by successful incumbents in industries like banking: leverage their historic strengths while adopting new technologies and modifying their business models to take full advantage of these innovations.

The superpower of incumbency

Fragmentation and complexity: It's the rare new entrant that can navigate the thicket of entrenched relationships in healthcare, let alone change it significantly.

Ambiguous business model: Healthcare delivery occupies a gray area: part profit-making industry, part charity. This ambiguity is not a natural fit with the profit-machine aspirations of tech innovators.

Local brand loyalty: Many health systems have strong local brands dating back decades or even centuries. They are often an area's largest employer as well. Trying to pry patients away from their trusted local provider may be more trouble than it's worth.

Time: It takes years to prove the effectiveness of innovations in medical practices to medical boards and professional associations that determine the standard of care. While digital innovators are steeped in being fast moving, the leisurely pace of change is well understood and accepted in most health systems.

Experience with transformation: Although the industry may seem stodgy, providers have had to transform themselves with some regularity.

How to succeed

Tech partnerships: Several health systems have formed wide-ranging and deep technology partnerships with EHR companies and tech giants like Apple, Google, and Microsoft. These have yielded potentially transformative new applications of AI, big data, and remote patient monitoring.

Digital health innovation programs: Health systems can invest in digital health companies and incubate their own digital innovators. The startups get funding, management assistance, the system's clinical expertise, and its facilities as a testbed. The health systems get first dibs on the technology and can influence its direction.

Partnership with a digital foundation: Partnerships between health systems and big chain retailers that use a common information-sharing platform can provide continuity to each patient's information. Retailers attract store traffic with basic services, health systems get referrals for advanced diagnosis and treatment, and patients can count on all of their providers having the information needed to take care of them properly.

Consortia: Health systems have come together to form consortia to work with digital startups to develop and implement new applications.

Editorial: Although healthcare in the US appears to be ripe for disruption, Harvard Business Review argues that the winners will be health systems that team up with digital tech companies. Health systems cannot afford to ignore digital advances. Even though most banking has moved online, the average large bank is 138 years old. Walmart, the world's largest brick-and-mortar retailer, is also the second-largest online retailer. Healthcare providers are really good at care. Tech companies are really good at tech. They need each other to meld the two into what's sometimes called "phygital" care: the blending of the physical and the digital.

Companies mentioned in the full report

Abbott	Biocon	CVS	Handsprint	Linus Health	Novo Nordisk	Radiology Partners	TAO Connect
Abbvie	Biogen	DarioHealth	Health Dialog	Livongo	Nuance	Rakuten Medical	Tava Health
Abridge	BioReference	DeepLife	Healthee	Lonza	Nuralogix	RecoveryOne	Tebra
Absci	blockit	DeepScribe	HealthifyMe	Lumeris	Nvidia	Redi Health	Tempus
Actavis	BlossomHill	Dexcom	Healthwise	Lunit	Oak Street Health	Regard	Terns Pharmaceuticals
Activ Surgical	Boehringer Ingelheim	Dialogue	Healthy Together	Lupin	Oasis Health Partners	Relatient	Teva
AdvancedMD	Bone Health Tech.	Dr. Reddy's Laboratories	HeartFlow	Mahana	Oath Care	Relation Therapeutics	THB
agilon health	BrainCheck	Eccogene	HelloBetter	Main Street Health	Office Practicum	Remo Health	The CareVoice
Aktiia	Brightside Health	eClinicalWorks	HiLabs	Mainstay Medical	Omada	Renee	Tibulis
Alamar Biosciences	Bristol Myers Squibb	eCW	Hippocratic AI	MapHabit	OmnigenicsAI	Retrace	Tiny Health
Alebmic	Cala Health	Elation	Homethrive	MedeAnalytics	On Belay Health Solutions	Reverie Labs	Together Senior Health
Aledade	Capital Rx	Element Biosciences	Honest Medical Group	Medikabazaar	OnDuo	RevSpring	TWI Pharma
Alkem	Capstan Therapeutics	Elevance Health	Huawei	MEDITECH	One Medical	Rhapsody Health	Ubie
Altimune	Cara Care	Eli Lilly	Humana	Merck	Oracle Health	Rippl Care	UCB
Alumis	Cardior	Emflaza	IBM	Meta	Oreanon	Rite Aid	Ultrahuman
Amazon	CareCloud	Empathy	iFeel	Microsoft	Overjet	Roche	UnitedHealth Group
Amgen	CareMax	Enable Injections	IMO	Milu Health	Owkin	Roshal Health	Unlearn
Amolyt Pharma	Carenet Health	Engrail	Innovaccer	MindMaze	P3 Health Partners	SandboxAQ	UpLift
Anima	Carlsmed	Epic	Insilico Medicine	Mirador Therapeutics	Pair Team	Sandoz	UpStream Health
Apotex	Carmot Therapeutics	Equality Health	InstaDeep	Mission Therapeutics	Path AI	Segmed	Viatrix
Aqemia	Causaly	Eris	InStride Health	Modern Age	Pearl Health	Sionna Therapeutics	Vida
Arcadia	Centene	Exo	IOMED	Molecule.one	Pelago	Societal CDMO	Viking Therapeutics
Arkos Health	Cerebral	Eyenuk	Johnson & Johnson	Moxe Health	Perry Health	Solv	VillageMD
Asgard Therapeutics	Chamber Cardio	Fijoya	Karius	mPATH Health	Pfizer	Sonde Health	VIM
Astellas	ChenMed	FinThrive	Kenai Therapeutics	MultiPLAI	Pharmacy Quality Sol.	Sooma	Virta
Astrana Health	Ciba Health	Float Health	Kinsa	Nabla	PharmEasy	Stellar Health	VisiQuate
AstraZeneca	Cigna	FogPharma	Kinto	Nalu Medical	Pieces	Structure Therapeutics	Vytalize Health
athenahealth	Clasp Therapeutics	Foundation Health	Kismet	Namida Lab	Playbook Health	Subtle Medical	Walmart
Atropos Health	CodaMetrix	Frazier Healthcare	Koble	NanoString	PocketHealth	Sugar.Fit	WebMD
Aural Analytics	CodaMetrix	Fusion Pharma	Kroger	Navina	Powerful Medical	Suhona AI	Wellvana
Aurobindo	Cognito Therapeutics	Genentech	Kyruus Health	Nebraska Medicine	Preemptive AI	Suki	Woebot Health
Avenzo Therapeutics	CoreRx	Genesys Therapeutics	Labcorp	Neighbourly Pharmacy	Prime Therapeutics	Supernus	Yseop
Bausch + Lomb	Corti	GenHealth AI	Landos Biopharma	Neurotrack	Privia	Synapticure	Yuvo Health
Beta Bionics	Covera Health	Glass Health	Legends	NextGen	Procyron	Syntegra	Zealand Pharma
Better Therapeutics	CSL	Glooko	Lightfully	Noah Medical	Proprio	Syntheticus	Zephyr AI
Betterdata	Cure51	Google	Limbic	Nocion Therapeutics	ProteinQure	Syntho	Zocdoc
Biobot Surgical	Cureskin	Greenway Health	Linus Biotechnology	Nourish	Qureight	Tali AI	