

HealthData Management

With value-based care upending traditional incentives, health plans are taking aim at the demographic factors that influence members' health

SOCIAL STUDIES

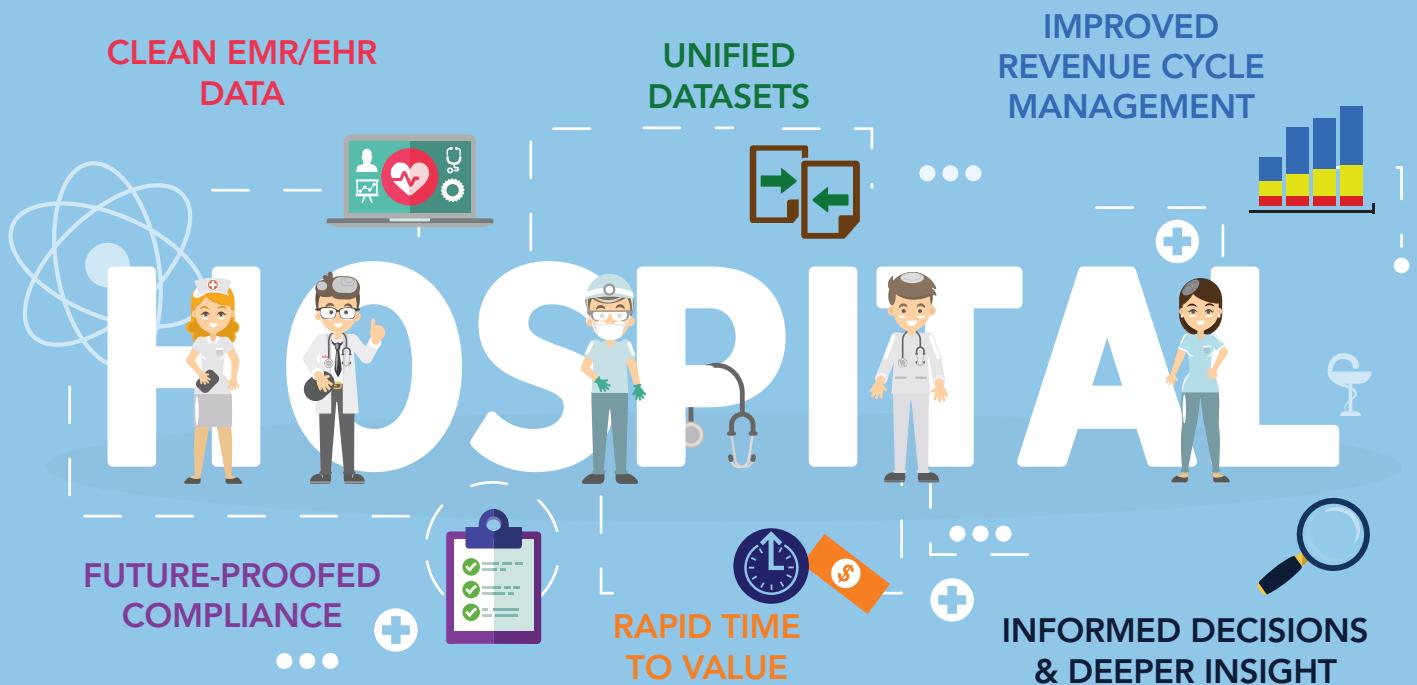


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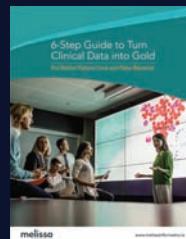
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Contents

9



9

Social studies

With value-based care upending traditional incentives, health plans now are taking aim at the demographic factors that influence members' health. Widely known as social determinants of health, factors such as access to transportation, healthy food and lifestyle choices, and social support, are known to play important roles in optimizing members' health. Improving these factors will help reduce plans' overall costs.

Features

12

Data governance and AI

Ensuring the quality of data is crucial if artificial intelligence is to be trusted.

BY GIENNA SHAW

16

Decision support grows up

Systems use more data to provide better guidance on care options.

BY LINDA WILSON

19

The impact of changing EHRs

Cost, complexity are often underestimated.

BY JOSEPH GOEDERT

22

When the lights go out

Power outages can wreak havoc on IT.

BY JOSEPH GOEDERT



12



16

Editor's View

2

Quest for value impacts plans

Payers are starting to pay more attention to the social factors that influence members' health.

BY FRED BAZZOLI

Newsline

4

Breaches face review

A business associate of Quest Diagnostics and LabCorp may have played a role in leaking information on 20 million patients.

BY GREG SLABODKIN

5

Docs buried in EHR messages

The volume of these messages in physicians' inboxes may be causing burnout.

BY JOSEPH GOEDERT

5

SDOH data bill proposed

Several health organizations show support.

BY GREG SLABODKIN

Washington Report

7

IT an antidote to health disparities

Research suggests data can level the field.

BY GREG SLABODKIN

8

Questions surround military EHR

Members of Congress are growing impatient with the slow progress on records projects of the Department of Defense and VA.

BY GREG SLABODKIN

Executive Session

24

Protecting data for care

Erik Decker shares the challenge of protecting data in an academic medical center.

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Editor's View

Quest for value impacts plans

Rising attention on social determinants of health will require new uses for information technology.



Evidence is growing that value-based care is beginning to change the incentives of the U.S. healthcare system.

Providers are jumping on board the value-based care express. The Centers for Medicare and Medicaid Services recently reported that provider participation rates and success in its Quality Payment Program increased from 2017 to 2018. In addition, payers are shifting their attention

to the value of care that their members get. Rather than just paying claims after members need care, health plans are beginning to pay more attention to factors that affect members' health.

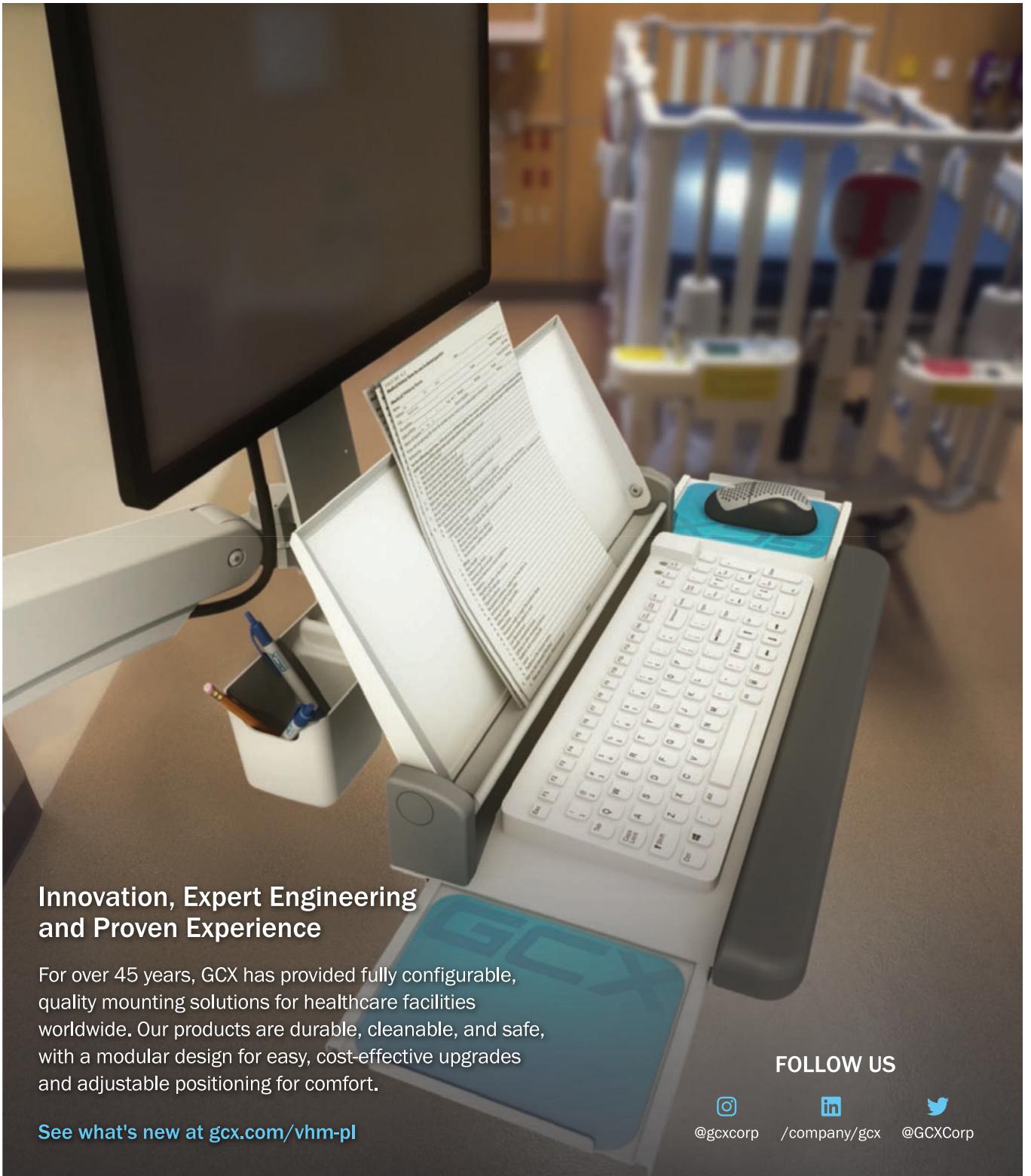
Health plans are seeking ways to impact social determinants of health (SDOH)—such as access to health services, social support, healthy behaviors and physical environment—to head off members' health problems and to get to root causes of health conditions that, if left unaddressed, can lead to expensive care down the road.

But health plans' early efforts in SDOH have proven challenging. In part, it's a big widening of their mission, moving beyond just shuffling claims and payments around to influencing factors that impact health. That portends major expansion in their use of information technology to analyze population health and other data to optimize interventions with members.

Additionally, health information exchange will need a boost. Health plans will need to integrate data from a variety of sources—social service agencies, federal and state agencies, and others—to better assess members' needs.

As providers and health plans begin to look upstream at those factors that affect care, doing so effectively will be difficult. Using IT to empower evidence-based research that brings value to the entire healthcare continuum will be an important component of truly bringing value to healthcare.

—Fred Bazzoli



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Quest, LabCorp breaches face review

Cyberattack on business associate puts the records of 20 million patients at risk

By Greg Slabodkin

Attorneys general from three states are pledging investigations of the breach at American Medical Collection Agency, believed to have exposed personal information of 20 million patients.

Attorneys General Dana Nessel of Michigan, Kwame Raoul of Illinois and William Tong of Connecticut are investigating the data breach at AMCA, which affected the data of nearly 12 million patients of Quest Diagnostics and 7.7 million patients of Laboratory Corporation of America (LabCorp).

The state officials have issued letters to AMCA, Quest and LabCorp requesting additional information about the incident. The breach resulted from mali-

cious activity on the payment page of AMCA's website. AMCA is a collection vendor for the testing companies.

"This data breach is yet another example of how fragile our information infrastructure is and how vulnerable all of us are to cyber hacking," says Nessel. "In Michigan, we continue to rely on media reports that alert us to these situations because ... we have no law on the books that requires our office to be notified when a breach occurs."

"It is important to determine the cause of this serious data breach and what steps these companies are taking to ensure this does not happen again," Tong says.

Members of Congress also are asking questions as Senators Bob Menendez (D-N.J.), Cory Booker (D-N.J.) and Mark Warner (D-Va.) have contacted Quest and LabCorp to get more information on their security practices.

"The months-long leak leaves sensitive personal information vulnerable in the hands of criminal enterprises," Menendez and Booker wrote to Quest. "Moreover, such breaches force victims to contend with identity theft that may lead to irreparable harm to their credit reports and financial futures, and to confront the real possibility that their confidential medical information and history has been exposed." □

PHYSICIAN PRACTICES

EHR messages burying docs

New published research shows a link between physicians' well-being and the volume of messages that come in their inbox.

Inbox messages generated by electronic health records systems accounted for nearly half of weekly messages received per physician, far exceeding the number of messages received from colleagues and patients, which further contributes to burnout.

The EHR potentially creates a 24/7 work environment for physicians, according to Ming Tai-Seale, a professor at University of California San Diego, along with colleagues who have published an article in *Health Affairs* on the onslaught of information that currently bedevils clinicians.

"Its impact on physicians' wellness has become a challenge for most healthcare

delivery organizations," she notes. "Understanding the relationships between physicians' well-being and 'desktop medicine' work in the EHR and work environment is critical if burnout is to be addressed more effectively."

In a survey, 36 percent of responding physicians reported burnout symptoms, and 29 percent intended to reduce their clinical work time during the next year.

For all physicians, "meaningful redesign of EHR in-basket workflow and a wellness-enhancing work environment are necessary to effectively improve physicians' well-being," researchers caution. Only 12 percent of respondent doctors deemed the statement "physicians are highly valued" to be completely true regarding conditions in their primary care settings.

—Joseph Goedert

Vendors join to boost telehealth

American Well and Cisco Systems are collaborating to extend care delivery from hospitals and health systems into the homes of elderly patients.

The goal of the initiative could ultimately result in the conversion of in-home television sets into a telehealth consultation.

"Telehealth is quickly becoming an effective way for getting access to urgent care," says Roy Schoenberg, MD, CEO at American Well, a telehealth vendor. "While this revolution continues, a new breed of telehealth is emerging. This one will go the other way, empowering doctors and nurses to use telehealth technology to knock on our door and visit us at home regularly."

VALUE-BASED CARE

SDOH data bill gets boost

A coalition of healthcare organizations is backing legislation to promote the capturing of social determinants of health data for Medicare and Medicaid beneficiaries.

Aligning for Health, which includes Anthem, the American Hospital Association, the BlueCross BlueShield Association, Humana and UPMC, supports the Utilizing National Data, Effectively Reforming Standards and Tools, to Address Negative Determinates of Health (UNDERSTAND) Act.

Introduced last month by Senators Rob Portman (R-Ohio) and Bob Casey (D-Pa.), the bill is meant to provide Congress with needed information to better inform future legislation.

"We agree that encouraging providers to screen for and identify non-health factors that may contribute to wellbeing will help to enable more holistic and well-informed care," states the coalition's letter to Casey and Portman. "Addi-

tionally, the collection of such data at the federal level will help to illuminate healthcare disparities in the Medicare and Medicaid population, providing actionable data to policymakers to better target resources and support."

If the UNDERSTAND Act becomes law, it will require healthcare providers to submit ICD-10 Z-codes or "stress codes" to the Department of Health and Human Services when treating a Medicare or Medicaid beneficiary. The legislation also would require HHS to evaluate the reported information and to provide aggregate findings and trends from the data.

"The UNDERSTAND Act is the first step to learning more about social determinants of health so that we can find solutions to improve health care access and life outcomes for underserved communities," Casey said in a written statement.—Greg Slabodkin

ARTIFICIAL INTELLIGENCE

Pilot to test AI in radiology

An initiative that aims to demonstrate the feasibility of creating investigational artificial intelligence models from image data is taking another step forward in testing.

Radiologists from seven healthcare organizations will be using the ACR AI-LAB to further use of the approach to create models from image data without using a programming language.

In this next phase, an AI model developed at one institution can be evaluated and optimized at each of the seven organizations, enabling them to fine-tune a model for their own investigational use.

The project is significant because it seeks to demonstrate the feasibility of enabling organizations to develop high-quality algorithms that address local clinical needs. The ability to enable such optimization is critical to facilitating

commercial use of algorithms.

The pilot, which originally included Massachusetts General Hospital and The Ohio State University, now also includes Lahey Hospital and Medical Center, Emory University, The University of Washington, the University of California San Francisco and Brigham and Women's Hospital.

The American College of Radiology is playing a lead role in the research, offering AI-LAB, a free software platform that will be made available to its more than 38,000 members and other radiology professionals. The combined capabilities will enable radiologists to build, share, locally adapt and validate AI algorithms.

ACR is collaborating with NVIDIA to extend the use of artificial intelligence for diagnostic radiology.—*Fred Bazzoli*

Broadband eyed for vets

The lack of broadband access in rural areas is a major barrier to more veterans leveraging telehealth services. The Department of Veterans Affairs and Microsoft are trying to change that. The VA and the tech giant are working together to extend broadband internet connectivity to underserved rural veteran communities, enabling them to take advantage of online services and benefits such as telemedicine.

"This partnership will serve a particularly vulnerable population of veterans," said VA Secretary Robert Wilkie in a written statement. "Millions of people in the U.S., including many of the 4.7 million veterans living in rural areas, lack the broadband internet connection necessary to access opportunities to learn, work, access information and communicate."

TELEMEDICINE

Gift aids telehealth center

Philanthropists Rita E. and Gustave M. Hauser have donated more than \$50 million to help launch a center for comprehensive telehealth services at NewYork-Presbyterian Hospital.

Part of the mission of the new Hauser Institute for Health Innovation will be to expand telemedicine services into the communities served by the nonprofit academic medical center in New York, including advancing remote patient monitoring and "teleparamedics."

Thanks to financial support from the Hausers, NewYork-Presbyterian previously created NYP OnDemand—a suite of telemedicine services provided in collaboration with Weill Cornell Medicine and Columbia University Irving Medical Center—that now includes more than 46 programs.

The suite of NYP OnDemand services includes Express Care, which provides video visits with a board-certified emergency medicine physician

from Weill Cornell and Columbia from a private room, as well as virtual urgent care which provides patients with real-time video access to a doctor seven days a week via a smartphone, tablet or computer.

Support from the Hausers has also funded NewYork-Presbyterian's fleet of Mobile Stroke Treatment Units, emergency vehicles equipped with telemedicine technology, to enable NYP neurologists to be consulted remotely when time is of the essence in treating stroke patients.

"We believe in the importance of harnessing technology to improve people's lives, and we are delighted to support NewYork-Presbyterian's efforts to expand access to their world-class care," said Rita Hauser. "NewYork-Presbyterian is using advanced technologies to fundamentally change the way that healthcare is provided, making it more convenient and accessible to all."—*Greg Slabodkin*



IT seen to solve health disparities

NIH says technology can limit differences in delivery and healthcare outcomes

By Greg Slabodkin

Health information technology remains an untapped opportunity with great promise for reducing disparities in healthcare delivery and outcomes in the clinical environment, according to 12 original research papers and five editorials and commentaries published in the journal *Medical Care*.

The supplement, supported with funding from the National Institute on Minority Health and Health Disparities, is based in part on presentations made at an NIMHD-funded workshop in collaboration with the National Science Foundation and the National Health IT Collaborative for the Underserved.

"Health IT tools such as EHRs,

patient portals, patient-monitored health behaviors and clinical decision support (CDS) systems may yield population health benefits for underserved populations by enhancing patient engagement, improving implementation of clinical guidelines, promoting patient safety and reducing adverse outcomes," according to an editorial by NIMHD Director Eliseo Pérez-Stable, MD, with NIMHD Health Scientist Administrator Beda Jean-Francois and NIMHD Chief of Staff Courtney Ferrell Aklin.

The authors contend that "EHRs should provide a platform for improved documentation of social determinants

of health using standardized terminology and methods of ascertainment," while the "availability of real-time actionable patient data, clinical care coordination and decision support enabled by health IT tools may also reduce disparities in quality of care for underserved populations."

For example, an observational study published in the *Medical Care* supplement shows how an EHR-based model—developed by researchers at Boston Medical Center—was able to gather social determinants of health information to screen primary care patients for unmet needs, according to researchers. □

ELECTRONIC HEALTH RECORDS

DoD-VA plan hits snags

As the Departments of Defense and Veterans Affairs continue to develop a joint governance strategy to implement a shared electronic health record system, members of Congress are growing impatient with the lack of progress.

John Windom, executive director of the VA's Office of EHR Modernization, told a House subcommittee that the two agencies are establishing the Federal Electronic Health Record Modernization (FEHRM) program office that will be responsible for "effectively adjudicating functional, technical and programmatic decisions" to support an integrated EHR solution.

Lauren Thompson, director of the DoD-VA Interagency Program Office, said FEHRM is a "single point of authority" and a "centralized structure for interagency decisions related to EHR modernization (to) ensure the single,

seamlessly integrated EHR is implemented with minimal risk to cost, performance and schedule."

However, lawmakers are concerned that the creation of FEHRM is taking too long and that the organization is not at a point in its development where it can operate effectively.

"We are at a moment when critical decisions must be made to advance the implementation," said Susie Lee (D-Nev.), chair of the House Veterans' Affairs subcommittee on technology modernization. "We're doing so without a fully functioning joint governance structure."

Lee noted that the VA's first go-live for its initial Cerner EHR rollout is slated for March 2020. "Based on the timeline for implementation, it appears that it will come too late (for the FEHRM) to address the critical decisions that must be made now."—*Greg Slabodkin*

Bill to give patients data access

Recently introduced legislation in the U.S. Senate would give patients more control over their own health data by shielding it from third-party companies.

The rising use of home genetic testing kits and health data tracking apps has given companies access to consumer health data, and present laws do not adequately address privacy concerns as consumers adopt health apps and wearable devices, says the two senators who have introduced legislation to seek protection for patient data.

New technologies have made it easier for people to monitor their health, but they also give companies access to the data with limited oversight, says Sen. Amy Klobuchar (D-Minn.), who introduced the Protecting Personal Health Data Act with Sen. Lisa Murkowski, (R-Alaska).

ARTIFICIAL INTELLIGENCE

Panel hears AI concerns

With the adoption of artificial intelligence by industries including healthcare, critics contend the technology has inherent and potentially harmful problems.

Rashida Richardson, director of policy research at New York University's AI Now Institute, told a Senate subcommittee recently that the use of recommendation algorithms, predictive analytics and inferential systems is rapidly expanding and that it requires immediate attention and action by Congress.

"Though these technologies affect every American, they are primarily developed and deployed by a few powerful companies, and therefore shaped by these companies' incentives, values and interests," Richardson testified.

"These companies have demonstrated limited insight into whether their products will harm consumers and even less experience in mitigating those harms," Richardson added. "So while

most technology companies promise that their products will lead to broad societal benefits, there is little evidence to support these claims. In fact, mounting evidence is pointing to the contrary."

Richardson pointed to IBM's Watson Health cognitive computing capabilities, which have been developed to help determine the best treatment options for patients.

In particular, Watson is meant to help clinicians quickly sift through big data and provide them with insights on cancer-causing mutations.

She told lawmakers that potential harms to consumers from AI systems arise from risks that current laws and incentive structures fail to adequately address, including the use of "black box" technologies that prevent public transparency, accountability and oversight.

—*Greg Slabodkin*

SOCIAL STUDIES

With value-based care upending traditional incentives, health plans are taking aim at the demographic factors that influence members' health

By Fred Bazzoli



In the midst of metropolitan Minneapolis-St. Paul, surrounded by the rich farmland of the Midwest, lurks a food desert, believed to be the fifth largest in the U.S. Metro residents lack access to adequate and inexpensive supplies of fresh fruit, vegetables and other “whole” foods.

That leads to poor eating habits, particularly for those prone to chronic health conditions, such as diabetes. These populations also are likely to delay treatment and consume more healthcare resources.

These problems weren't of immediate concern to health plans—until

recently. More insurers are covering lives of those on Medicare and Medicaid, and taking on more risk in the process. Minnesota plans saw the linkages between poor nutrition and poor health, and began to look for ways to bring better food to the area.

One initiative pairs UCare—an independent, not-for-profit health plan—with the Amherst H. Wilder Foundation, a not-for-profit organization in St. Paul, to create the Twin Cities Mobile Market.

The program took two retired metro buses, stocked them with food it bought at cost from a grocery store

chain in the area, and developed a grocery store on wheels program to bring food into the area. The organizations identified 24 locations in the metropolitan area for the buses to sell food, and last year serviced 18,000 residents in the community. UCare is a partner in Twin Cities Mobile Market.

This is just one example of how health plans are paying attention to many factors now understood to impact health. Widely known as social determinants of health—crucial keys such as access to transportation and food, isolation and loneliness, lack of

Social determinants

family or caregiver support—these factors are believed to impact as much as 80 percent of a person's health, far more important than care delivered after illness occurs.

Under value-based care arrangements, health plans now are taking on more risk for members' overall health and care costs, and that's why social determinants of health (SDOH) has become a top-line concern for insurers. And making an impact on these determinants will depend on health plans ramping up their use of information technology, such as analyzing claims, integrating sources of data and delivering less expensive care alternatives.

It's not just insurers who have gotten religion on SDOH. Healthcare providers are taking notice, and the population of the U.S. more broadly is beginning to grasp how factors other than hands-on healthcare lead to better health.

One-third of Americans are grappling with stress tied to meeting their basic human needs, such as stable housing, adequate food and reliable transportation, according to the results of a new national survey from Kaiser Permanente released in June. The survey, *Social Needs in America*, also found that Americans overwhelmingly want healthcare organizations to be involved in identifying and addressing these nonmedical social needs.

The survey findings reveal that Americans are experiencing unmet social needs at significant rates. In fact, 68 percent of Americans surveyed reported they experienced at least one unmet social need in the past year. More than a quarter of those surveyed said that an unmet social need was a barrier to health, with 21 percent prioritizing paying for food or rent over seeing a doctor or getting a medication.

"At Kaiser Permanente we think holistically about health, which includes medical care and other factors like access to food, transportation, and housing," said Kaiser Permanente Chairman and CEO Bernard J. Tyson. "By helping close the gap on social needs, we have an opportunity to advance the health of communities across the country and safeguard everyone's right to thrive."

That message hasn't been lost on other health plans. At the recent annual conference of America's Health Insurance Plans (AHIP) this past June, the impact of SDOH was front and center at nearly every educational session or vendor meeting.

Beyond that, AHIP is starting an initiative intended to gather and enable the sharing of approaches that address these social barriers to health and long-term well-being. The program, called Project Link, "aims to make these efforts scalable, sustainable and measurable, with the hope to diminish long-term costs," said Matt Eyles, president and CEO of AHIP.

A 2018 survey by Change Healthcare found that 80 percent of health insurance plans now integrate social determinant initiatives into their programs. It's a chief reason AHIP's board of directors has tasked the organization with focusing on addressing social barriers "as an essential part of the industry's long-term vision for improved health and financial security for everyone the industry serves," according to an announcement on the program.

Project Link is essential to the effort, says Rashi Venkataraman, executive director of prevention and population health for AHIP. SDOH initiatives that health plans have executed show the need for personalized approaches to overcome barriers to care. "There is no

one-size-fits-all approach that will work for all health insurance plans," she added.

For example, CareMore Health, a Cerritos, Calif.-based organization, has started a Togetherness program for more than 1,100 patients whose clinical records suggest that they are socially isolated, said Robin Caruso, a licensed social worker and chief togetherness officer. Social isolation and loneliness have been demonstrated as having negative impacts on health, and the CareMore program uses care managers to intentionally reach out to those patients and get them connected to healthcare, as well as the community at large, Caruso said.

Caring for members

The broad interest in SDOH from a wide variety of health plans seems to run counter to the belief that health insurers haven't cared about initiatives that would bring long-term improvements to the health of members, because those members might be in different plans by the time their health improved, and so a health plan wouldn't derive benefits from investments in members' long-term health.

However, the current reality of healthcare has changed all that. For some health plan member segments, plan switching rarely occurs, such as for populations in Medicare Advantage plans or those who are Medicaid dual eligible. Health plans are upping services to employer groups, working hard to retain contracts. The name of the game is getting and keeping members. In these scenarios, it pays to pay attention to factors that demonstrably impact health over the long term.

Payers are working with providers to better incorporate SDOH into care. One project pairs the American Medical

Association, the nation's largest physician organization, with Minnetonka, Minn.-based UnitedHealthcare, part of UnitedHealth Group. The partners plan to work together to better identify SDOH issues that prevent better access to care and hinder patient outcomes.

The project will build on work initiated by UnitedHealthcare to standardize how data is collected, processed and integrated regarding critical social and environmental factors that contribute to patient well-being. SDOH factors that play into patients' health status include nonmedical issues such as food, housing, transportation and the financial component that enables payment for medications, utilities and other services.

Technology requirements

In another initiative, the Blue Cross Blue Shield Institute—a subsidiary of the Blue Cross Blue Shield Association—is forming a "disruptive business alliance" with Solera Health, an integrated benefits network company, to determine how best to act upon social determinants of health.

"Health outcomes we've long known have been affected up to 80 percent by SDOH," says Brenda Schmidt, CEO of Solera, which helps health plans leverage a network of community-based and digital health solutions. "Prior to (value-based purchasing), the system was not set up to encourage health systems and clinicians to look comprehensively at a patient's situated context—their socio-cultural, economic and environmental issues that lay beyond the disease state. Now with VBP, we begin to see systemic recognition to address the SDOH."

But as health plans start to address social factors, they're realizing the inherent complexity. Effectively delivering needed services that bolster

health required nuanced analysis, while putting an emphasis on advanced information technologies, such as population health management and analytics.

Effectively dealing with SDOH will require health plans to draw information on members from new sources, such as social agencies and government programs, putting a premium on information exchange.

For example, Geisinger Health System and its health plan, Geisinger Health Plan, are working together to advance healthcare through the use of the organization's Keystone Health Information Exchange. Previously, health plans have not thought extensively about the use of HIEs, but that's changing, say executives at Geisinger. With value-based care growing, healthcare providers and organizations across the continuum strive to find ways to improve care while holding costs down. As evidence of this trend, Pennsylvania has indicated it wants to close care gaps for chronic conditions and is encouraging healthcare organizations, including health plans, to participate in HIEs.

Geisinger Health System founded Keystone Health Information Exchange (KeyHIE) in April 2005. Today, KeyHIE offers a wide range of services to 179 unique member organizations across the area. Geisinger Health Plan (GHP) became a member of KeyHIE in 2011, and uses the HIE's services to close care gaps; access real-time patient data; receive real-time notifications of admissions and discharges from emergency departments and acute settings; and to access real-time test results, according to Kim Chaundy, senior director of operations for Geisinger.

"KeyHIE believes that health plans are just as important to delivering

quality healthcare as physicians, hospitals and other providers," Chaundy says. "Health plans are starting to understand HIEs can be the conduit for efficiency and how we can parse the data," she says. "They see the value of it."

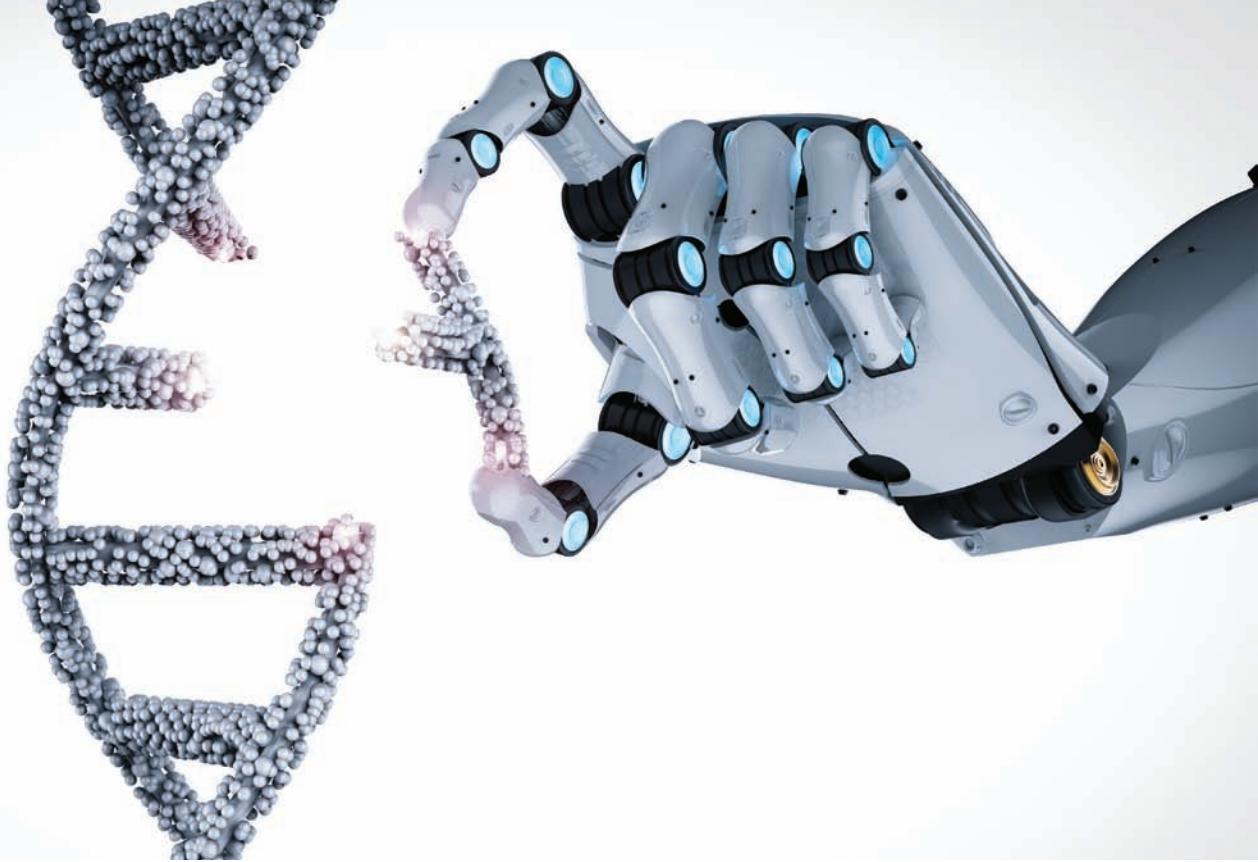
Health plans are also turning to a variety of information technologies to meet the cost and quality imperatives inherent under value-based care.

For example, Premera Blue Cross, a leading health plan in the Pacific Northwest, is partnering with Cardinal Analytix Solutions, a predictive healthcare analytics company, to use predictive analytics and machine learning solutions to identify and reach out to potential high-risk customers.

Premera initially partnered with Cardinal to participate in the design and validation of the first version of Cardinal Analytix's Cost Bloom predictions and medical action plans using proprietary, leading-edge machine learning algorithms. After success piloting this solution, Premera is deploying the solution along with additional risk prediction models it helped to design.

In another use of technology, BlueCross BlueShield of South Carolina is offering Blue CareOnDemand, through which members can access care via a computer or mobile device. The plan was one of the first to write medical policies around telemedicine, says Raad Joseph, senior vice president of the plan.

"We've more than doubled utilization rates from 2017 to 2018," he notes. In 2018, the Blues plan began offering virtual behavioral health services for its accountable care organization and self-funded clients. "We already are seeing 15 percent higher visit volume January to April of this year, than all of 2018," Joseph noted. □



Data governance in the age of AI: Beyond the basics

Ensuring the quality of data becomes increasingly important so that healthcare organizations don't wind up making bigger mistakes.

By Gienna Shaw

If you want some basic advice about launching a data governance program, it's easy to find: Get leadership buy-in, appoint some data stewards or champions, and make sure everyone meets regularly to talk about it.

But there's a lot more to it than that, especially in the age of data-hungry tools born from artificial intelligence. When you're dealing with data on a machine learning scale, you're dealing with "garbage in, garbage out" on steroids.

"The only thing worse than not having enough data is having too

much," says Colin Zick, who co-chairs the healthcare data privacy and security group at the law firm Foley Hoag. "That's the challenge as we move into a world where there are increasingly large data sets—the data governance. How do you manage the data, how do you ensure its quality?" With AI, he adds, "you really have to get into making sure the data and the analysis and the quality are there, because, if not, you're just going to make bigger mistakes."

Data integration, security, integrity and quality takes a lot of work, Zick

says. "On the other side, if you put in the effort, you can get very valuable results. But you cannot expect that to happen without putting in a lot of time and effort."

Cary Smithson, director of digital transformation and management at Grant Thornton, an accounting and consulting firm, agrees: "You won't really get the full benefit of AI ... if you don't have your data model well defined and have the data that you need to leverage it," she says.

"AI content management and information management and associ-

ated governance is foundational to getting the benefit out of AI and other technologies, even analytics. You need to really focus on defining what your master data is, sources of record, who owns the data and then get a governance model in place," she adds.

So, what specific steps can health-care organizations take to avoid the pitfalls and reap the rewards of data governance in the age of artificial intelligence? It starts with a strong foundation.

Build the right team

Healthcare organizations need buy-in from leaders. And yes, they need data stewards. But that's not nearly enough.

C-suite executives, for example, aren't necessarily the right people to lead data governance programs. Data stewards often lack even basic marching orders. And while communication is important, endless meetings could be counterproductive if the right people aren't in the room.

"Nine times out of 10, it becomes data governance by committee," says John Walton, senior solution architect for the IT consulting firm CTG. "Please, for the love of God, don't try data governance by committee."

Walton cites as an example a data governance program that kicked off with great intentions and a bevy of C-level titles at the table, from the CEO to the CIO.

"How long do you think that lasted?" he asks. "After two meetings with no progress, everybody's arguing about [algorithms]. They finally said, 'Well, this is a waste of our time,' and eventually it just died on the vine. Honestly, I can't tell you how many times I've seen that."

And who should be at the table?

"The right people are subject matter experts or business data stewards. They're the people that have subject

matter expertise in the data domain that you're trying to manage," Walton says.

But, he adds, you can't bestow the title of data steward and call it a day. "For those that don't take the governance-by-committee approach, they identify data stewards and don't really tell them how to do their job—nor do they make it part of their job description, which is essential," Walton says. Data governance will fail "literally 100 percent of the time" when the appointed data steward doesn't understand business processes or workflows.

With AI, "you really have to get into making sure the data and the analysis and the quality are there" or "you're just going to make bigger mistakes."

One solution: Ensure governance team members have defined roles, including tactical and high-level strategy responsibilities, Smithson says.

Split data champions into two groups: data stewards, who make recommendations about formulas or algorithms, for example, and director- or VP-level data owners who make the decisions, Walton adds. And put roles and responsibilities into job descriptions. "The job responsibilities come from the workflows and the tasks that need to be accomplished."

Those job descriptions should fall into two buckets, he says: data quality assurance and information consistency. For the former, tasks include identifying a data quality issue, remediating that issue with a workflow change, for example, and monitoring to ensure the effectiveness of the data governance initiative. For the latter, tasks include creating a business measure to support

key performance indicators, to modify it when business rules change, and to sunset any items that are no longer relative.

A bonus tip: Tie data owners' bonuses to data quality. "That will get people's attention," Walton says.

Create trust

When it comes to data governance—or any project, really—you hear a lot about the importance of culture and change management. But what does that mean, exactly?

"Organizational change is a key that tends to get forgotten as part of a lot of these initiatives," Smithson says. It's about "defining who owns what data and looking across the key stakeholders in the organization. Where are they from a readiness and change perspective? Maybe you need to put a communication plan in place to ... tailor the information to different levels and roles."

The American Society of Clinical Oncology's (ASCO) CancerLinQ initiative collects and analyzes massive amounts of data from patient encounters to give oncologists a quality monitoring system to ensure patients are getting the best care.

"As the representative body for oncologists we wanted to be able to build something that they can trust. Ultimately, you live and die on the trust that you have," says Alaap Shah, an attorney at Epstein Becker Green, who was the ASCO's chief privacy officer at the time.

How to build trust?

Step one was to develop a set of governing bodies to provide guidance on issues, to formalize them into policies, to govern how the organization operates and how it builds and uses technology, he says.

Data governance

The data governance team delved into policy, ethical issues, and legal and regulatory requirements. Those were distilled into principal documents, then more fleshed-out policy statements.

"Those became the internal bellwether by which we operationalized a lot of this program," Shah says. "They were living and breathing documents which we revisited from time to time, partly through those committees we formed but also through the staff that was operationalizing around it. We were essentially developing a culture of compliance, a culture of privacy, a culture of data protection, a culture of responsible data stewardship. All these are the high-level principles by which we started to operate and think and live and breathe."

Step two was to "think about, internally and externally, what responsible data use and stewardship looks like and carry that out. We don't want to say to participants, 'Hey, give us all your data, we're going to do great things with it' and then go and sell it to some bad actor somewhere in the market," he says. "The point is, what do we need to be thinking about and doing to make sure that we're ... acting responsibly relative to the data we're getting from participants in our network and also using that data for downstream purposes that are responsible from a public perception perspective?"

Setting boundaries means disclosing up front what the organization planned to do with the data and not deviate from that promise. "Ensure you're safeguarding the data technologically and otherwise and then ultimately create something good with that," Shah says. "You've been charged with this great responsibility because you have all this data; make sure that you don't screw it up."

Share responsibly

The ASCO's first and foremost goal was to serve oncologists and their patients. But it also had to work with pharma, medical device manufacturers and the government—and figure out how to do so responsibly.

"All these stakeholders have roles that will benefit the ecosystem if they get the right access to the right data and [can] use it in the best way possible," Shah says. "We had to think critically about what are the boundaries within which we're comfortable doing that?"

The data governance team recognized that need to share with the pharma industry, for example, but set up guardrails—data would always be de-identified and they would respond only to specific requests that had clear time and scope limits and aimed to solve specific, concrete problems.

The guiding question, Shah says: "Is there a specific segment of the population that has an immediate need for innovation in the drug space that we could help support?"

A research and publications committee created a process to vet requests for legitimacy, feasibility and even the character of the organizations before agreeing to share data. The team would also look at the technology an organization would use for the analysis and ensure they had appropriate security safeguards in place. Organizations that didn't might be credentialed to view limited data in the ASCO's own system.

In addition to vetting, contracts are crucial, Shah says.

"You need to have contract vehicles that contemplate and hammer out some thorny issues [such as] the data ownership pieces, so everyone knows who owns the data, who's just licensing it and borrowing it for a short period of time so that you don't have disputes about that later. You have to hammer

out issues [about] de-identified data. You have to be very careful to put in clear language about not linking it, not reidentifying it, not sharing it with other third parties without ... assurances in place," Shah says.

"One of the big problems with the industry today is people don't appreciate this issue because they don't want to go through the time and expense of vetting," he adds. And organizations can contract out that function, but then they run the risk of losing sight of patients' data privacy.

"We can fight about who's going to carry the bag at the end of the day. But at the end of the day is when the patient's privacy interest is lost," he says.

Use technology—to a point

Too often, organizations don't equip their data stewards with the technology tools they need. Data profiling tools, for example, might be expensive—but will pay for themselves quickly, Walton says. "I just can't emphasize enough how important it is to have a tool that can help the data stewards do their job."

Other tools might include enterprise content management solutions or services for unstructured content, Smithson says. Look for solutions that integrate with other systems, such as customer relationship management tools or the major enterprise resource planning applications.

"These content management solutions that go enterprisewide, they can have content services that are already built to work with some of the leading tools that are out there. So the documents that get generated or used by these other solutions ... they can just manage that along the process and serve up documents in the other applications wherever the eyeballs are and where you're working along the

business process," she says.

Then again, technology isn't a cure-all.

At Facebook, scientists famously deployed a generative adversarial network to get two AI systems to communicate with each other and solve a problem, but didn't stipulate that the systems should do the work in English. To earn rewards faster, the systems developed a kind of shorthand that humans couldn't easily understand.

"The AI has done something completely unforeseeable and unexpected and actually sometimes problematic," Shah says. "You can see that there could be a scenario where you give AI this power and all this data and it goes off and does something really wild with it."

To be fair, online reports of creepy

computers making up their own language to the shock and dismay of researchers were overstated. In fact, getting unexpected results when deploying learning systems is a feature, not a glitch. Surprises could lead to a medical breakthrough, after all.

Then again, surprises can also cause a data breach. Zick recounts working with a client that thought it had scrubbed its large data set of all personal health information, for example. But it turned out physicians were entering PHI in a field that was supposed to be PHI-free.

That's why humans have to keep an eye on AI outputs and react in near-real time to the unexpected—and it's why data governance is so important.

Although there are huge benefits to AI and machine learning, when left to

its own devices, "the parade of horrors is extensive," Zick says. "The moral of the story is you've got to go slow [and] verify the data and you can't just trust the technology. ... If you don't check it with something tangible you've got a problem."

There are different facets to managing data in the age of AI, Shah says. "You can't solve it with any one thing. It's not a technology fix; it's not a policy fix. You need to have a holistic data governance plan that deals with people, processes and technologies, with all of it working together in concert."

Don't be "enamored by some of these shiny tools without working [on the] foundation first," Smithson adds. "If you don't ... then your information is not going to be governed." ~

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Providers aim to take CDS to the next level

IT departments look to design systems that sift through vast amounts of data quickly to assist decisions about medical care.

By Linda Wilson

You might think of this as clinical decision support 2.0.

Healthcare systems are rethinking how they apply CDS tools to assist—and not hinder—clinicians in daily clinical care.

They are implementing CDS to help providers with decision-making in a variety of areas. When KLAS Research surveyed executives about the “core focus for your organization going forward” for CDS, 82 percent of survey respondents mentioned order sets, followed by surveillance (46 percent), care plans (43 percent), point-of-care

disease reference (33 percent), infection control (26 percent) and diagnostic support (21 percent).

Many systems want to get more of their CDS tools from electronic health-records vendors. Most respondents using Epic (61 percent) and Cerner (58 percent) said they expect those vendors to play “very significant” or “significant” roles in their future CDS plans, KLAS found in its 2016 survey research. Far fewer respondents envisioned a “very significant” or “significant” role for other EHR vendors, including Allscripts (40 percent),

Meditech (36 percent) and McKesson (33 percent).

Some examples of use cases include information about key safety issues, such as drug-drug interactions or risk of life-threatening medical problems; best practices to improve clinical outcomes or contain costs; and compliance with requirements from payers, most notably the Centers for Medicare and Medicaid Services.

With so many potential use cases for CDS, it’s not surprising that Frost & Sullivan expects the U.S. clinical decision support market to grow to

\$4.97 billion by 2021.

Overall, the challenge facing IT departments is how to design CDS systems that sift through vast amounts of data quickly, providing key insights just as providers are making decisions about patients' medical care.

Combating alert fatigue

The first step: rethinking how IT departments use pop-up alerts. "We affectionately call this the sledgehammer alert. It is going to stop you," says Thomas Selva, MD, a pediatrician and chief medical information officer at University of Missouri Health Care. "It interrupts your cognitive thought process," he says.

Too many of these pop-ups can lead to alert fatigue, which happens when clinicians become desensitized to the warnings and then fail to respond to them appropriately. The problem could lead to patient safety issues if clinicians do not react to critical alerts, such as those warning of harmful drug-drug interactions.

The Agency for Healthcare Research and Quality, which has written about this topic extensively, recommends four steps to combat alert fatigue:

- Reduce or eliminate inconsequential alerts.
- Integrate alerts into clusters of related physiologic indicators.
- Tier alerts according to their importance.
- Apply the concepts of human factor engineering, which analyzes how well a device or product is likely to work in complex real-world environments.

Using fewer intrusive alerts

The IT staff at Cheyenne Regional Medical Center recently addressed alert fatigue by overhauling its approach to Epic's best practice advisories.

Lucy Stacy, program director for

Epic at the medical center, said physicians and nurses complained that the alerts fired too often or fired for the wrong job roles. "In addition to that, on our side, we were getting multiple requests from multiple places to put these in place," she says.

The team decided to act. The first step was a comprehensive audit of the medical center's existing best practice advisories—they found 104 of them. They also compiled information on how often each alert was used or overrode.

The next step was forming a committee, which included representatives from the medical staff and nursing, to analyze the alerts. Based on the committee's work, Cheyenne Regional Medical Center retired 25 of the alerts and kept 37 of them as is.

The committee also modified 42 other best practice advisories, ensuring that they only fire for the appropriate roles. In some cases, the committee created silent alerts that perform work in the background. For example, if a nurse documents in the EHR that a hospital patient has not had a flu vaccine, the system orders the shot automatically.

To avoid alert creep in the future, the IT staff developed a formal process in which the committee vets all requests for new best practice advisories. "We don't put a BPA in place anymore unless it has been properly reviewed," Stacy says.

"From a clinician's perspective, they feel like they are being heard—that changes are being made," Stacy says. The alert-reduction project has been so popular with physicians and nurses that the IT staff plans to go through the same analytical process for medication alerts.

Children's Hospital Colorado also has cut back on alerts, using them in "a much more targeted way and only in

the areas of greatest impact," explains Angela Swanson, director of clinical effectiveness at Children's Hospital Colorado.

For example, an alert in the emergency department lets physicians know if a patient is at risk for suicide, based on the results of a screening tool. "None of us want to send a suicidal patient out the door because we've failed to ask," says Lalit Bajaj, MD, an emergency medicine physician and medical director of clinical effectiveness at Children's Hospital Colorado.

A key question to ask when assessing the usefulness of an alert is if it will "immediately change my management of that patient," Bajaj says. If the answer is yes, the alert probably will help clinicians.

Before new alerts are turned on for providers, the hospital rigorously tests them.

For example, the hospital is building an algorithm using machine learning to predict the risk of emergency department patients developing sepsis. The plan is to embed the tool "in the background, so that we can watch it fire, without notifying the provider, to see what the fatigue and what the firing rates might look like," Bajaj says.

Other flavors of CDS

Selva says MU Health Care is designing methods to provide information at the point of care in a less intrusive fashion, such as by placing key insights on the right-hand side of the screen next to the patient chart. "This is where we surface alerts as more of a nudge."

For example, the academic medical center is using this approach to notify a provider if a child's blood pressure is high—a calculation involving numerous variables, such as age and gender. "We do the math for the user. There is

Decision support

a slider that pops out that says, 'You might want to pay attention, the blood pressure looks a little high. Click here to see what it is,' " Selva explains.

The functionality, called SmartZone, is part of Cerner's Millennium Power-Chart. MU Health Care was the first pilot-test site for SmartZone, which is now commercially available, according to Cerner.

MU Health Care also incorporates what it calls "related results" into the appropriate order screen. For example, as a physician is ordering a statin medicine, the patient's most recent cholesterol levels will appear within the order screen without interrupting the workflow.

Cedars-Sinai Medical Center often designs ordering screens to cut down on pop-up reminders. One example is an order for a medication for which a patient takes an initial dose and then a follow-up maintenance dose. The order set will be structured so that physicians order both doses at the same time. "It tees it up for them in a way that makes it easier for them," explains Yaron Elad, MD, a cardiologist and associate medical director of clinical informatics at Cedars-Sinai.

Despite the strides these institutions have made, reducing the number of intrusive alerts at the point-of-care is difficult because there are so many data points involved in providing medical care for a patient.

A case in point is a new requirement mandated in the Protecting Access to Medicare Act, or PAMA. The law, passed in 2014, includes a program to encourage the appropriate use of expensive imaging modalities, such as computed tomography, positron emission tomography, nuclear medicine and magnetic resonance imaging.

Beginning in January 2021, clinicians

will be required to consult a certified CDS tool to ensure they are ordering these tests according to appropriate use guidelines. Medicare will not pay imaging centers for these tests unless they document that physicians used a CDS tool to order the tests.

Testing of the new program—with-out the negative financial consequences—is scheduled to begin in January.

Cedars-Sinai is in the process of evaluating potential CDS tools, which will be integrated into the EHR workflow, Elad says.

Education and communication

Elad says the medical center doesn't just rely on CDS solutions to encourage compliance with new programs, such as government mandates. It also creates educational programs and incorporates marketing tactics, such as creating screen savers or sending email blasts to publicize new mandates.

Children's Hospital Colorado also uses a variety of techniques—including branding, education or pledges—in combination with CDS to launch new initiatives.

One example is a project to encourage pediatricians to follow care guidelines from the American Academy of Pediatrics for treating bronchiolitis. The illness, which is a viral infection causing mucus plugging and lower airway swelling, primarily occurs in infants and toddlers between the ages of one and 24 months.

The hospital wanted to decrease the utilization of X-rays, viral tests and bronchodilators to treat non-severe cases of bronchiolitis. While pediatricians commonly use these tests and treatments, evidence suggests that they are often unnecessary. And chest X-rays can have unintended consequences because bronchiolitis looks similar to pneumonia in these images, leading

physicians to prescribe antibiotics.

To launch this improvement project, a multidisciplinary team developed a care pathway and then revised the order set to lead pediatricians in the new direction. They also produced a dashboard, which tracks providers' treatment patterns, but they did not implement a pop-up alert.

They also used tactics to publicize the program and its goals, including creating a slogan, "rest is best"; T-shirts; informational handouts and videos for parents; and a pledge for physicians to sign.

Because of the program, the hospital logged utilization decreases of 40 percent in chest X-rays, 41 percent in bronchodilators and 22 percent in viral testing.

At the end of the day, however, education and marketing won't drive adoption if end users conclude that the software tool is clunky and slows workflow.

Brian Edwards, an independent validation consultant for artificial intelligence vendors, says software developers typically don't spend enough time making sure their CDS solutions work for end users. That's because the standard software-development process doesn't involve input from end users to the extent that is necessary in healthcare, he says. "The question of 'Is it useful?' is mostly unanswered by any clinical decision-support vendor," he explains.

Selva agrees, saying that software vendors often focus more effort on meeting a specific requirement—such as complying with a federal regulation—than on usability. "You have a product that meets the requirements of the federal government, but the end user finds it very clunky, and it is not very helpful. Then what happens is people build workarounds," he says. □



Counting the cost in changing systems

More healthcare organizations are switching IT systems, but it's all too easy to underestimate the cost or complexity of the process.

By Joseph Goedert

The vast majority of healthcare provider organizations use electronic health records and physician practice management systems to manage the care they give to patients.

Over time, functionality in the EHR and PPM systems can't keep up with emerging demands, often compelling an organization to initiate a search for new systems. Often idyllically viewed as an easy answer to emerging challenges, switching systems often offers a gauntlet of challenges.

As healthcare organizations rethink

their original—or even second or third—system choices, they often take on new—and sometimes, unexpected—problems and costs.

Significant outlay

At Baptist Health System, a five-hospital delivery system with 45 primary care offices in Jacksonville, Fla., the investment in new systems—which included setting up multiple EHRs for different types of specialties—on a single platform was significant, recalls Roland Garcia, senior vice president

and chief information officer.

"The return on investment is being able to have one platform," he adds. "As we gathered data and achieved standardization, it was more efficient to manage the same platform used in our 220-provider practice."

Operating costs and time were reduced by maintaining one platform with a shared chart and standardization of how to record treatments in the EHR. The platform supported a range of specialty practices, covering 438 providers in total.

IT administration

The transition to a new platform, upgrading to the Allscripts TouchWorks EHR, was supposed to take four weeks and ended up taking six weeks, covering about 100 geographic locations. But the result led to a series of improvements for the organization, according to Garcia.

"We were able to better review workflows, capture charges and improve documentation to support the charges. We had voice recognition that gave efficiencies, a common chart for treating patients and improved network management for referrals because of a common platform."

Allscripts also provided additional support, such as best practices for cardiologists based on what existing cardiology clients had learned.

Importantly, during the transition Baptist Health did not lose physicians. "We made a commitment to them," Garcia said. "We will transition and make your life better."

The first step to a better life was a decision to start with tackling problem lists. There was not a single way to generate a problem list. Too often, important information was missing. A physician may note that a patient is a diabetic but not mention what type of diabetes the patient had. Absent data governance, managing a comprehensive problem list is a big challenge, so it often doesn't get done, Garcia cautions.

"Previously, we had everyone using their own EHR and their own workflows, and now we have a standard process for how workflow actually flows as everyone works off the same platform."

Time to take stock

Some provider organizations that have used their EHR for years are supporting 3,000 or more applications via the EHR and supporting modules. "Think about that—it's crazy," says Michael Mytych,

owner of Health Information Consulting in Menomonee Falls, Wis.

IT staffs are swamped—there's no time for new initiatives or anything else but serving all those applications, making these providers strong candidates for a new EHR.

In Mytych's view, there are only a small handful of vendors that hospitals, if they can afford it, should consider in the age of population health management and value-based care—on his personal short list is Epic, Cerner and, to a lesser extent, Meditech.

Some providers merge with other providers hoping to become more competitive, but such moves could drive the value out of investments that are better needed for succeeding with value-based care and population health. Simply put, the coming challenge of interoperability by itself is enough to justify a move to the top vendors, Mytych says.

Other vendors may have lower costs of operations, but the return on investment might be disappointing, Mytych says. "You may have lower cost, but be honest about the total cost of ownership of what you already have and the penalty cost you could have with the lack of interoperability."

While some Meditech clients may kick the tires of other vendors, they generally stay because of the price difference compared with Epic or Cerner; they may look at other hospital vendor systems, such as those of CPSI, athenahealth, McKesson or Medhost.

Overall, however, Epic and Cerner have made it easier for providers to jump on the platforms and access a variety of tools, Mytych says, contending providers just pay for maintenance, implementation and annual support fees, with no additional costs for licenses or streamlined licenses.

But of course, nothing is that easy.

"When moving to a new platform, the planning process to go through and figure out total cost of ownership is a significant effort with lots of moving pieces," Mytych says. "There are internal nuances across venues of care, with lots of embedded workflows, workarounds and knowledge of software. The record transition is tricky and will have an impact on your analytics program. And, think of all the clinical service lines that need to be interoperable with the EHR."

Forced to switch

Some providers still run on homegrown EHR systems, but they are a dying breed—many homegrown EHRs are difficult to maintain and keep them current with the EHR meaningful use requirements, says Dean Sittig, a professor of biomedical informatics at UT Health in Houston.

"When you build your own software, the costs are hard to budget, but when you buy a system, you'll know how much you will spend this year and next year," he explains. "This brings stability, even though it might cost more. It reduces uncertainty."

For a major healthcare delivery system, the cost of an EHR and supporting modules can be breath-taking—approaching or surpassing \$1 billion, and maybe another \$1 billion for implementation, says Ross Koppel, an adjunct professor of sociology at the University of Pennsylvania specializing in health IT and the interactions of people, computers and workplaces. And those costs don't count customization, as EHRs are not plug and play.

Integrating the EHR with other enterprise technology systems results in a slew of other costs—that can involve linking to the pharmacy, lab, outside labs, suppliers, therapists, dietary, surgical and other entities.

Making an EHR swap will require more IT personnel than envisioned for implementing, optimizing and going live. There is a moving part waiting to be a problem in every facet of an EHR implementation or enhancement. "The number of moving parts is just extraordinarily high," Koppel says.

Privacy considerations are among these moving parts, and the EHR is full of intimate secrets. Providers need to make provisions for keeping DNR orders or living wills in the EHR and available to patients. Parents may want their adult children to be able to see and share the parents' records with caregivers. Teens may not be forthcoming in explaining their needs to the doctor if they know their parents may be able to see the child's concerns.

Counting dollars

With smaller enterprises or standalone hospitals, assessing the costs of a new EHR can be guesswork. Some entities don't even tightly track costs because there are so many measures to assess—some may not want an accurate account of costs, believing it's easier to keep things as estimates for management. Further, vendors' assistance with cost estimates may not consistently be reliable, Koppel adds.

But the reality for many organizations when buying a new EHR is that the new software will cost four to five times more than the software for the original EHR, Koppel says.

When the new EHR goes live, the new challenge won't be costs but productivity. Providers and other users have been trained on the new system, but it's still new, and parts of it are confusing or just don't work well, and a live environment can be very different from a training environment.

Clinicians often will experience reductions in patient visits after go-live,

which means less revenue is coming in, and drops in productivity could slam the organization for three or four months, Sittig says.

And then there is billing. "Many providers will have a lot of billing problems because existing data hasn't been mapped to the new billing system codes," Sittig continues. "They haven't mapped procedures, medications administered, the cost of a nurse changing a bed or floors cleaned by maintenance—all of this adds up. These are billables that aren't being dropped with a charge into the EHR."

And because a facility may have thousands of medications, lab tests, procedures and supplies not being accurately accounted for during this hectic period, it may lose 5 percent of its revenue, Sittig says.

Looking for Band-Aids

Some executives in organizations that are experiencing problems think a new EHR will make them go away, and they blame the EHR when that doesn't happen, Sittig says. Hospitals may believe they will do better swapping out the old EHR, but they have underlying problems that the new EHR also may not address. "If you don't have enough operating rooms, a new EHR won't solve the problem," he notes.

Organizations that do well with an EHR swap are successful not because of the EHR but because of what's inside the EHR or in a data warehouse. It has some new data and a lot of legacy historical data, and that data can be used to measure and analyze employees, patients, vendors, processes, procedures and thousands of other queries.

The new EHR may have a range of alerts that remind physicians to make sure patients with hypertension are getting their medications. EHR data

matched with an analytics professional can measure how long it takes the pharmacy to issue prescriptions or how long it takes the lab to report a value or tell if radiology tools are being efficiently used.

Cost impacts

Transition costs may be made up of many parts, but they can add up.

A study published in May 2018 in the *Journal of the American Medical Informatics Association*, "Changes in hospital bond ratings after the transition to a new electronic health record," examined the impact of an EHR implementation on hospital finances.

Researchers analyzed the effect of a new EHR on bond ratings and "net income from services to patients," known as NISP, at 32 hospitals. Seven hospitals had a bond downgrade, seven others had a bond upgrade, and 18 experienced no changes in their bond ratings.

"Most hospitals in our analysis saw no change in bond ratings following EHR go-live, with no significant difference observed between EHR implementation and control hospitals," according to the study.

Authors noted that given the large investments for a new EHR, hospitals are concerned about the impact of an implementation on their financial health. A reduction in a bond rating may affect the ability or cost of borrowing money.

In a secondary study, researchers sought to determine if a new EHR contributed to changes in NISP.

"Our analysis of 32 hospitals that recently implemented a new inpatient EHR and a set of geographically matched controls did not detect a significant impact of EHR implementation on bond ratings or NISP," they said. □



Providers need a Plan B if the power goes out

Increasingly digital hospitals have to have solid backups in case they become unplugged because of natural disaster or power grid attack.

By Joseph Goedert

Power blackouts happen for all sorts of reasons. Some can be foreseen, while other times there's no way a healthcare organization can prevent a data center from going still.

One hospital lost power after Mylar balloons from a nearby party landed on a power line, says Ed Spears, a technical manager at Eaton, a global power management company that tracks outage information.

What many healthcare providers don't know is how finicky power can be. If power goes out for three seconds, it

could take five hours to bring it back.

That could be five hours that the imaging systems and other critical applications are out of commission, with open data lost or needing to be regenerated via backup systems, and patients possibly being sent home with their appointments rescheduled. That all adds up to lost revenue and potential major expenses for hospitals.

To withstand an outage, providers may create and share a disaster recovery site with generators, an uninterruptible power supply (UPS)

battery backup and be able to move data to another facility without interrupting services.

Obviously, a backup generator system is a necessity for healthcare providers, although some very small entities may find that they don't have enough fuel to survive for several days after a catastrophic event, such as a big storm, cuts power.

Using an UPS during a blackout can bridge the gap and keep imaging, pharmacy, medical labs, critical applications and the operating suite

going, as long as the fuel holds out.

That's why it is important to contract with a fuel supplier under a first-priority services arrangement, Spears says.

An organization in a pinch can move computer capability to another facility, particularly a hospital if necessary, so the organization can keep the electronic health record running.

This is especially important for smaller hospitals as telemedicine and smartphones increasingly come into provider sites, heightening the need for and dependency on electrical power.

Get some help

Now, when they're not facing an immediate disaster, is a good time for hospitals to invite power companies to review the facility's power program and find improvements before a failure occurs. Providers also should get a guide from the Healthcare & Public Health Sector Coordinating Councils, which provide advisory services.

"Every hospital I've ever worked with has UPS systems, especially for patient care systems like the electronic health record and backup generators," says Kate Borten, president of Marblehead Group, a healthcare privacy and data security consultancy. "Long Island hospitals hit with Superstorm Sandy in 2012, for example, needed to be prepared and used their backup generators since power was out."

The use of business impact analysis and disaster recovery plans that are based on comprehensive system inventories should identify and prioritize systems so that IT staff know which systems to put on backup power and where to focus recovery work.

Double-check

Most hospitals have a backup generator, but the level of backup availability varies significantly, says Linn Freed-

man, a healthcare attorney and partner in the Providence, R.I., law office of Robinson & Cole. "Can the generator withstand a day, two days, a week or a month?" she asks. "All hospitals should have one or more generators that can last two weeks, which is how long hospitals hit by Hurricanes Sandy and Katrina were generally able to last."

Providers, especially hospitals, are among the first customers that power companies restore, says Roger Morgenstern, senior public information director at Consumers Energy in Grand Rapids.

"All hospitals should have one or more generators that can last two weeks," healthcare attorney Linn Freedman says.

"We have these facilities specially coded in our outage management system so they are immediately flagged when there is an outage," he adds. "Hospitals have customer account managers assigned to them so the client can get updates on our restoration efforts and when power is expected to be returned."

Morgenstern suggests that providers talk with entities that sell and install generators about proper sizing and fuel use for generators.

Power companies like Consumers Energy and DTE, Michigan's other major utility, also have public safety liaisons who work with police and fire agencies to identify health facilities that because of their size may not have on-site or may have limited backup generators, so these providers also can be prioritized for restoration.

Even worse is the prospect of a cyberattack that takes many types of systems in a hospital hostage, preventing it from getting the generator online

because it has been desynchronized and can't return to its normal functions.

Targeting the grid

A report from the Congressional Research Service (CRS), issued in September 2018, explained evolving cybersecurity threats that can come from direct attacks aimed at the electric grid or other critical infrastructure, impacting the operations or security of the grid.

"The greatest cyber threats to the grid have been intrusions manipulating industrial control systems networks," CRS warned. "Cyber intrusions have resulted in malware being placed on industrial control system networks, able to take over certain aspects of system control or functionality.

"Recent concerns include Internet of Things devices connected to networks. IoT devices are increasingly targeted by botnet malware where the hacker takes over devices to launch denial of service or other attacks. If such IoT cyberattacks were able to access electric utility networks, they could potentially impair these systems or cause electric power networks to operate based on manipulated conditions or false information."

The biggest worry

Despite the problems electrical blackouts bring, an Internet blackout would be far more concerning for providers, says Freedman, the healthcare attorney. The most important health information is in the core electronic health record system and a slew of ancillary systems.

"Many providers no longer have paper records or they cannot be found or the information is too old to be relevant," Freedman says. "Once the generator dies, you have no backup and no paper records, because what the patients need is all online." □

Executive Session



Erik Decker

Chief Information Security and Privacy Officer
University of Chicago Medicine

The Decker file

- Co-leader, Department of Health and Human Services task group for implementing CSA 405D legislation within the healthcare sector
- Author, "Health Industry Cybersecurity Practices: Managing Threats and Protecting Patients"
- Member of the Executive Council of the Healthcare Sector Coordinating Council's Joint Cybersecurity Work
- Master's of science, information technology, Loyola University, Chicago
- Bachelor's degree, cell and structural biology, University of Illinois, Champaign-Urbana

Protect data, serve patients

Erik Decker looks to negate cybersecurity threats while letting researchers at University of Chicago Medicine work their magic.

By Fred Bazzoli

Erik Decker blends his love of science and research, and his expertise in computer security technology together at University of Chicago Medicine. He entered college with an interest in the life sciences, specifically genetics and immunology, and now believes that he's contributing again to the cause of medical research in the academic medical institution. "I've kind of come back to my original intent, life sciences," he says. "I love working in healthcare because it's going back to my roots. Caring for people is something that is easy to stand behind—I am inspired by the mission of academic medicine; caring for our patients, discovering new science and educating future clinicians." At the same time, protecting health information in a medical research environment offers special challenges. Decker also has taken on leadership roles in information security nationwide, trying to better equip all

healthcare organizations in protecting people and their health data.

On academic environments

It's different from a corporate environment. There's a need for flexibility and autonomy in order for research to work. There's a balance there—you can't just let things run wild. On the care side of the house, you have to make sure you allow for the clinicians to practice up to their capability, while maintaining a system wide security capability. To manage this balance you manage risk, which is something healthcare systems are very familiar with.

On industry challenges

Traditionally, healthcare has been behind in its cybersecurity capabilities and recently the pervasiveness of the cyber threat has exploded. The threats have gotten sophisti-

cated and capable enough so that even the nontargeted attacks can have a dramatic impact. It's a real challenge. Now is the time when thought leaders in this space are coming together to see how we can solve this problem.

On interconnectedness

At end of the day, we're all part of a big ecosystem. If a health system in the Chicago metro area is hit by an attack, it affects all of us. What's even more impactful is if the attack perpetuates across the region, then we have a critical public health safety issue. This is not outside the realm of possibility. We're really tightly coupled in this space. We all have to work on these issues.

On sleepless nights

Everything related to patient safety keeps me up at night. I think there's not as much understanding of the connectedness between the systems, third-party suppliers (vendors) and the way attackers can leverage this. We're in a digital ecosystem now—what used to be an attack on one would only affect one. That's not the case anymore. My nightmare scenario is that attackers could hit one of the common vendors we all use and that connect into our network environments, and by that gain entry into medical devices that are connected to patients. ~



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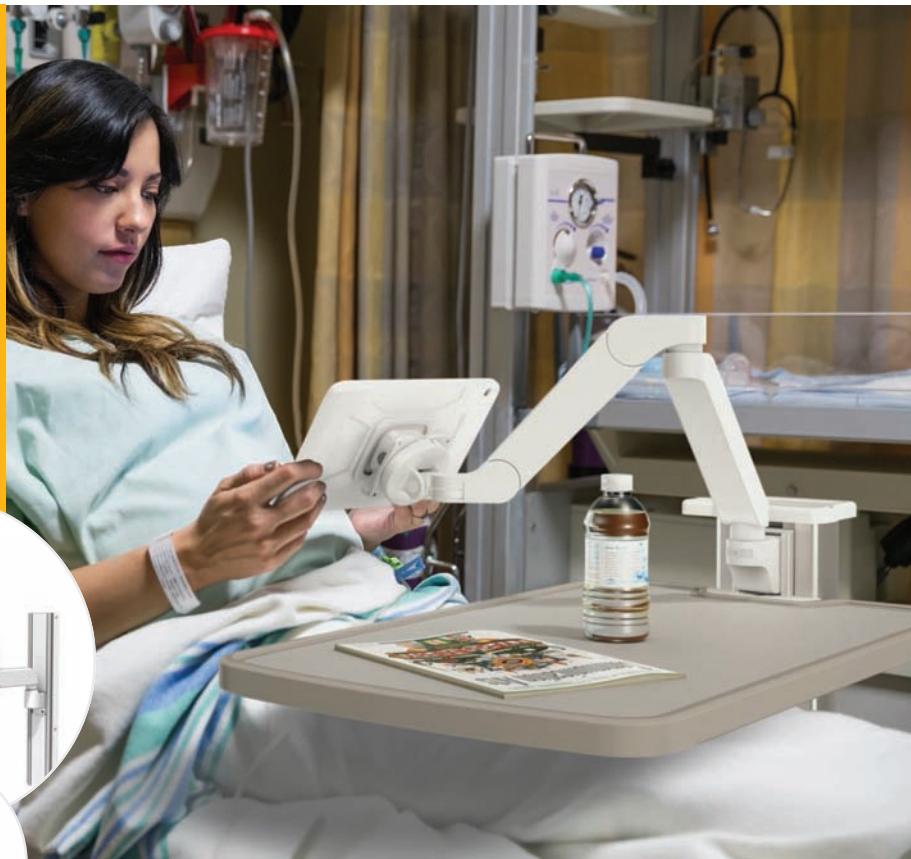
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