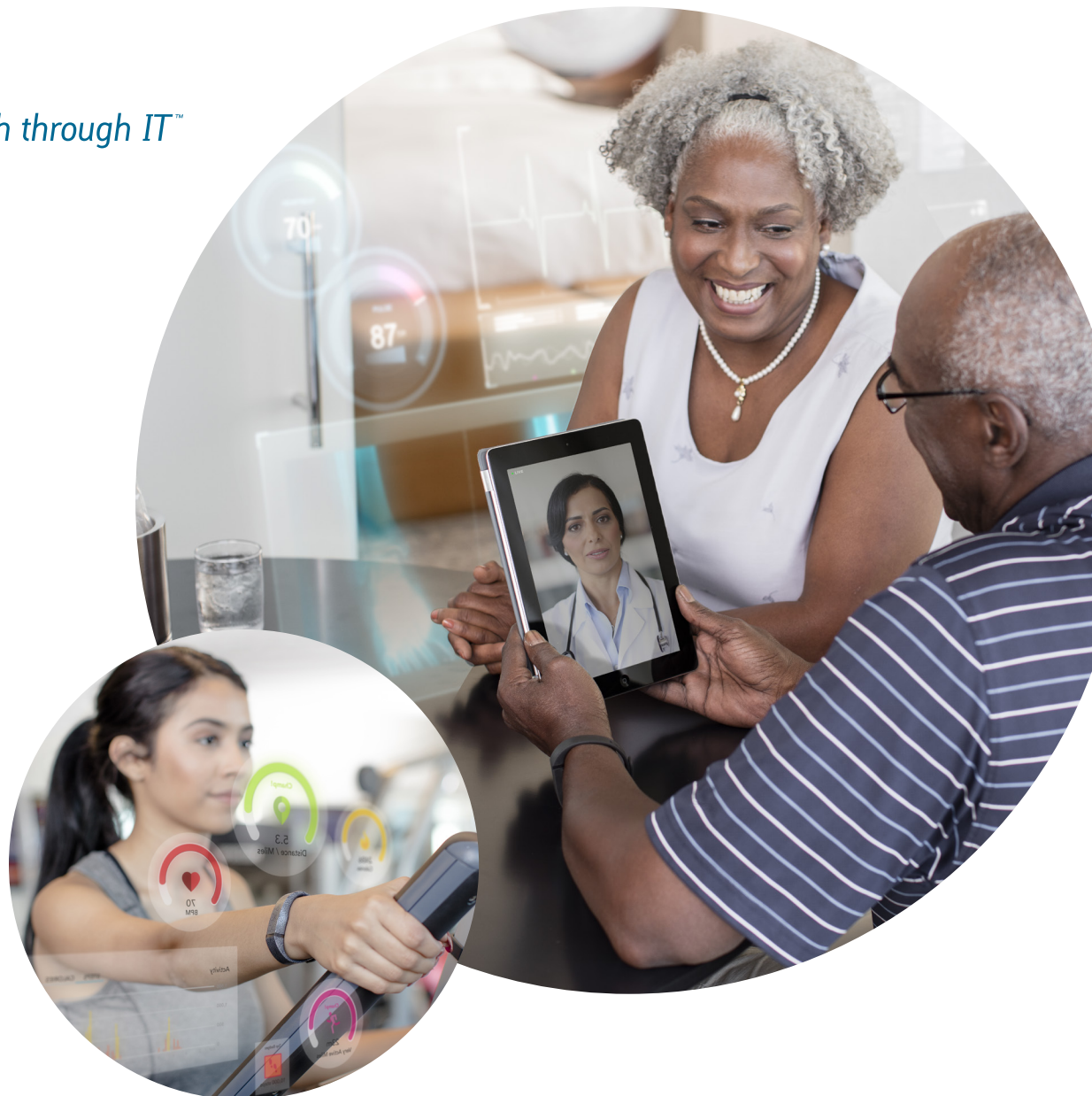


himss

transforming health through IT™



PERSONALIZED CARE, HEALTHY POPULATIONS

4 Ways Health IT Is Making Patients Healthier and Happier

Centura Health's Mercy Family Medicine primary care clinic acknowledged this reality when it chose to participate in the Centers of Medicare and Medicaid Services' (CMS) Comprehensive Primary Care (CPC) initiative. To achieve the requirements of the initiative, the Durango, Colo., clinic transformed all of its primary care practices to patient-centered medical homes, which have EHR requirements, and committed to identifying a primary care provider for each of the 17,000 patients it treats. "To be patient-centered, we had to start out with a patient being connected to a primary care provider," said Tamra Lavengood, R.N., CPC coordinator and clinical performance coordinator for Centura Health Physician Group. "Primary care is now on the forefront."

According to a case study describing how Mercy contributed to [Centura Health's HIMSS Davies Award](#) for the outstanding use of health information technology (IT), Mercy assigned 99.98 percent of its patients to primary care providers within a three-year period and has sustained that percentage since. Assigning its patients to providers enabled Mercy to move into the next phase of its effort – risk stratification. Mercy developed proprietary risk tools for both its adult and pediatric populations to measure objective and subjective aspects of risk.

Staff used the EHR to capture the objective aspects such as age, hospitalizations, emergency department visits, office visits, number of prescription medications, and mental health conditions. Subjective factors evaluated by Mercy providers in real time are life stressors, social determinants, and self-management abilities. To supplement these patient data, primary care providers also use their intuitive judgment to stratify patient risk.





All these data are factored into a risk score of 1 to 6, with the higher number indicating increased risk for health problems requiring intensified intervention. About 95 percent of Mercy's patients have been risk stratified, with 20 percent classified as higher risk and 1 percent as highest risk – statistics that parallel national population risk levels documented in medical literature.

Patients with high risk scores receive a range of patient engagement and care management interventions from registered nurse care coordinators. These interventions may include calls, visits, coaching and education, care plans, medication reconciliation, and follow-up coordination.

Care coordinators can access daily reports about the patient population from the EHR. Knowing which patients have been seen in the emergency department or admitted within the past 24 hours helps them to prioritize their contacts and work. Care coordinators work in the same offices as the providers. They keep in close contact with each other for the benefit of the patients. Lavengood said this approach has improved quality and reduced utilization and costs.

Mercy has been receiving a total of \$500,000 to \$800,000 of incentives per year from various payers and CMS to build the primary care infrastructure – the people and processes – needed to accomplish the milestones outlined in the CPC project, Lavengood said. Mercy has received several shared savings payments from payer groups and CMS to date.

Using the [HIMSS Steps™](#) model of demonstrating health IT value, Mercy attests to improvements and enhancements in:

-  **SATISFACTION**, both among patients and providers.
-  **TREATMENT/CLINICAL**, with improved performance on nine clinical quality measures such as blood pressure control, cancer screening, tobacco use counseling, compliance with disease-specific interventions and monitoring, and preventive surveillance.
-  **ELECTRONIC INFORMATION/DATA**, through population health reporting and improved quality measures reporting.
-  **PREVENTION AND PATIENT EDUCATION**, by developing effective patient and provider education and improving condition-specific surveillance and patient compliance with care recommendations.
-  **SAVINGS**, by reducing per member per month expenditures and emergency department visits and hospital admission rates, despite a higher than median hierarchical condition category (HCC) patient risk score for its population. Mercy also reduced hospitalizations for any cause among Medicare patients. The hospital estimated a cost avoidance of \$6.2 million annually by comparing its results to the Colorado region average of clinics with a similar risk profile.

The results Mercy achieved through its participation in the CPC initiative demonstrate how healthcare organizations can gain patient engagement and activation, gather and analyze integrated data, and improve care management and design to achieve better clinical outcomes and qualify for incentive payments.

In this age of fitness trackers, mobile health apps and interoperable electronic health records (EHRs), the doctor-patient relationship remains the centerpiece of health care.

“Primary care is now on the forefront.”

- Tamra Lavengood, RN

1. GAINING PATIENT ENGAGEMENT AND ACTIVATION

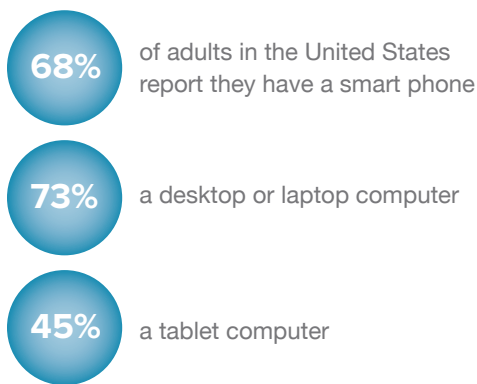
In one of its health policy briefs, the journal [Health Affairs defined patient engagement](#) as a concept that combines “patient activation,” which refers to a patient’s knowledge, skills, ability and willingness to manage his or her own health and care, with interventions designed to increase activation and promote positive patient behavior, such as obtaining preventive care or exercising regularly. Patient engagement, according to the brief, is one strategy to achieve the “triple aim” of improved health outcomes, better care, and lower costs.

To achieve healthier populations, clinicians and payers understand that patient engagement is vital. Better health outcomes cannot be achieved through medical care alone, without patients being actively involved and engaged in their care. This understanding is what is driving changes from fee-for-service to value-based payment models, said **Carla Smith, HIMSS North America executive vice president**. “Patient engagement is an attribute of value-based payment,” she explained. “Healthcare organizations are convening around how patient engagement adds value to healthcare,” with value defined as improving quality while reducing costs.

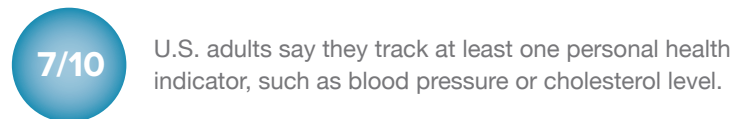
Another factor encouraging patient engagement is customer and clinician demand. “Patients are saying, ‘Why can’t I email you? Why can’t I take a photo with my iPhone and send it to you?’” Smith related. In today’s fast-paced and technology-driven society, healthcare organizations are looking to mobile technologies to augment whatever time clinicians and patients can spend together in person. Many patients are very willing to use their devices for healthcare purposes, and healthcare organizations are increasingly happy to oblige, Smith observed.

“Clinicians want technology to be part of their work life, too. They don’t want to go to work and tuck their smart phone away for eight hours. They see what IT does for them in other areas of their lives, and they want that in their profession,” Smith said.

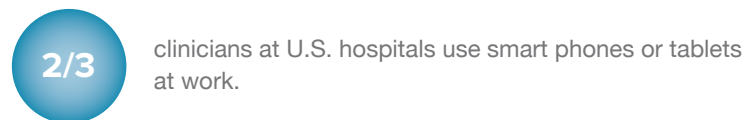
A survey conducted by the Pew Research Center supports Smith’s observations:



Most adults having a smart phone used it in the last year to look for health information, the survey found, and [another Pew Research Center study](#) found that:



A [HIMSS survey](#) found that about:



Clinicians are stepping up efforts to encourage and assist their patients to become more engaged through in-person discussions and the use of health information technology. Initiatives occurring across the nation use health IT’s tracking, monitoring, reporting and alerting capabilities to improve the health of at-risk diabetes patients, individuals with hypertension, those whose health depends on medication adherence, and many others.

Many healthcare organizations develop patient portals or health apps as initial steps to encourage patient engagement. After his organization received the [HIMSS Analytics Stage 7 Ambulatory Award](#) signifying the highest level of health IT adoption, Craig Richardville, senior vice president and chief information officer at Carolinas HealthCare System and [recipient of the CHIME/](#)

[HIMSS 2015 John E. Gall Jr. CIO of the Year Award](#), said his organization's patient portal and other EHR functionalities connect clinical providers and patients across all points of health and care. "That means our patients experience a seamless integrated system of care from their work or home, to their physicians' offices, to the emergency department, to the hospital, at all points of care," Richardville said. "Most importantly, our EHR engages our patients to become full partners with their providers to live healthier lives."

For example, Hazel Tapp, Ph.D., director of research in the department of family medicine at Carolinas, and her research team set out to see how engaging patients might improve health outcomes. Through the testing of an [online asthma toolkit](#) in six ambulatory care practices, the team studied whether or not shared decision making empowered patients, engaged them more fully in their own care, and improved EHR-tracked outcomes and satisfaction.

Speaking at a HIMSS Patient Engagement Summit, Tapp described traditional decision making as the doctor alone deciding on the best course of action, with the patient's best interests in mind. This approach, however, has its downfalls. She referenced studies that demonstrated that physicians, on average, interrupt patients within 23 seconds of their opening comments, and that patients are often afraid to ask questions for fear of appearing to challenge their doctors. "This leads to dismissal or trivialization of the patient voice," she said.

Within a shared decision making model, the patient is given a chance to provide the doctor with information about values and preferences and the doctor in turn provides treatment options, along with the benefits and risks of each. To facilitate shared decision making, Tapp's team developed the toolkit, which include a discussion guide for physicians, and an online asthma action plan – both designed to help physicians and patients collaborate on developing a care plan. Patients used evidence-based decision aids to evaluate available treatment options and outcomes within the context of their own feelings and preferences, and then to decide on their best course of treatment.

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Within the patient population participating in the study:

The shared decision making approach decreased emergency department visits

14.4% to 9.1%



Decreased inpatient hospitalizations

4% to 1.7%

The approach also reduced outpatient oral corticosteroid use from

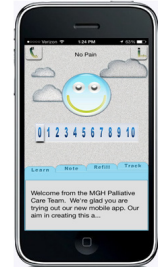
27% to 20%

"Through shared decision making, providers have the opportunity to increase patient engagement, improve patients' understanding of their healthcare choices and, together, create medical treatment plans that increase patient adherence and that decrease costs," Tapp said. "Despite its numerous benefits, shared decision making is used only sporadically in the United States."

Partners Connected Health in Boston has developed a range of tools that help patients facing cancer, asthma, diabetes or other challenges to stay engaged in their care and treatment.

1

A mobile app called [ePAL](#) empowers patients in palliative care to better self-manage cancer pain, thereby improving pain control and reducing hospital utilization. “It’s an effort to help patients with all those questions about pain management they forgot to ask in the doctor’s office,” said Dr. Joseph Kvedar, Partners’ vice president, Connected Health, at Partners HealthCare. The app asks a patient about pain level and recommends pain medication doses according to doctor’s orders programmed into the app. “There’s information on why it’s important to take care of your pain and why it’s not a bad thing to be in pain relief,” Dr. Kvedar explained. Patients can contact the palliative care service if they still have a question after using the app.



2

A [Partners Connected Health app for cancer patients](#) supports those on oral chemotherapy regimens by reminding them to take their medications, helping them manage and track symptoms, reviewing and accessing their treatment plans, and connecting them with other patients and caregivers for social support.

3

A [Partners Connected Health initiative encourages teens with asthma to interact with peers](#) dealing with the same condition in a Facebook private group, where teens are also encouraged to take the Asthma Control Test (ACT) each month. This strategy improved the percentage of teens taking the test, which had previously been provided to teens in various other locations, from 18 to 80 percent. Taking the ACT is important because it alerts patients and providers to poorly controlled asthma, which leads to poor quality of life and costs the health care system upwards of \$50 billion annually.

Dr. Kvedar said because more teens completed the test, their asthma control “improved in aggregate to the same degree as when you give someone a new inhaler. The effect was as good as a chemical therapeutic. That gave birth, here at Partners Connected Health, to the notion of ‘digital therapeutics’” – using a digital communications approach to treat a condition and improve patient outcomes – an idea gaining momentum worldwide.

[A Partners Connected Health study](#) used text messaging, a fitness tracker, and a mobile app to improve health outcomes for patients with Type 2 diabetes. The effort, which sent algorithm-driven messages about diabetes self-care to patients, caused an aggregate drop in hemoglobin A1C of 0.6 percentage points, “which is about as good as the drug metformin at the population level,” Dr. Kvedar said. “Once again, we had a digital intervention approximating the effect of an oral therapeutic.”

Smith said it’s important for healthcare organizations to recognize that the delivery of patient care changes when portals, apps, and other new “patient-facing” technologies or programs are put into place. “Patients can now come to the physician by using these tools,” she said. Smith recalled a situation in which a first-time mother who works for HIMSS experienced her infant child having pink eye for the first time.

“It’s her first child, right? She’s not sure what it is so she calls the pediatrician and explains it,” Smith said. “The pediatrician’s office said, ‘Take a picture of your daughter’s eye with your iPhone and email it to us.’ She does that. They call her back and set up a virtual video appointment for that same day, and the pediatrician and mom get on the call, and she turns on her device’s camera and she puts it so that her baby’s eye is very clear for the pediatrician to see. The pediatrician says, ‘Your daughter’s got pinkeye. Here’s what we’re going to do.’”

“The mother is thrilled. Absolutely thrilled. She has the diagnosis, so now she knows what’s wrong with her daughter. She has a treatment plan. She has everything she would have received if she had gone into the pediatrician’s office, and she didn’t have to put her darling into a car seat, drive a half hour to the pediatrician’s office, sit in the waiting room, and then bundle her daughter up and go back home. The pediatrician wins, too, because pinkeye is highly contagious. The pediatrician doesn’t want a case of pinkeye in their waiting room,” Smith stated.

Not only are these kinds of situations convenient for providers and patients, they strengthen their relationships, Smith explained. “Sharing data on the screen – either remotely or in a doctor’s office – and explaining it is an important way to engage the patient in the ambulatory visit.”

Smith said that while providers should review patient records ahead of time and limit the amount of time looking at the computer, they also can invite the computer into the clinician-patient relationship by explaining why it is being used, what kind of information is being entered into it, and how it benefits both the clinician and the patient. “This sends a signal to the patient that the clinician is willing to partner with the patient to ensure strong, open communications,” she stated.

2. GATHERING AND ANALYZING INTEGRATED DATA

Florence Nightingale is known to many as a nursing pioneer, but few realize her accomplishments as a statistician. In health IT circles, Nightingale is recognized as the first “nurse informaticist,” because she gathered and analyzed data relating to patients and patient care, just as these professionals do today.

While working in field hospitals during the Crimean War, she presented data showing a relationship between poor sanitary conditions and mortality rates among wounded soldiers. Her insights led to better hygiene and cleanliness and reduced infections and deaths. Nightingale laid the foundation for evidence-based practice.

“Soldiers were dying, not because of battlefield injuries, but because of infectious diseases like cholera and typhoid,” explained Maureen M. Mitchell, associate professor of nursing and graduate program director at the Cleveland State University School of Nursing. She provided the [HIMSS Innovation Center with a book and letter, written by Nightingale](#), currently on display there. “She saw the patterns in disease and deaths and looked within the hospital environment to see how she could improve the system and the outcomes. As a result, the mortality rate improved from 47 percent to 2 percent in a short period of time.”

Those gathering and interpreting integrated data today continue to improve patient care and population health. They harness the power of EHRs, mobile apps, and other computerized systems that enable larger data volumes to be analyzed with greater sophistication. “And all that data that you’re analyzing, you have to blend that in with what you are learning about human beings,” Smith observed. “A successful clinician melds those two together – the science and the humanity. Just like Florence Nightingale did.”

Smith emphasized the growing importance of informatics in storehouses of data for easier consumption by clinicians. “Knowledge gets into a clinician’s mind in a couple of different ways. One is hands on with patients. Every time you have a clinical interaction you learn something,” she explained. “Another way is clinical decision support and other examples of informatics. These technologies provide additional guidance to clinicians on viable and efficacious treatment plans that may be available to patients.”

These data are the foundation for improving decision-making in the new world of value-driven care and payment. And it’s not just data traditionally included on a doctor’s chart. A recent [HIMSS Clinical and Business Intelligence blog article](#) highlighted how data on socio-economic determinants of health – which can have a greater impact on health outcomes than medical care – can help providers to design innovative interventions. These determinants include factors such as education, jobs, affordable housing, availability of nutritional food, parks, and more.

These data can be integrated with traditional clinical data to develop unique preventative health strategies for at-risk populations. In a [Wall Street Journal commentary](#), Dr. Drew Harris, director of health policy and population health at Thomas Jefferson University, pointed out that today’s healthcare professionals have access to more data than at any time in history. He said data managers will be needed to help clinicians manage these data and called for a new generation of clinical managers and leaders with the skills to put the data to effective use. He sees the emergency of a new health discipline – population health intelligence – “whose practitioners will be responsible for managing and making health-related data useful.”

Fresenius Medical Care North America is gathering and analyzing rich data sets to improve outcomes for patients with end stage renal disease. “Fresenius has the largest collection of clinical data on dialysis patients, treatments, and outcomes in the world,” said Dr. Ahmad Sharif, vice president of clinical health information technology at Fresenius, who co-presented a [webinar](#) to the HIMSS Clinical and Business Intelligence Community along with his colleague Sheetal Chaudhuri, director of knowledge

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- Dr. Chester Robson
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management and analytics. The company serves nearly 175,000 dialysis patients a year, providing about 26 million treatment equivalents annually, Dr. Sharif said, and its databank includes information gained from 1 million patients, 250 million treatments, 1 billion medication administrations, and 1 billion lab results.

Dr. Sharif and Chaudhuri shared their organization’s approach to using rich data sets to predict dialysis patients at highest risk of multiple hospitalizations, those most likely to miss their appointments, and those likely to have a decline in their functional status. In reaction to data showing patients likely to be no-shows, Fresenius helps patients to arrange transportation or make other arrangements to ensure they receive the care they need. Another model developed by Fresenius predicts which patients will have more than five hospital admissions in the following year. Clinicians can intervene more aggressively with these patients and reduce hospital admission rates and improve health outcomes.

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MetroHealth teams identified care processes, tools, and EHR tool-enabled workflow changes that could improve diabetes care and outcomes.
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Because healthcare organizations are rich in clinical data, the use of predictive analytics provides the science and methodology to transform this wealth of observations and results into actionable forecasts that can accurately identify patients at the highest risk for adverse outcomes, Dr. Sharif stated. Robust algorithms can determine variables, and—more importantly—combinations of variables that can serve as early warnings, contribute to changes in clinical practice, and result in reduced mortality and morbidity.

To assist organizations to achieve value through clinical and business intelligence and other initiatives, HIMSS offers a [Pathways to Value](#) tool as a part of the HIMSS Value Suite. Enabling organizations to measure clinical and business data simultaneously, the tool helps healthcare organizations define its current state, needs and goals relating to clinical and business intelligence; create and build the program, processes and infrastructure; implement, measure and analyze outcomes; and maintain and control for success.

“Most of us traditionally have been trained to focus on either clinical outcomes without considering cost, or cost containment with an acceptable margin of clinical outcomes,” stated Dr. Chester Robson, in a HIMSS blog post. He is a member of the HIMSS Clinical & Business Intelligence Committee and medical director, clinical programs and quality, Walgreen Co. “Once we achieved our goal, then we determined if it was best for the patient.” He wrote that the [Pathways to Value tool helps organizations to start from the other direction](#) – “what matters to patients,” he explained – and then to look at the highest quality, most appropriate outcomes relative to cost.

“We have many well-developed tools to measure each side of the value equation,” Dr. Robson stated. “Now, by following the Pathways to Value action plan to capture and analyze both sides of the equation simultaneously and display this in meaningful ways that inform decision making, we have a framework to move beyond the parts of the equation and into measurable, meaningful healthcare transformation to value.”

3. GUIDING TREATMENT DECISIONS, CARE MANAGEMENT AND CARE REDESIGN

Gathering and analyzing data is the first step toward establishing care priorities and guiding treatment decisions, care management and care redesign. MetroHealth, which serves the Cleveland area, identified diabetes as a major chronic disease affecting more than 10,000 adult patients for which it provides primary care. Associated with high morbidity and mortality rates, diabetes causes billions of dollars of annual health care costs nationwide.

According to Dr. David Kaelber, MetroHealth’s chief medical informatics officer, the diabetes initiative – now in its 10th year – launched after the Robert Wood Johnson Foundation provided initial funding. The goal was to see how health and financial outcomes could be improved by having clinicians better adhere to clinical guidelines and best practices. MetroHealth’s work on this initiative contributed to the organization winning a HIMSS Davies Enterprise Award.

According to a [case study](#) describing the work recognized by the award, MetroHealth work groups established adult diabetes

quality performance measures that could be extracted and tracked by standard EHR functionality over time.

These measures were divided into two groups:

CARE PROCESS/MD-CENTRIC MEASURES:

- Diabetic eye exam rates
- Pneumococcal vaccination rates
- Monitoring or treating kidney impairment with appropriate angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs)
- Checking hemoglobin A1C (HbA1c) and control of cholesterol through LDL \leq 100mg/dl or patient being on a statin cholesterol-lowering medication

OUTCOME/PATIENT-CENTRIC MEASURES:

- Achieving optimal glycemic control (HgA1C <8%)
- Blood pressure <140/90 mmHg
- Body mass index <30
- Patient not smoking

Once these work groups agreed to these measures, details of the specific EHR elements to define the measures were determined and regular data extraction, analysis and reporting occurred.

MetroHealth teams then identified care processes, tools, and EHR tool-enabled workflow changes that could improve diabetes care and outcomes. They identified and implemented decision support tools for evidence-based best practice diabetes care, documentation tools to document appropriate care and care plans, and reports at the patient, provider and system level to summarize diabetic care provided and eventually tied to financial incentives for providers. Tools and reports developed for diabetes patients include:

- Clinical decision support, including best practice alerts and health maintenance reminders
- Patient care plans
- Foot exam and eye exam discrete documentation tools
- Meaningful use process for collecting information about patient's smoking status
- Standing orders for pneumonia vaccines generated by EHR report
- Standardized EHR reports of diabetes patients for each provider
- Regular comparative reports showing how each provider compares to others on key diabetes performance measures tied to financial quality incentives
- Synopsis reports summarizing diabetes care for each patient

Over the 10-year period, performance on both measure sets improved by more than 30 percent, but the care process measures improved faster than the outcomes measures, which lagged several years behind. That's because improving clinician adherence to performing a care process, such as checking hemoglobin and cholesterol, can happen faster than improving a patient's health outcome, such as achieving optimal glycemic control. 8.44 percent, or 881 patients, achieved improved health outcomes.

"Population health is not like moving a speedboat; it's like moving the Titanic," Dr. Kaelber explained. "You can make significant changes in a population, our case showed, but it's diligent work over a long period of time that makes that happen."

"Through shared decision making, providers have the opportunity to increase patient engagement and improve patients' understanding of their healthcare choices."

- Helen Tapp, Ph.D.

MetroHealth's diabetes initiative also decreased the cost of care for its diabetic patients by about 10 percent, or about \$1 million per year, against an annual investment of about \$25,000 primarily in staff time resources that would otherwise be directed to other projects. The cost savings estimate includes reduced ambulatory and inpatient costs due to improved care leading to decreased hospitalizations and long-term complications, such as lower extremity amputations.

Dr. Kaelber emphasizes the benefits of an integrated EHR. “Regardless of where patients received their care – through multiple outpatient providers or in the emergency department, inpatient or outpatient settings – any clinician can see a complete picture of what’s going on with the patient and then can help do their part,” he said.

In another example of data gathering and analysis leading to better care management and redesign, the University of Iowa Hospital and Clinics significantly reduced adverse drug events and hospital-acquired infections through the use of EHR-enabled clinical workflows and standardized documentation, according to a [case study](#) describing work that was recognized by a HIMSS Davies Award.

With the use of almost 500 best practice alerts and analytics, Iowa significantly reduced instances of venous thrombosis, sepsis, pneumonia, and other clinical conditions. Iowa estimated net cash flow of more than \$50 million from July 2013 to June 2014 because of improved documentation and secondary diagnosis capture, cost avoidance due to improved clinical outcomes, reduced mortality and length of stay, and incentives paid for quality improvements.

An exciting development on the horizon is the rise of genomically targeted therapies and immunotherapy in the practice of oncology. According to a paper titled “[Integrating cancer genomic data into electronic health records](#),” published in *Genome Medicine* by Warner et al 2016, there is a need for EHR systems that can process the complex genomic information that must be reviewed, interpreted, and acted upon daily by clinicians. “Improved integration of cancer genomic data with EHR systems will help guide clinician decision making, support secondary uses, and ultimately improve patient care within oncology clinics,” the paper states. It also reviews several emerging paradigms for integration, including non-standardized efforts between individual institutions and genomic testing laboratories, middleware products that portray genomic information outside of clinical workflow, and application programming interfaces with the potential to work within clinical workflow. The critical need for clinical-genomic knowledge bases is also discussed.

4. IMPROVING CLINICAL OUTCOMES AND QUALIFYING FOR INCENTIVE PAYMENTS

Faced with the challenge of moving from fee-for-service to a value-based accountable care model, Hawaii Pacific Health wanted to build a stronger partnership with payers – one that would be financially sustainable for both them and the health system, according to a [case study](#) describing work that was recognized by a HIMSS Davies Award.

Hawaii Pacific approached its largest commercial payer and suggested that its enterprise-wide EHR could drive improvements in care outcome measures and reduce care costs. Having aligned incentives could be a win-win for both parties. Further negotiations with commercial payers led to the forming of an accountable care organization (ACO), Hawaii Health Partners.

For the ACO to succeed, Hawaii Pacific needed to improve patient access, said Dr. Melinda Ashton, the health system’s senior vice president and chief quality officer. Bringing the number of accountable, or attributed, lives in the network up to at least 85,000 would provide sufficient economies of scale to offset population health-related expenses and the revenue loss from reduced utilization that better population health would bring.

“You’re shifting your entire financial platform,” Dr. Ashton explained. “In that period of time between (fee-for-service) being successful to the (value-based model) being successful, there’s a middle that’s really dangerous. You’re trying to do the work to reduce hospital utilization, for example, but you’re still being paid that way. You can’t turn the switch overnight,” she explained.

To achieve better population health, Hawaii Pacific focused on improving performance on quality measures. With an initial focus on chronic disease management and diagnostic screenings, the health system developed disease registries, improved order sets, best practice alerts, and a patient outreach program.

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- Carla Smith, HIMSS North America
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Data are the foundation for improving decision-making in the new world of value-driven care and payment.
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By the end of the first year of this transition, Hawaii Pacific improved its performance on many quality measures to the 90th percentile – remarkable given that the health system had started at or below the 50th percentile on most of these measures, which included advanced care planning, blood pressure control, eye exams, cancer screenings, body mass index, medication management, and diabetes control.

To reach its goal of 85,000 accountable lives, Hawaii Pacific focused on improving efficiencies so that physicians could see more patients, instead of hiring physicians.

“We didn’t want to be in the market of hiring more physicians,” said Steve Robertson, Hawaii Pacific’s chief information officer. “Our goal is to continue to partner with independent community physicians as part of our ACO, but also to improve our throughput through the primary care physicians that we do have employed.”

To improve this throughput while improving health outcomes, Hawaii Pacific developed an EHR dashboard showing real-time data. Physicians can extract lists of patients overdue for specific health maintenance and view upcoming appointments in other specialty departments to encourage visits addressing outstanding overdue items affecting quality scores. Hawaii Pacific also implemented an automated outbound calling campaign for patients with overdue health maintenance and improved the same-day availability of physicians for established and acute patients.

These efforts helped to:

Increase accountable lives by

20%

over a two-year period

Gain more than

\$1.3M

per year in per-member-per-month patient management fees for the ACO

Net more than

\$400K

per year in patient-centered medical home level 3 quality dollars.

The new patients brought into the primary care system result in more than \$6 million in one-year downstream revenue. For example, in September 2014, 687 new patients entered the primary care system and generated 8,265 encounters during the following 12 months, generating \$6.6 million.

Dr. Ashton explained that reducing length of stay made sense as a transition strategy, as Hawaii Pacific moved from fee-for-service to value-based “because much of our care is paid for in a case rate. If you can reduce the utilization within that case rate, you get to keep that money towards your own bottom line,” she said. Given that poorly managed blood glucose is known as a contributing factor to longer length of stays, Hawaii Pacific developed a system-wide blood glucose management protocols, achieved wireless glucometer integration, and provided staff and physicians with training. After the adoption of the computer directed insulin dosing system (CDIDS), utilization increased to greater than 90 percent of titratable IV insulin infusions, reducing the hyperglycemia rate from 39.8 percent to 16.6 percent.

In addition, Hawaii Pacific formed sepsis teams at three of its hospitals to drive improvements through order sets and alerts using best practices algorithms for severe sepsis and septic shock patients. This action resulted in:

- Length-of-stay improvement for all sepsis patients from 11.32 days in 2012 to 9.74 days in 2016
- Survival of a sepsis event by 275 additional patients because of the implemented improvements

With the movement toward value-based care and payments, population health management programs are being adopted by most hospitals, according to the HIMSS Analytics 2016 Essential Brief: Population Health Study, described in a [HealthIT Analytics article](#). This movement is occurring as many healthcare organizations acknowledge that the risk-based, value-driven reimbursements gained through these programs may soon be the dominant form of payment across the industry.

The HIMSS Analytics brief reports that its survey of 104 hospitals showed that 75 percent of hospitals had population health programs in place during 2016, up from about 66 percent in 2015. The brief outlined six kinds of population health programs:

1. chronic disease management
2. wellness and prevention
3. clinical integrated network
4. patient-centered medical home
5. at-risk payment structure
6. at-risk cost structure

Most hospitals conduct chronic disease management and wellness and prevention programs. The most common type of program is chronic disease management, which are designed to improve patient outcomes and reduce costs relating to conditions such as diabetes, heart failure, and chronic obstructive pulmonary disease.

Also conducted by most hospitals and following in popularity are wellness and prevention programs to achieve health objectives such as smoking cessation and weight loss. Clinical integrated networks, which focus on cohesive care coordination and management, and patient-centered medical homes were the third and fourth most common type of program, both having established about roughly half of the survey respondents. The rise in adoption of the PCMH and other integrated care frameworks may also hint at increased comfort and familiarity with health IT tools.

At-risk payment and at-risk cost structure were the fifth and sixth most common programs. Having been implemented by a minority of hospitals, they both achieved higher levels of interest in 2016 than in 2015. These initiatives include ACOs, the Medicare Shared Savings Program, bundled payment options, or employer contracts.

Both the HIMSS Analytics brief and a recent [study](#) in the American Journal of Managed Care show a trend of roughly one-third of hospitals participating in at-risk arrangements in 2017. Pay-for-performance reimbursements continue to grow, according to a survey from the Health Care Transformation Task Force, with 41 percent of providers and payers operated under some form of value-based reimbursement in 2015, up from 30 percent the year before.

But the dual growth of population health management and risk-based contracting, even if the latter is relatively slow, shows a promising trend for 2017 and beyond – especially as MACRA forces increased accountability for costs, quality, and outcomes.

Increasing eye contact between patient and clinician: one small step toward better quality and value

One final example shows how health IT can facilitate a stronger doctor-patient relationship and bring a range of benefits to both patients and a medical group practice. After upgrading to a new EHR, Horizon Family Medical Group clinicians determined that they were spending more time in front of their computers and less time interacting with patients. In addition, the “feedback patients commonly request is an increase in eye contact with a provider during a visit,” stated Rinku Singh, the group’s information systems head, in a [case study](#) describing the work Horizon did to earn a HIMSS Davies Award.

To increase eye contact, the group’s IT team went to work. First, computers were placed in the examination rooms in areas where providers working on them would also face the patient. Next, the team created custom templates and order sets for each provider, to allow them to spend more time with the patient and less time documenting, while assuring that the providers continued document thoroughly.

“Patient care would be drastically impacted if we did not continue to stress the importance of thorough documentation and the only way to be successful in our goal was to not change their level of documentation as a tradeoff to save a little time,” Singh explained.

The process of creating custom templates and order sets required meeting individually with each provider to create individual favorites and order sets for labs, diagnostic imaging tests, medications, referrals, procedures, and patient education. “The initial goal was to save at least 30 seconds on any workflow,” Singh explained. Saving 30 seconds on six to eight workflows could save about three to four minutes per patient, “which is a significant amount of additional time the physician has to spend counseling the patient,” Singh said.

After weighing many options to meet this efficiency goal, the team determined that a specific template needed to be built to integrate within the EHR. Named the Huddle Report, the template extracts data daily automatically from multiple sources – such as the EHR, outside commercial vendors, patient gap reports, and Horizon’s practice management software – and combines it into a one-page, easy-to-read PDF that provides a synopsis of patient data and care gaps. The report prints automatically every morning at 4 a.m. at every Horizon site and links to the EHR. The Huddle Report alone saves about two minutes per patient.

The effort to increase face-to-face time between patient and clinician succeeded.

Face time increased by:

27%

during a 15-minute appointment time slot



by
20%

during a 20-minute time slot.

The increased workflow also enabled Horizon to capture incentive dollars via pay-for-performance contracting, meaningful use, the patient-centered medical home program, and the Healthcare Effectiveness Data and Information Set (HEDIS).

Horizon also achieved one deviation above the standard for the Physician Quality Reporting System, leading to a 2 to 4 percent increase in Medicare reimbursements, and is working with vendors in various pilot programs that offer other financial revenue streams.

Most importantly, the effort improved the quality of care.

- The Huddle Report lists actionable items providers can review with patients – preventative care and screening gaps, recent hospitalizations and test results, and needed tests and referrals that are outstanding.
- Order sets allow providers to quickly check and order all at once the tests, medications, referrals, patient education, specific instructions, injections and immunizations the patient needs.

“This took efficiency to the next level,” Singh stated, “giving each provider the full scope of a patient’s care, while leaving them time to take action on the care gaps.” The group built a transition of care management tool into the EHR that provided standardized approaches for patient follow-up, appointment scheduling and care plan adherence monitoring.

These steps contributed to Horizon reducing 30-day readmissions in a year. The group’s rate of 10.5 percent is 50 percent below the national average.

“Building a culture where good business results follow good medicine, we remain committed and enthused about technology, quality care, and lowering costs,” said Horizon Family Medical Group CEO James Olver. “We are delighted to share our story about the impact each group can have in a sustainable model.”