

Using Technology to Map Out a Population Health Strategy

By John M. Buell



Do you know who your high-risk patients and high utilizers are? More important, do you know precisely where they live?

Population health expert David B. Nash, MD, who presented at ACHE's 2015 Congress on Healthcare Leadership, believes knowing the answer to those two questions is vital for successful population health management. But without adequate technology to identify these at-risk patients, improving the health of a population will be extremely difficult.

"The most important five-digit number I need to predict your health status and well-being is your ZIP code, bar none," says Nash, dean of the Jefferson College of Population Health, Thomas Jefferson University, Philadelphia. "It's not your cholesterol level or your blood pressure number or your age. The No. 1 health predictor in 2015 is your ZIP code."

In many cities, large disparities in health can be found among pockets of populations that live short distances from each other. For example, babies born to mothers in Maryland's Montgomery County and Virginia's Arlington and Fairfax Counties can expect to live six to seven years longer than babies born to mothers in Washington, D.C.—just a few subway stops and one ZIP code away, according to the Robert Wood Johnson Foundation's Commission to Build a Healthier America, which publishes maps that illustrate disparities in life expectancy within cities (see the exhibit on page 16). In the New Orleans area, the gap is dramatically wider.

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“In other words, where you are on the map predicts your life span,” Nash says. “If we use technology to analyze the small percentage of patients who live in particular ZIP codes and use the data to determine ways to effectively improve care coordination and delivery, we will make progress in improving the health of these individuals while reducing waste.”

Discussions around population health management have taken on greater urgency since this expression was coined more than 10 years ago. Today, a variety of definitions for population health exist among healthcare executives and others, but all agree: Healthcare organizations cannot manage population health effectively without the technological capabilities and infrastructure to first identify populations most in need of healthcare interventions and then track the results of programs put in place to improve health for these patients.

All of the big healthcare IT firms are furiously creating population health software and applications to help hospitals, health systems and physician practices identify and manage high-risk, high-cost patients—such as the 20 percent of Medicare patients who consume 80 percent of costs.

“IT providers know the ability to identify healthcare superusers and at-risk patients is the pot of gold,” Nash says. “If we can find and better manage these 20 percent of patients, we have a fighting chance of reducing healthcare costs.”

Getting There From Here

A first step healthcare organizations can take in identifying their most at-risk patients and those who may become at risk is to create a patient registry, similar to the work Jeffrey Brenner, MD, in Camden, N.J., conducted in the late 1990s by sifting through thousands of billing records in spreadsheets. Today, sophisticated IT tools are available that make the process of creating a registry more efficient and effective.

“Without a patient registry, you can only manage what you measure,” Nash says. “You have to know who the population is.” Basic EHR systems are terrific at handling billing and other “back office” functions, Nash says, but to identify segments of the population most at-risk, data analytic capabilities are needed.

“The use of data analytics allows me to slice the patient information I already have in a number of ways,” Nash says. “For example, if I’m a primary care physician and want to practice population health management, I need a patient registry. Once I have a registry, I can run an analysis of a particular set of patients—such as patients who have diabetes—and examine how effectively I’m caring for this population of patients. I can then run analytic functions that compare my performance against regional and national benchmarks. Next, I can identify gaps in performance and use the data to help determine ways to improve. At the ground level, the registry function is the linchpin of making population health management a practical reality.”

But simply identifying patients who are most in need of coordinated care

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management now isn't enough, according to Brian Silverstein, MD, managing director of HC Wisdom, Chicago, which provides population health management advisory services and operational assistance.

"The notion that 20 percent of a particular population drives 80 percent of cost in healthcare holds true, but just because you identify these patients as high cost today is not an indicator they will be high cost tomorrow," says Silverstein, an ACHE member. "The trick to this is to determine who will be high cost in future."

To attain the level of precision required to predict the future needs of at-risk patients, precise information in a number of categories—including socioeconomic information, family background and mental health factors—needs to be collected from patients and then analyzed. "What drives future healthcare utilization for most at-risk patients on an individual basis is more related to behavioral issues, genetics and social and cultural factors," Silverstein says.

"If you rely solely on historical and utilization data to forecast an individual's health needs, you are not including the things that are really meaningful," he says. "The ability of an EHR system to help healthcare teams successfully manage the health of a population—in terms of separating a population into segments and

identifying groups of people who have life needs and creating intervention programs to address those needs—is limited. What healthcare teams need is the ability to marry this information with predictive data and to leverage these data to redesign care for specific groups of people."

First Steps Toward IT-Based Health Management

It remains to be seen whether efforts to use data to redesign care for specific populations will prove widely successful, but there are many signs of progress. For example, early data from the accountable care organization demonstration projects launched by the Centers for Medicare & Medicaid Services show such efforts have reduced per capita Medicare spending. Similar success are being shared by hospitals and health systems of all sizes.

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"The early outcome measures are good," Nash says. "So if we can reduce spending and improve outcomes, we will have found the Holy Grail for population health management."

The following are three examples of organizations that have leveraged IT and data analytics to improve population health management.

Aurora Health Care, Milwaukee.

Aurora Health Care is a network of 15-hospitals in the Milwaukee area. Using IT capabilities beyond what its EHR system offers, the organization shares data with primary care physicians to better manage chronically ill patients. Data analysts review clinical and insurance claims data and perform predictive analytics to identify patients with

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congestive heart failure and those with chronic obstructive pulmonary disease and share the information with clinical specialists who can more proactively manage their care.

The system's population health journey began in 2012. "We wanted to have the data to drive the direction we wanted to take operationally," says Sylvia Meltzer, MD, senior vice president and CMO, Aurora Health Care. "The first step was to examine our populations, develop an understanding of where we sit compared

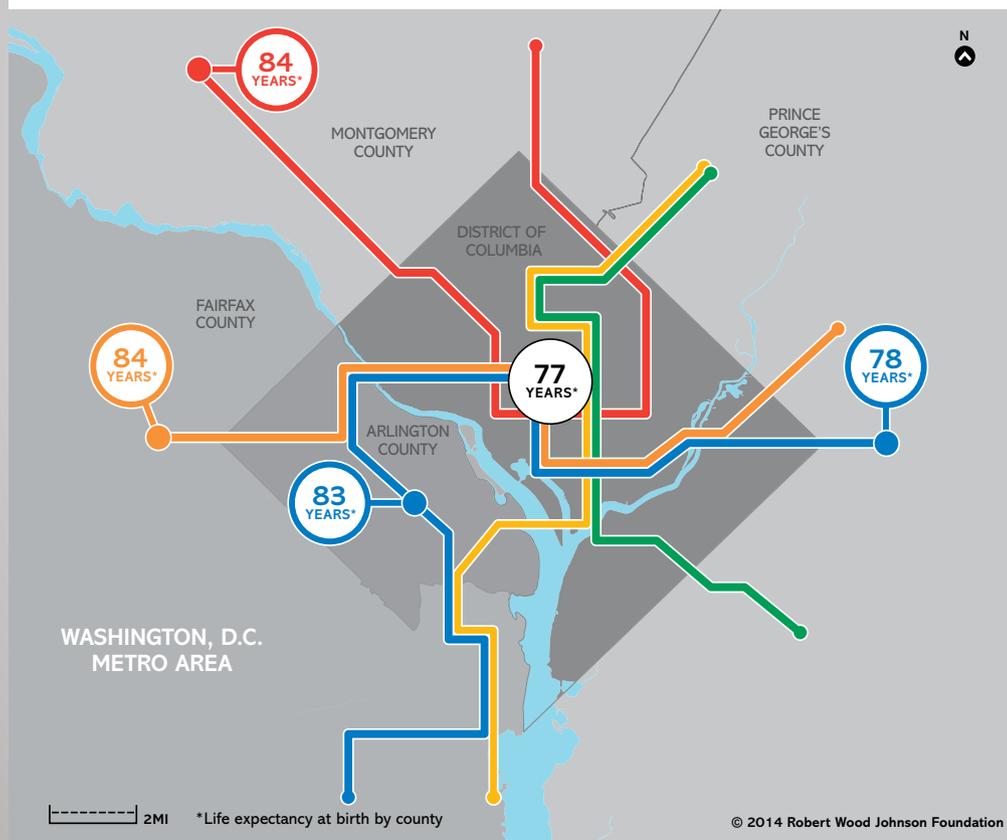
with other organizations, and determine where our greatest opportunities were."

Aurora Health Care uses a single EHR for all its facilities, but to attain the kind of high-level, hyper-specific data necessary for effective population health management, the organization invested in an additional IT platform—a population health and clinical and claims-based analytical tool.

"We can look at clinical and insurance claims to get a holistic view of where opportunities lie for population health management," says Laura Spurr, director, medical group operations, Aurora Health Care Medical Group.

Your ZIP Code May Be More Important to Your Health Than Your Genetic Code

Washington, D.C., Metro Area



The tool provides an additional layer to conduct national benchmarking and sophisticated statistical analysis, such as predictive analytics the organization was unable to previously achieve. Staff now have the ability to identify patients in different disease cohorts exhibit varying levels of risk of being admitted to the hospital.

"We run our entire population through that tool," Meltzer says. "And based on information that comes out through statistical modeling and analysis, it predicts what cohorts are highest risk. That's how we selected congestive health failure and COPD as our two high-risk populations to focus

upon. Once you dive into the data, it's not about managing one disease, but the whole patient."

Already, Aurora Health Care's efforts have resulted in a 60 percent reduction in hospital admissions for heart failure-related causes compared with the previous year, and a 20 percent reduction in all cause admissions.

"We just started on our journey, and we've experienced very impressive results so far. Now it's time to enhance what we have been able to do well," Spurr says. "How do we look not just at the impact of our efforts on one patient or interaction at a time, but on an entire population? To do that, we need the technology and tools to analyze the data in multiple ways."

A CEO To-Do List: 7 Strategies for Better Managing Population Health

The following are the top seven things David Nash, MD, dean of the Jefferson College of Population Health, Thomas Jefferson University, Philadelphia, recommends hospital and health system leaders consider to effectively manage population health.

Begin population health management efforts with their employee population. "Hospitals and health systems should be the leaders in taking care of their own employees and dependents," Nash says.

Keep the well "well." "This sounds obvious, but it isn't," Nash says. "The idea—which was first promoted by health and wellness industry pioneer Dee Edington of the University of Michigan—is to keep healthy people healthy by providing services such as gym memberships and nutritional advice. If you forget to take care of those who are taking care of themselves, you could be in a jam further down the road."

Provide appropriate guidance for those who will lead patient-centered medical homes. "Physicians typically will be charged with this effort, but they

need training around how to collaborate successfully with other providers and how to coordinate the work of each member of a patient's healthcare team—physicians, nurse practitioners, dietitians, social workers and others—to optimize care and value," Nash says.

Use patient registries. Patient registries—collections of data for patients with a specific diagnosis or condition or who have undergone a particular procedure—enable physicians to close the loop on the care of their patients and analyze how well their patients' health is being managed in comparison with similar populations cared for by other physicians. "Once the physician realizes how he is performing against his peers, this provides teachable moments and opportunities to work with the physician to improve performance," Nash says.

Partner with retail clinics.

"Because the average diabetic visits the pharmacy 30 times a year and sees his or her endocrinologist twice a year, hospitals and health systems need to partner with retail clinics on patient education and training to more effectively manage the health of such patients," Nash says.

Partner with managed care plans.

"Some insurance companies have multiple accountable care organization partnerships with provider groups that have varying risk-bearing structures. Who knows more about managing risks than the managed care industry?" Nash says.

Provide funding for physician leadership training.

"CEOs and board members need to allocate resources today to build the medical staff they are craving for tomorrow. This means providing funding for leadership training," Nash says.

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St. Joseph Hospital, Nashua, N.H. The purpose of St. Joseph Hospital's population health strategy is twofold: become more agile in stratifying populations by risk and create interventions that influence improved patient outcomes.

Because the organization is self-insured, leaders believed the best way to gain experience in population health management was to start with its own employees and their dependents. St. Joseph struggled with rising insurance costs for its employee population and their families. By using data warehouse software to collect patient data from each of its five third-party administrators, the organization identified a small number of patients who use a disproportionate amount of healthcare resources.

"We get up-to-date information in near-real time on utilization by our employees and their dependents," says Richard Boehler, MD, CEO.

"And based on two years of historical data, we can identify and risk stratify those who are on our health plan. For instance, I can identify employees and dependents who are at risk of becoming high-risk patients and put in place intervention programs to positively influence outcomes.

"So if I have an employee with two or three risk factors for developing kidney failure, why not try to keep the employee out of that situation? We are in the early stages of this approach, and this is where the

greatest benefit lies. When you take people with risk factors and craft an intervention program for them, it can make a big difference in preventing a heart attack or stroke."

One initial benefit for the team at St. Joseph's is the feeling of empowerment team members gain through the data insights now available to them. For example, clinical staff are learning how to encourage responsible use of healthcare resources through population health management. In addition, care coordinators have the tools necessary to be more proactive in helping to optimize the health of their peers. Their efforts are having a financial impact on the health system: The organization projects \$1.8 million in cost savings in 2015 through this initiative.

Truman Medical Centers, Kansas City, Mo.

Population health has been a focus at Truman Medical Centers for many years. A safety-net hospital for a region that provides a great deal of uncompensated care, Truman is at risk for 40,000 lives—those who are unable to pay for their medical care.

When it comes to using technology to improve population health, Truman's recently implemented

HealtheRegistry tool, which is embedded in its EHR system, has a large potential impact on improving the health of at-risk patients. The tool allows the organization to identify, at the individual provider level, how certain at-risk patients are doing based on an assessment of a variety of measures for seven chronic diseases.

"We can slice and dice that information and identify providers and clinics that are doing better or worse than others. We then identify the sources of differences in performances so we

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can disseminate best practices,” says Jeffrey Hackman, MD, chief medical information officer, Truman Medical Centers.

The HealtheRegistry tool pulls data from Truman’s EHR to analyze specific groups of patients and their health status. “For example, we may have a diabetes registry that has several thousand patients, and we have 20 measures in that registry, so we know whether these patients have had a particular test or scheduled their doctor’s appointment. The goal is to look more at outcomes, rather than just process measures or things like how often they come to the ED.”

Truman uses patient data from facilities in its health system, along with population health data from local government sources. The health system then examines and analyzes the population and the needs of those within that population. This allows the organization to determine high-risk patients and high utilizers, as well as others who should be using Truman’s services but haven’t been getting the care needed.

“What we found in our analysis is that we had a very high volume of people with a large number of chronic medical conditions who either visited the ED or were admitted on a regular basis,” Hackman says. “As a result of our findings, we have focused in on our chronic disease management solutions.”

To manage population health effectively, Hackman believes the more data an organization can integrate from various sources, the easier it is to do. “In some cases, you’re limited to claims-based data, but it’s a good starting point,” Hackman says. “But when you layer in clinical results and clinical data, you get a larger view of what really needs to be done to move the meter on patients’ health.”

In the past 10 years, the use of IT to more effectively manage population health has reduced the health system’s ED visits and costs. Data analytics also has enabled Truman to illustrate the value of its efforts in precise detail—with reports generated quickly and easily. “Today, we can demonstrate the impact our efforts are having on controlling a patient’s blood pressure or glucose levels in a matter of hours or even minutes because data analysis allows us to gather this information quickly instead of manually reviewing thousands of charts,” Hackman says.

Moving Forward

Although many hospitals and health systems have touched on population health for years—and some are now using IT to enable them to zero in on certain at-risk patients and design-specific care interventions—the pace of change is quickening.

“Value-based economic incentives are pushing more organizations to focus on well-being rather than on sickness,” Nash says. “And I believe the evidence will continue to accumulate to support the central take-home message of population healthcare.”

That makes the need for tools and data that provide actionable insight on population health more important than ever.

John M. Buell is a writer with Healthcare Executive.

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