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Svati Shah, MD, MHS, director
of the Duke Precision Genomics
Collaboratory in Durham, N.C.

LET'S GET PERSONAL

Tailoring care presents an opportunity.

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▲ Svati Shah, MD, MHS, director of Duke Precision Genomics Collaboratory in Durham, N.C., says progress in precision medicine has been slow.

LET'S GET PERSONAL

Tailoring care to the patient's needs presents an opportunity for hospitals and physicians.

BY NICK HUT
HFMA Senior Editor

It was back in the early 2000s when the cardiologist Elizabeth Nabel, then with the National Institutes of Health, described precision medicine as the future of healthcare.

“We’re 20 years later, and I would say we do not practice precision medicine,” said Svati Shah, MD, MHS, associate dean of genomics and the director of the Duke Precision Genomics Collaboratory in Durham, N.C.

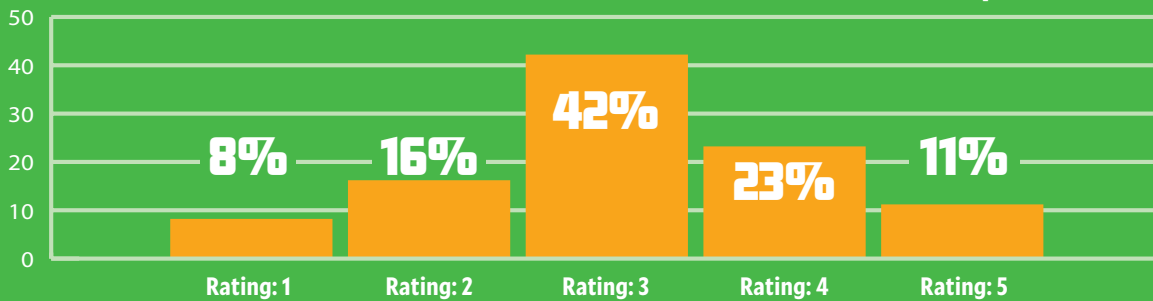
COVER PHOTOS BY MARSHALL CLARKE

FROM THE FIELD

Financial executives rated on a scale of 1 to 5 the extent to which value-based contracts allow provider organizations to put the patient first (with 1 being not at all and 5 being entirely).



How well do value-based care contracts work for patients?



Source: HFMA survey, February-March 2023, 86 out of 105 respondents answering this question

A tipping point is in sight, however. Spurred by continuing technological advances and recognition by legacy healthcare stakeholders that the status quo care models need updating, personalized medicine increasingly is gaining traction. (Note: Personalized medicine and precision medicine are used as interchangeable terms in this report, as they often are in healthcare circles generally.)

By 2030, healthcare increasingly will be catered to a patient's unique physiological, genetic, social and even financial characteristics. Yet work remains to realize that vision.

Structural changes are necessary because the current healthcare system is not designed to support the delivery of personalized medicine. Regulatory and reimbursement structures must adapt to commercialize and lure more capital to cutting-edge diagnostics and treatments.

Although much of the impetus falls on the policy and

payment communities, "Health systems really need to embrace this paradigm," Shah said.

"The fiscal milieu of health systems is getting more and more complicated and more constrained over time," she said. "But if you have a long-term strategy as a health system, precision health and support in preventing disease will in the long run provide a financial ROI, as well as what's right for the patient."

THE NEED FOR PERSONALIZED MEDICINE

The goal of personalized medicine is to bring "the right treatment to the right patient at the right time," Shah said. "As opposed to: I have a patient in my clinic and I'm going to treat them the [same way as] these big clinical trials that looked at 10,000 patients, [and] they represent only a small proportion of the variance of that patient group."

She added that personalized medicine is geared toward answering the question:

"What can we learn about our patients that we don't get from that single snapshot for 15 minutes every six to 12 months that we get in clinic?"

Clinical guidelines and best practices have tended to be cookie-cutter in nature, Shah said. Such an approach is not often conducive to identifying effective treatments.

Generally speaking, Shah said, physicians "are using a handful of things in single snapshots to figure out what to do with that patient as opposed to using what's really granularly going on with them in their bodies as well as what's happening to them in their lives and incorporating all that information to figure out the best treatment for them."

TAKING STOCK OF ADVANCES

A driving force in personalized medicine is technology that has made performing blood analysis far more exact. Clinicians and scientists can quickly and efficiently analyze

the 3 billion nucleotides in a person's genome, zeroing in on the 0.4% that vary from one individual to the next.

A prime example is seen in the breakthrough cholesterol-lowering class of drugs known as PCSK9 inhibitors. The genesis of the treatment was an inquiry about why certain people have very low cholesterol, and how that trait could be mimicked in a drug. Genetic mapping revealed the source was a mutation that caused a recently discovered gene called PCSK9 to stop functioning normally.

One drug undergoing trials would require only a single dose over a patient's lifetime to lower cholesterol by inhibiting the PCSK9 gene. Shah described the treatment as "a vaccine for heart disease."

Personalized medicine also improves scenarios in which a diagnosis is elusive. Shah said applying genetic-sequencing technologies — "really looking at the individual human being, and not just how they fit into

large populations” — provides a solution in at least 30% of cases that previously went unsolved.

At the same time, digital health devices present a mechanism for funneling vastly more clinical and physiological data about an individual to a provider. The ability to store and analyze terabytes of reference data, Shah said, means technology can be brought to bear on clinical questions that require huge quantities of data to parse.

AI is helping providers process and make practical use of data, and one vital application is interpretation of imagery.

Shah, a cardiologist, estimated she overlooks “probably 95% of the data that’s actually in those images because I’m using a human eye and not a computer eye.”

A FINANCIAL BLUEPRINT

Value-based payment (VBP) promises to give stakeholders a greater incentive to apply personalized approaches to healthcare assuming it continues to gain a foothold and ultimately is adopted.

Despite the potential for significant upfront costs, Shah is optimistic about the financial return from a personalized approach.

“You can actually have a short-term financial ROI from investing in genomic medicine programs, where you’re using genetics and genomics to identify people who are at risk of disease and then implementing systems of care to prevent those diseases,” she said.

As a performance driver in VBP models, personalized medicine encompasses more than a person’s clinical



It was very important to us to overlap clinical health, behavioral health and those social determinants of health.”

Tricia Baird
Vice president of care coordination
Corewell Health

characteristics. At Corewell Health in Grand Rapids, Michigan, researchers sought to predict which segment of discharges most needed additional resources. They developed a model that helped them identify the relevant 3% to 5% of patients, and published the results in an issue of *NEJM Catalyst*, in an article called “Reducing readmission risk through whole-person design.”

Embedded in the health system’s electronic health record (EHR), the model considers more than 60 factors, including diagnoses, medications and number of past admissions. The Corewell researchers added a point score that reflects whether a patient has a strong primary care relationship. That additional input raised the model’s predictive capability from 0.71 to 0.9 (meaning out of every 10 patients who were placed in the high-risk group, nine were categorized correctly).

Said Tricia Baird, MD, MBA, vice president of care coordination with Corewell Health: “Before we even got the math back, we could feel that we were headed in the right direction because teams started calling me saying, ‘How did my [colleague] get that in their screens? I want that in my screens. How can I see that information?’ And people were just organically adopting the score.”

A key feature of the model is the ability for care managers to easily see the algorithmic components that stand out in an individual case.

“They don’t have to make the patient repeat their whole life story,” Baird said.

INCORPORATING SOCIAL FACTORS

Baird distinguishes between health *equality*, which means providing the same type and level of support to everyone, and health *equity*, which refers

to providing tailored support to all patients.

In Corewell Health’s predictive model, “It was very important to us to overlap clinical health, behavioral health and those social determinants of health,” Baird said.

She noted the research team had equal numbers of nurse care managers and masters-prepared social workers, with community health workers eventually joining to help with the deep dive into social determinants.

“This intervention is designed to be started at the bedside or started as the patient’s discharging, and finished within a month,” Baird said. “We want our patient moving toward an ongoing medical home, a relationship that will carry them. This [research] team is meant to help solve some of those first two, three, four weeks of problems so that patients will trust themselves and trust us a health system.”

PERSONALIZED VS. POPULATIONS

Based on terminology, personalized medicine would seem to conflict with another prominent trend in healthcare: *population health management*.

And yet, “You can’t have one without the other,” said Svati Shah, MD, MHS, associate dean of genomics and the director of the Duke Precision Genomics Collaboratory.

In population health management, researchers strive to understand relationships such as the connection between proximity to a highway and risk of heart attack.

“If you don’t do population health, you would never have known [about] that,” Shah said. “But then the way you take that information to the person in front of you — you might be able to say, ‘Look, I know you have a higher

risk of cardiovascular disease because you live next to a highway, so here are some strategies for mitigating that risk.’ We’re understanding risk across populations, but then we’re using that for the individual in front of us.”

Population health considerations also should trigger questions about equity and access, “making sure we’re being inclusive across communities,” Shah said.

For example, “The more rural you are, the less your access to medical care,” she said. “That’s part of how we think about population health and community health broadly, but it very much fits with precision health. Precision health isn’t just around a certain demographic or people who have access to high-level care.”

— Nick Hut

“You can actually have a short-term financial ROI from investing in genomic medicine programs.”

Svati Shah
Associate dean of genomics, director
Duke Precision Genomics Collaboratory

“What our patients are looking for is the digital wraparound porch. They want it from the front to the back. It’s not just about checking in.”

Candi Powers
Chief revenue officer
University of South Alabama Health



As stakeholders consider ways to address holistic health issues, the need to account for the distinct circumstances of patients’ lives becomes more urgent.

“Part of why we were so good at predicting this small group of patients that was highly likely to come back was because it wasn’t one thing. It was an overlap of all these things,” Baird said. “That’s where that power of finding patients who didn’t have an outside-in-the-world [healthcare] relationship [came in]. Some things were going to crop up, and if they didn’t know who to call or the person they called couldn’t take care of the entirety of their question, they would start to slip in their health until they ended up back in the hospital.”

CUSTOMIZING THE REVENUE CYCLE

For patients to feel well-served by the healthcare system, the financial experience also must become more personalized.

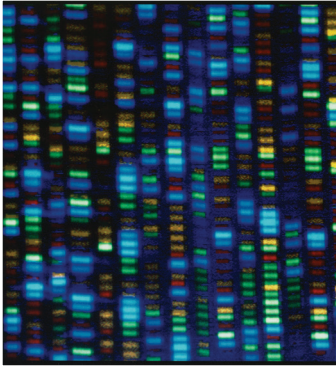
Although the concept of a digital front door can enhance convenience and access, patients are looking for more, said Candi Powers, MBA, CRCR, chief revenue officer for University of South Alabama Health (USA Health) in Mobile.

“What our patients are looking for is the digital wraparound porch,” she said. “They want it from the front to the back. It’s not just about checking in.”

The back end of the patient experience stands to be a true differentiator in customer service. Initiatives should extend well beyond patient-friendly billing statements, Powers said.

“It needs to go to our patients’ individualized, customized experience with us,” she said. “What caregivers did they see in that space? And how do we get all of that in one location so that they can access the resources they need?”

Powers added that some organizations “absolutely do not want to crack open a Pandora’s box to provide



The difference between genetics and genomics

Genetics and **genomics** both play roles in health and disease.

- Genetics refers to the study of genes and the way that certain traits or conditions are passed down from one generation to another
- Genomics describes the study of all of a person's genes (the genome), including interactions of those genes with each other and with the person's environment

Photo credit and definition source: National Human Genome Research Institute

text messaging and pay-now options on patients' cellphones.

But she said there are benefits to being able to say to patients, "You were just in the ER five days ago. You have Blue Cross Blue Shield. They've adjudicated your claim. This is how much you're going to owe. Would you like to pay it now?"

"Go through that simple verification, and then let patients pay where they are," Powers said.

With disrupters slicing into the market share of legacy providers, at least for some healthcare services, it's easy to envision the availability of a personalized revenue cycle experience as a swing factor.

"Those who do it well will have a distinct advantage in the market," Powers said. "I'm going to go where it's easy to do it, as a patient."

FINDING THE RIGHT RESOURCES

As is the case in clinical operations, there's an opportunity for personalization in the revenue cycle to improve outcomes.

"We can manage the care better administratively, making sure they're getting to their follow-up appointments,

[maintaining] their medication adherence," Powers said. "The revenue cycle has stepped into some of those administrative functions in recent years."

She added, "There are pieces we haven't touched yet around social determinants of health and getting people in touch with the resources that they need, and really engaging with patients to meet them where they are."

For example, the revenue cycle can support a form of personalized outreach in instances when a patient accesses a health system — such as through the emergency department — and doesn't list a primary care physician. Those patients can be placed in a queue for the health system's call-center preservice function to proactively make connections with primary care.

Such efforts are likely to be more manageable in the revenue cycle than by clinical navigators.

"We have the resources to do it," Powers said. "You just have to tweak them a little bit."

That may mean phasing out manual administrative tasks.

"We hold a lot of [claim-related information] just to check it and make sure that it's correct before it goes out

the door," Powers said. "All of that is important, but none of it requires a human anymore. I'll be on a mission over the next three to five years to really free up that knowledge base to do more customization at the patient level — getting folks aligned with the right resources that they need."

POTENTIAL SOLUTIONS STILL UNTAPPED

One obstacle to the widespread implementation of personalized care is the lack of synchronicity between the healthcare system and manufacturers of devices such as Fitbits and Apple Watches.

"Health systems have to be at the center of these conversations to really push these companies, to say, 'You need to work with [healthcare stakeholders]," Shah said.

EHR vendors also have a crucial role.

"If I take all your raw Apple Watch data and stick it in your patient chart, I don't have time in-clinic to look through those data," Shah said. "We need structured ways to take those data and bring it to clinicians to say, 'I know you only have 10 minutes to take care of this patient. I just wanted to flag one thing for you. Their heart

rates have been getting to 200 when they're exercising, based on their Apple Watch data.' And [it provides] a little flag to say, 'Hey, maybe you should address this.'"

Technology barriers also affect revenue cycle efforts to customize the patient experience. For example, interoperability has not reached a stage at which providers can efficiently assist patients based on the various permutations of their insurance coverage (or lack of coverage).

"We should not have to, [for] an individual case, be obtaining the financial and benefit information for our patients," Powers said. "We should be able to interface our systems [with insurers], and enough information should be able to flow to where we can do that in a much more efficient, automated, streamlined way — where we get all the individual patients and their individual details, but in an electronic format that is easily digestible into our systems."

WHAT LIES AHEAD

Revenue cycle departments, Powers said, should plan to invest in technology that presents "the simplest path from A to B for the patient from

Personalization as a tool to build trust

BY NICK HUT
HFMA Senior Editor

Personalized care offers a route to addressing the lack of trust that patients increasingly seem to feel toward some aspects of the healthcare system.

That idea arose in discussions at HFMA's 2023 Thought Leadership Retreat, which took place Sept. 28-29 in Washington, D.C., and focused on how stakeholders can restore trust in healthcare.

One leader who attended the retreat linked personalization to the value push in healthcare.

"The way to really make this work is to get much more personal about how we deal with care," said James L. Heffernan, FHFMA, MBA, who recently retired as senior vice president of finance and treasurer of Massachusetts General Physicians Organization. "Why can't we take tools [like] AI, the expanded access to data, and begin to build a real value-based system that's specific to the individual? One of the reasons people get lost in this is we're spreading the resources we have over everybody equally, and not targeting the individual's needs.

"We don't need a new structure because nurses have been dealing with individuals for years; doctors have been dealing

with individuals for years. All we have to do is give them real-time access to data and build out the tools so they can use their talents."

After the event in an interview, Heffernan said that advanced personalization tools increasingly are becoming available to clinicians. These include resources that can predict delirium for patients during hospitalization and post-discharge; determine the best treatment course (e.g., surgery, medicine, a nonsurgical procedure or watchful waiting) for an individual patient seeing a particular type of specialist; or pinpoint specific cancer treatments, such as transplant immunotherapy or CAR T-cell therapy.

"It's actually pretty exciting," he said.

Issues of equity must not be overlooked in the effort to make care more personalized, said Robyn Begley, CEO of the American Organization for Nursing Leadership.

"Personalized medicine is absolutely the future, but it's got to be for all, and we have to figure out how we're going to make that happen," she said during the retreat.



Robyn Begley is CEO of the American Organization for Nursing Leadership.



“Why can't we take tools [like] AI, the expanded access to data, and begin to build a real value-based system that's specific to the individual?”

James L. Heffernan
Retired senior vice president of finance and treasurer
Massachusetts General Physicians Organization

the standpoint of shopping for the service, scheduling the service, checking in for the service, being able to interact with their medical record.”

And then, USA Health incorporates the myriad financial expectations and is able to monitor if the patient truly is satisfied.

In a clinical context, the ability to use data to create customized care plans presents intriguing options.

“You can think of lots of complicated disease journeys in specialty care, or just lots

of places where there are healthcare ‘tribes’ that would benefit [patients],” Baird said. The idea is to identify patients “early in those long, complicated journeys and suggest that there might be a tribe or a group that would help them get the answers, get the support and stay with the treatment. To me, that broad matching of subgroups or subtopics has the most short-term excitement.”

The government may need to play a role in motivating disparate groups of

stakeholders to work together on technology implementation and in striking “that delicate balance of making sure that the FDA isn't creating onerous processes for being able to bring these things to patients, but also making sure there's data to support actually bringing it to a patient,” Shah said.

As futuristic as personalized healthcare can seem, big strides are within reach.

“It's not like we need to invent huge new tools,” Shah said. “We have to work together to use those [existing] core

pieces, so we can not only take the discoveries that we already have and make them applicable to our patients, but also it builds the infrastructure for new stuff that comes down the line — so we're not waiting 30 years to take something new and actually apply it to our patients.” ■

About the author

Nick Hut is a senior editor with HFMA.

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healthcare financial management association

The Healthcare Financial Management Association (HFMA) equips its more than 110,000 members nationwide to navigate a complex healthcare landscape. Finance professionals in the full range of work settings, including hospitals, health systems, physician practices and health plans, trust HFMA to provide the guidance and tools to help them lead their organizations, and the industry, forward. HFMA is a not-for-profit, nonpartisan organization that advances healthcare by collaborating with other key stakeholders to address industry challenges and providing guidance, education, practical tools and solutions, and thought leadership. We lead the financial management of healthcare.

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2030 SUPPLEMENT

LET'S GET PERSONAL

BY PAUL BARR
HFMA Senior Editor

The final installment of the Healthcare 2030 series concerns a topic that is difficult to get your hands around, but Senior Editor Nick Hut did an excellent job of summarizing the possibilities and challenges of precision medicine. One thing is clear: precision medicine could totally change the way care is delivered, potentially making other kinds of treatment unnecessary. The three-year series, with a total of 12 parts, now concludes with analysis and predictions by experts at the organizations that made this series possible.

PRIVACY SHOULD ALWAYS BE TOP OF MIND



FORV/S

DANIELLE SOLOMON

National Industry Partner, Healthcare
Forvis

PICKING UP THE PACE

Providers are adopting precision medicine in pockets when they have the technology and data and where they see benefits. In addition, patients feel the more personalized approach and satisfaction and trust is increasing. The article discusses, and I whole heartedly agree, health systems with long-term strategies around healthier communities and managing health are making the investment and believe in the long-term ROI in addition to the fact that is it the right thing to do for the patient. I'm optimistic that this trend will continue, and more providers will want to be a catalyst for change and embrace

the opportunities and advancements this approach has the potential to achieve.

A BROADER DEFINITION OF ROI

I passionately believe the potential for improved care from personalized medicine will offer enough ROI to make it viable for healthcare providers. In addition, it's the right thing to do for patients and the community, and is what they deserve. Also we should acknowledge that providers and other influencers will need to continue to advocate and educate for payment changes to align the risk and reward. ROI can mean different things and the ROI on personalized medicine goes way beyond just the financial return and is measured against patient experience, trust and health.

PRIVACY AS A CHALLENGE TO ADOPTION

Privacy is, and always should be, top of mind. Health systems deploy a lot of time tools and technology to protect PHI and do what they can to not inhibit progress but safeguard and protect useful information.

“I passionately believe the potential for improved care from personalized medicine will offer enough ROI to make it viable for healthcare providers.”

NAVIGATING PERSONALIZED MEDICINE IN A FEE-FOR-SERVICE LANDSCAPE



Xtend
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MIKE MORRIS

President and CEO
Xtend Healthcare

Personalized medicine thrives on the premise of tailoring treatments based on patient-specific factors, ranging from genetic predispositions to lifestyle choices. However, within the fee-for-service (FFS) framework, payers often seek “sameness” in claims to streamline the reimbursement process. The tension between the need for personalization and the payer’s preference for standardized claims raises concerns among providers. In a fee-for-service world, healthcare providers operate under the premise of billing for each service rendered. Unfortunately, the FFS model often prioritizes standardized processes and uniformity in claims, making it challenging to integrate the principles of personalized medicine seamlessly.

FEE-FOR-SERVICE NOT A GOOD FIT

Payers in the fee-for-service ecosystem typically rely on standardized billing codes and claim formats to process reimbursements efficiently. This emphasis on uniformity poses a dilemma for healthcare providers looking to embrace personalized medicine. Payers are accustomed to evaluating claims using established criteria and may view increased personalization as grounds for denial. For example, in today’s world what is considered medically necessary for payers is often applied across all patients equally. With personalized medicine, what is considered medically necessary for one patient may vary significantly from another patient. The payers have incentives to control costs — providers see these cost containment

initiatives in play first-hand as it’s well documented that the number of denials have trended up year over year. The payers’ legitimate need to control costs however must be balanced with the medical needs of the patient. The intricacies involved in personalized medicine, such as specialized tests, targeted therapies, and individualized treatment plans, are sure to complicate the billing process. It’s important for providers and payers to collaborate so that the emphasis on personalization does not inadvertently become a barrier to reimbursement.

WORKS BETTER IN VALUE-BASED CARE MODELS

In contrast to the fee-for-service model, value-based care (VBC) emphasizes patient outcomes and quality of care rather than the quantity of services provided. In a VBC framework, personalized medicine aligns more seamlessly with the overarching goal of improving patient health. The focus on preventive measures, holistic care and long-term outcomes in VBC minimizes the conflict between personalization and payer expectations. A value-based care model offers a more conducive environment for personalized medicine, with the emphasis on improved patient outcomes aligning the core principles of individualized treatment.

BRIGHT OUTLOOK

Personalized medicine holds immense promise for the future of healthcare, offering tailored solutions that can significantly enhance patient outcomes. However, within the fee-for-service paradigm, the tension between personalization and payer expectations presents challenges. The inherent conflict between the desire for individualized care and the need for standardized claims underscores the need for a paradigm shift towards value-based care, where personalization becomes an asset rather than a liability. In the meantime, finding a balance between personalized medicine and financial sustainability remains a critical imperative for healthcare providers and payers alike.

“Personalized medicine holds immense promise for the future of healthcare, offering tailored solutions that can significantly enhance patient outcomes.”

PRECISION MEDICINE GROWTH TO COME TREATING SELECTED DISEASES



CHARTIS

BRET ANDERSON

Principal
Chartis

More precise cohorting of patients and matching them to targeted therapies that have a greater population health impact are critical to expand the aperture of precision medicine to make it accessible to more patients and a key capability for success within value-based care arrangements. Adoption of precision medicine is likely to accelerate in a few niche areas, including a wider array of precision oncology applications, as a greater swath of genetic mutations are characterized for clinical significance in driving cancerous diseases. Much of the initial investments from life sciences have focused on this area and are expected to continue to do so, given the promising improvements in response and curative rates for more tailored genomic therapies in precision oncology. Additional areas for expected acceleration are in metabolic, neurodegenerative and cardiovascular diseases, which collectively lead to an outsized burden of diseases from the perspective of outcomes and cost.

ROI FROM PERSONALIZED MEDICINE WOULD BE GREATER IN VALUE-BASED CARE MODELS

The ROI for personalized medicine is predicated on an efficient operating model that matches reimbursement coverage and patient eligibility for targeted precision diagnostics and

therapeutics. Simultaneously, innovative models must be developed with payers to expand coverage for emerging use cases that have demonstrated clinical efficacy, paired with both short- and long-term value-based care improvements. For instance, when done well, personalized medicine will direct patients to the optimal therapy for their care needs the first time — avoiding a costly “therapeutic odyssey” that can delay improvement in clinical outcomes. Longer-term, personalized medicine has the ability to better stratify health risks and prescribe targeted preventive medicine approaches to screening and earlier, less costly treatment of diseases. All told, the ROI of personalized medicine can be realized in both fee-for-service and value-based care reimbursement structures, but the longitudinal upside of personalized health, and not just medicine, is best aligned to a value-based world.

PROVIDERS NEED TO KEEP A CLOSE EYE ON PRIVACY CONCERNS FROM PATIENTS

While not the leading factor driving adoption rates in personalized medicine, ongoing concerns about privacy are certainly among the many issues top of mind for program leaders. Given the inherently unique nature of a patient’s genome and other biomarkers, the risk of privacy breaches in personalized medicine is real and needs to be part of any personalized medicine program’s strategy. It should also be done in conjunction with enterprise data and security teams. That said, the data protections, patient consent processes and clinical protocols that are essential to any personalized medicine program can and should be designed to maintain the integrity of those important components while also fostering innovation and discovery that personalized medicine relies on for advancement.

“Longer-term, personalized medicine has the ability to better stratify health risks and prescribe targeted preventive medicine approaches to screening and earlier, less costly treatment of diseases.”