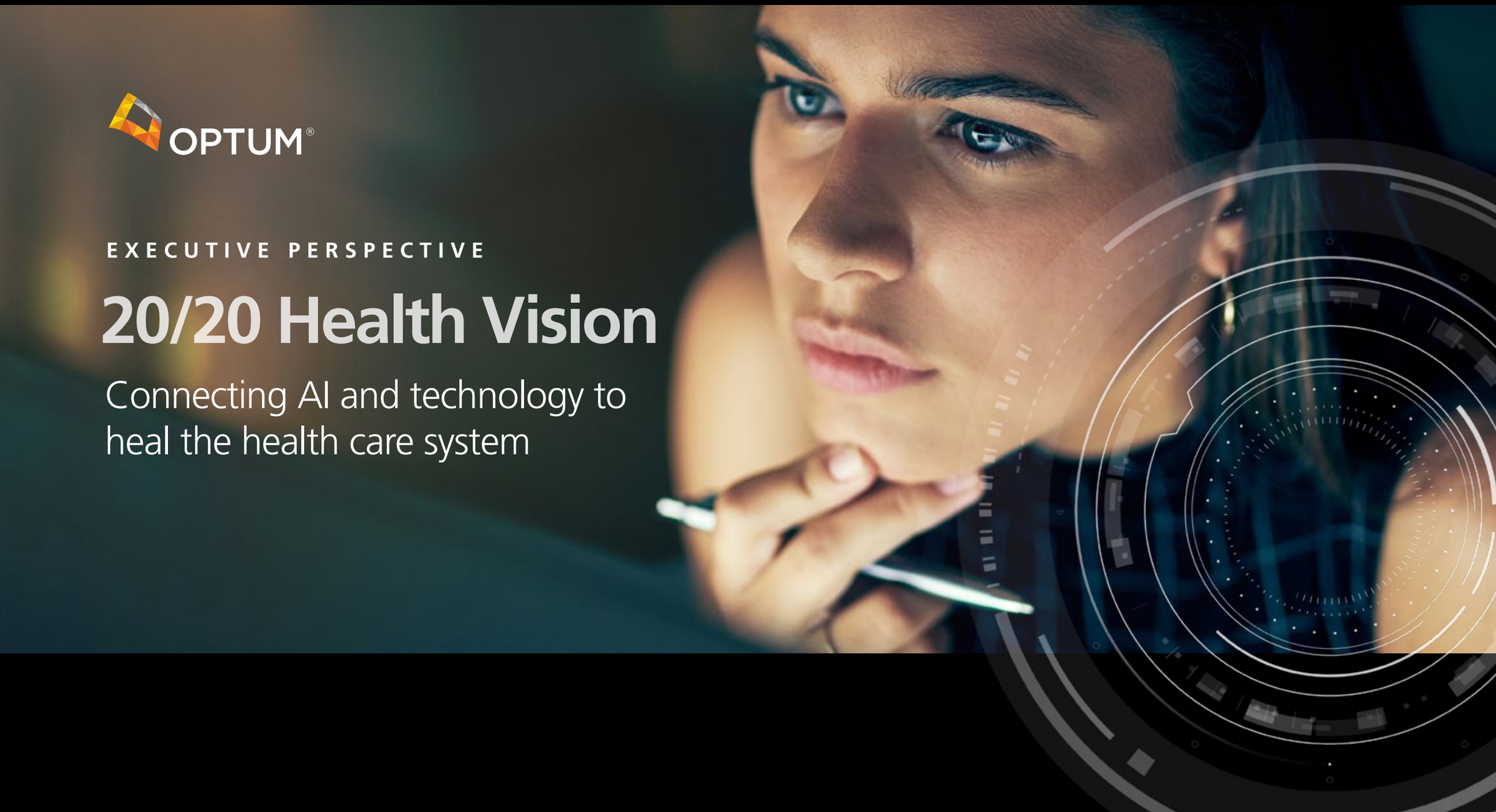


OPTUM®

EXECUTIVE PERSPECTIVE

20/20 Health Vision

Connecting AI and technology to heal the health care system

OPTUM®

Table of contents

FOREWORD

How AI and other technologies will transform health care in 2020 and beyond

John Kontor leads the Provider Technology Services practice within Optum Advisory Services. He plays a pivotal role leading electronic health record (EHR) implementation, EHR optimization, population health/value-based operations efforts and IT strategy.

Prior to consulting, he practiced internal medicine for 14 years. His focus was ambulatory chronic disease management and inpatient critical care.

John Kontor's unique perspective comes from his experience serving as an executive in multiple roles at integrated delivery networks (IDNs). These include chief medical information officer, vice president of medical affairs and medical director of an employed physician network.

John received his Bachelor of Arts from Boston University in health policy and earned his Doctor of Medicine from the University of Florida in Gainesville.

With the start of a new decade, it's a good time to take stock of the health care information technology (IT) industry, where we've been and where we are headed.

Already, we have witnessed a profound and immediate dependency on technology innovation and adoption in light of coronavirus disease 2019 (COVID-19). Now, we're all asking the same question: Where do we go from here?

We know from our **2019 Annual Survey on AI in Health Care** that implementation of artificial intelligence (AI) strategies increased 88% between 2018 and 2019 across the industry. While it is easy to imagine the benefits these advances offer in terms of clinical outcomes and cost reductions, there is no guarantee of success. So, when it comes to innovation, our decisions matter. And given our current environment, the points under consideration — the investment of precious resources, the commitment to operational discipline and

the willingness to break new ground — deserve a leader's close scrutiny. But for those we ultimately serve, there is a lot at stake in our collective innovation.

As we prioritize COVID-19 responses and make organizational decisions, let's remember the exponential impact we can have on the overall system and the people it works for. These are the three areas of innovation where I expect we will deliver sustainable benefits to health care organizations and the individuals they serve in the coming decade:

Transactional processes
Much is written about the need for clinical improvements, but not enough about harnessing innovation to remove friction from a complex and hard-to-navigate health care system. Emerging technology is well-suited to solve these problems.

Equity
The second opportunity is consistency in delivering evidence-based care decisions to every person, regardless of his or her geography or socio-economic status. These obstacles require that investments in technology are always paired with trained clinical experts.

Achieving real outcomes
Interoperable data — the foundation of AI-enabled analytics — and consistent processes are important, but outcomes matter most. New breakthroughs are coming, but effectively changing the behaviors and workflows that deliver them will remain a challenge. Consumer technology behemoths have shown how it is possible to influence personal behavior through technology, a lesson we'll need to adopt in health care.

Since the inception of the COVID-19 pandemic, there have already been many new strategies and innovations exercised across different roles and facilities. To help you sort through the noise and separate fact from fiction, we've assembled a team of experts from across each sector of health care. These executives understand the challenges facing the three core constituencies in health care: those who provide and manage care, those who pay for care, and those who receive care.

Regardless of which sector of health care you represent — care providers, health plans, employers, life sciences organizations, or state or federal agencies — you have a hand in addressing the needs of all three of these roles.

In this e-book, you'll get expert perspectives tailored to the needs of your sector. They'll discuss how to leverage AI and emerging technology in practical, realistic ways so you can meet the expectations of your direct customers and your wider range of stakeholders across health care.

Improved health outcomes. A better consumer experience. A clinical workforce focused on easy-to-access patient care, instead of repetitive and often wasteful tasks. All at a lower total cost. It's ambitious, but it's not too much to ask. Our people have defined a pathway toward the achievement of those simultaneous goals and explain how connecting recent and emerging technologies will help get us there.

◀ BACK TO TABLE OF CONTENTS

PROVIDERS:

Digital innovation is driving positive transformation

Tushar Mehrotra, MBA, is senior vice president of analytics at Optum. Trained in electrical engineering, Mehrotra earned his MBA from the Wharton School at the University of Pennsylvania. He has extensive experience in strategy, growth, digital and analytics topics across health care stakeholders. Before joining Optum, Mehrotra was a core leader in the North America health care digital and analytics practice at McKinsey & Company, a management consulting firm. He oversees 100-plus Optum analytics professionals, including data scientists, health economists and actuaries.

> ’ve worked in health care data and analytics for 15 years now, mostly in strategic or advisory roles. I’ve helped health plans, providers and life sciences organizations understand what it takes to gain a competitive advantage and how to think about innovation and differentiation.

Coronavirus disease 2019 (COVID-19) has drastically disrupted the health care industry. According to the American Health Association, America’s hospitals and health systems will experience $202.6 billion in losses between March 1 and June 30 in 2020 due to higher labor and supply costs and canceled procedures.[1] To overcome this financial loss, facilities will have to adapt, refine and refocus their missions and strategies in addition to harnessing new technologies.

Providers, especially, are showing more confidence in artificial intelligence (AI) technology. Of those we surveyed in 2019, 55% said they expected to see a positive return on AI investment in less than three years. That’s a jump from 26% in 2018. As the health system faces added financial constraints resulting from COVID-19, these kinds of returns could be pivotal for organizational sustainability.

This same group identified automating business processes, such as administrative tasks or customer service, as their number one priority when it came to where they were investing those funds. Clinical applications — such as personalizing care recommendations, accelerating research and identifying at-risk populations — received the support of about a third of respondents. Among those that held reservations about AI

◀ BACK TO TABLE OF CONTENTS

in health care, the leading cause of their trepidation was a lack of transparency about how the technology makes decisions.

So why are providers taking interest? First, administrative use cases — applications of AI like streamlining medical necessity review, personalizing customer service interactions and enhancing revenue cycle workflow — are far more established in today's world than their clinical counterparts. We're on the cusp of some great breakthroughs in patient care when it comes to diagnostic assistance or clinical decision support, but most of these efforts are a few years away from prime time. And as COVID-19 continues to challenge the workforce, it is likely that these numbers will only increase as providers explore new ways to ease administrative burdens and streamline processes.

Health plans and life science organizations have invested aggressively in building data science teams with an AI focus. Providers must be thoughtful about where and how to access talent to reap the rewards of what's to come from AI.

Digital advancements elevate patient care

From a digital and analytics perspective, provider organizations can expect advancement in three core areas:

Providers reclaim time for patient interaction

Physician burnout remains high. A 2019 American Medical Association study found that 43.9% of U.S. physicians exhibited at least one symptom of burnout.[2] The COVID-19 crisis has only added to those challenges.

A great benefit of today's AI is its ability to take on mundane, repetitive tasks. That makes it a great tool to take the strain off providers for things like documenting patient encounters, assembling justification for prior authorizations and reviewing medical necessity determinations. As those administrative tasks become automated, providers' time will be freed up to focus more on one-on-one interactions with patients.

Digitization drives next-level patient care

When it comes to prediction in medicine, we've only scratched the surface. AI allows us to bring together multiple data sets — such as claims, genomic, demographic, social determinant and patient-reported data — to gain next-level insight about a population or patient.

Consider the possibility of a model or algorithm that could use these data to predict what could happen to the health of an individual. This type of capability or insight will be critical as we follow the COVID-19 patient trends in the years to come.

As we continue to operate in a COVID-19 world, data sets captured by remote monitoring and Internet of Medical Things devices can be used to gain a holistic view of a patient's health. Using this data, AI can also identify opportunities for care interventions. This digitization of data could lead to improved health, reduced costs and better quality of care and satisfaction — all while patients remain at home. Our challenge as we move forward is to find a way to make these data sets usable to providers. They shouldn't have to decipher the noise to understand the real signals that affect patients' health.

Predictive data guides personalized medicine

This term isn't new, but it's gained new meaning. AI advances will help providers deliver the right care at the right time, based on a deep understanding that comes from the predictive data AI can provide. With the introduction of new, massive data sets, the need for AI to coax out useful information will become even more important. Already, some health plans are using genomic data in new ways, such as predicting prescription medications that may prove to be most effective for individual patients.

Using technology to get back to the art of medicine

With ongoing advances in AI, the health care industry will continue its transition from descriptive and diagnostic to predictive and prescriptive.

For providers, that means a more comprehensive "digital" look at the people they treat. It means delivering care that's more effective for each individual patient. And it means a return to the hands-on approach that likely led them to medicine in the first place.

BACK TO TABLE OF CONTENTS

LIFE SCIENCES:

Accelerating research and development of new medicines

Brian K. Solow, MD, FAAFP, serves as the chief medical officer for the Life Sciences division of Optum. Dr. Solow oversees the clinical research teams within Life Sciences and previously served as chief medical officer of OptumRx®, one of the country's largest pharmacy benefit managers.

Dr. Solow holds an active appointment as clinical professor at the University of California, San Francisco, School of Pharmacy and an appointment at the University of Southern California School of Pharmacy. He received the Family Medicine department award from the University of California, Irvine, School of Medicine for distinguished practice and teaching.

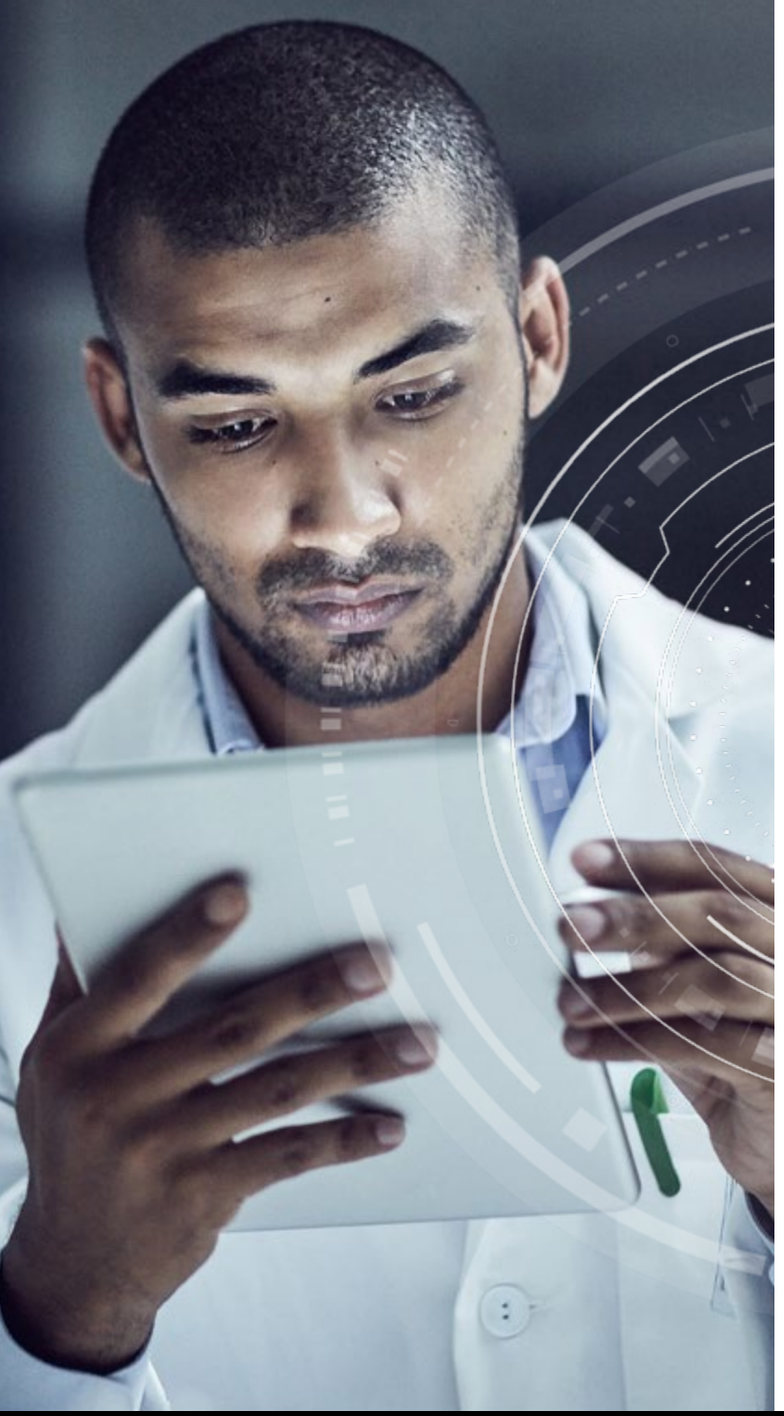
Dr. Solow is a fellow of the American Academy of Family Physicians. He has been a member of the U.S. Pharmacopeia (USP) Medicare Model Guideline Expert Panel advisory committee and has served on FDA advisory panels.

In 2019, the Food and Drug Administration (FDA) approved 48 new therapies for conditions ranging from breast cancer to sickle cell disease to schizophrenia.[3]

For every one of those new therapies, thousands of patients were given new hope. New therapies allow our patients to live better, longer, healthier lives. But despite the urgency of that mission, the process of developing and getting new products approved is slow — and painfully expensive. It can take decades — and cost billions of dollars — to bring one new drug to market.

A drive to reduce time and expense — while also bringing even more value to patients — has led research-based life sciences organizations to artificial intelligence (AI) tools. Already, AI has played a significant part in helping scientists investigate potential coronavirus disease 2019 (COVID-19)

BACK TO TABLE OF CONTENTS



vaccines. You can anticipate that these types of quick-action developments will only become the standard as time progresses.

Planning for AI has grown rapidly among life sciences organizations. Of those we surveyed in 2019, 70% reported having implemented an AI strategy. That's a jump from just 34% in 2018. This same group pointed to research acceleration and personalizing care recommendations as their top AI investment priorities.

So, what can life sciences organizations expect from AI in 2020 and beyond? They should look no further than patient expectations for that answer.

Expect the expected

Patients have changed. They've always wanted safe and effective therapies, but now they have more information at their fingertips. They've become wiser as consumers and expect more data to inform their decision-making on health care.

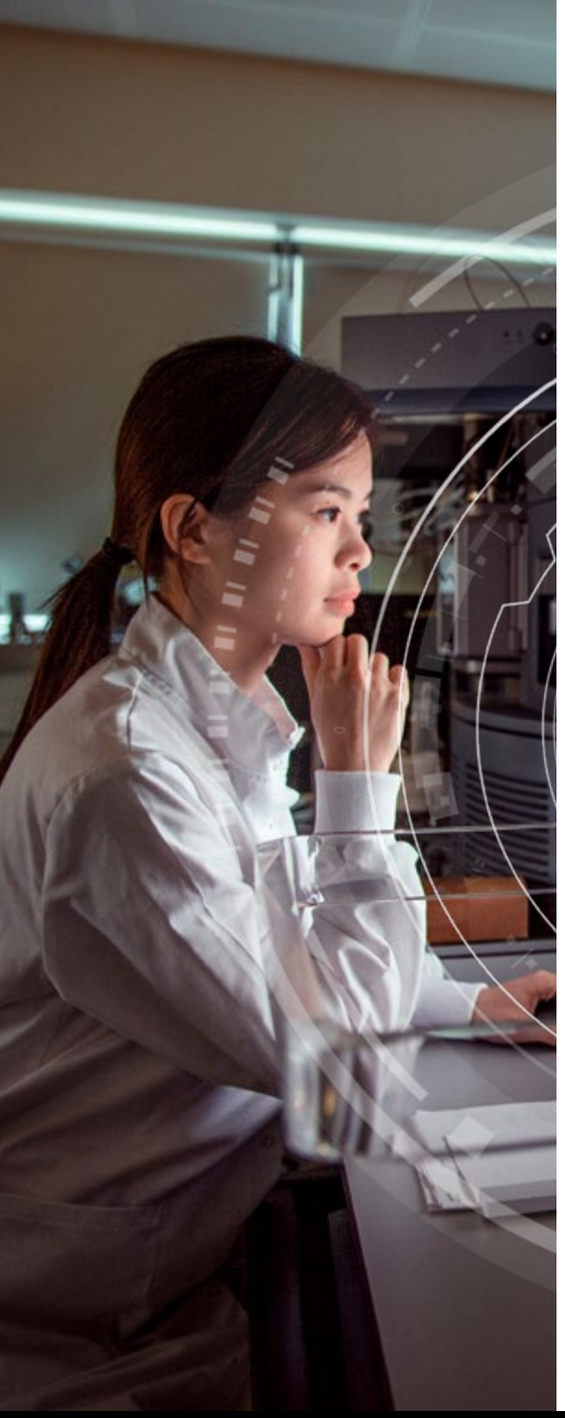
They want to know that their prescribed treatment is the best available and that it will work. Patients expect their physicians have offered them every option and that they have studied and carefully weighed potential outcomes.

Likewise, in an age when patients have more choices than ever, involvement in clinical trials by providers can help bolster their reputations when it comes to their knowledge of and ability to deliver cutting-edge treatment — not to mention access to new care options and even influence on revenue streams.[4] Efficiency gains thanks to AI will broaden the scope of what's possible.

Streamlining drug development

Real-world data (RWD) is the future of drug development. Using AI, we are already able to analyze tens of millions of records to track outcomes and side effects across large populations. We can use RWD to compare differences in the effect of new therapies in populations and see true safety and efficacy as patients use products in day-to-day life, not in the controlled setting of a clinical trial. We've even begun to tap into real-world evidence to augment regulatory filings, using EHR data and post-market surveillance to support new indications for use.[5]

As an industry, we are scratching the surface when it comes to other applications in drug development. Deep learning models — AI that doesn't need to be explicitly programmed for what to look for — can be used to analyze millions of chemical compound combinations



and simulate their efficacy for different treatments, helping researchers home in on compounds that merit further testing.[6] That can help marshal resources more effectively toward the most promising new therapies.

Improving clinical trial recruitment

Life sciences organizations we surveyed show a high level of trust in AI for identifying patients for clinical trials.

With the use of AI and large data sets, we can now identify populations at risk for specific diseases and work with providers to improve access to clinical trials. Natural language processing (or NLP) in particular is helping provide more granular information about patients by combing through clinical notes in electronic medical records. Clinicians can then be notified when they have a patient that potentially meets the criteria for a new study.

Delivering better value

In the past, we would give a medication, and if it didn't work, we'd try another. Our patients put up with this and were penalized with financial responsibility. Just like the broader conversation in health care about the transition from fee-for-service to fee-for-value, drug manufacturers need to be planning for evolving reimbursement structures.

Analytics are critical when it comes to value-based contracting. When we understand the value of a product, we are more willing to stand behind it.

We are now able to use AI capabilities to understand the value and ensure that what we are producing is truly improving overall health. We can expect to know how a medication is performing in real time, which will open the door for improved prescription habits and increased compliance. When consumer health data points inform predictive modeling and machine learning, it can provide simple, affordable and personalized pharmacy care that anticipates and ranks the best saving options per each consumer's preferences.

A new view of health care

Medicine is a paradoxical profession — it's one that tries to put itself out of business every day. We continue to look for cures, but illnesses aren't going away any time soon. The terrible example of COVID-19 only proves that there will continue to be a resounding need for swift, new medical developments in the future. And in the meantime, patients have become savvy consumers who know they need more data, and an educated partner in their care.

Life sciences organizations — now, more than ever — will need to rely on data and AI technologies to model scenarios and understand their impact on patients. Whether that's looking at the natural history of a disease, the value of drug or clinical outcomes, AI is ushering in a very new and exciting view of patient health and how we can best deliver patient care.

HEALTH PLANS:

At the forefront of health tech adoption

Dave Chennisi is the senior vice president and practice lead of payer technology services in Optum Advisory Services. He has more than 30 years of experience in the health care insurance industry. Dave and his teams are responsible for successful systems implementation and integration projects. These projects focus on a variety of areas, including core administrative claims adjudication, medical management, business intelligence and data warehousing, security, EDI, testing and customer relationship management.

Dave joined Optum in 2014. Prior to joining the company, he served as the chief information officer at Texas Children's Health Plan and was part of the senior management there for more than seven years. Dave earned his BS in chemical engineering from Rice University. He earned a graduate certificate in health care management and public health from the Jesse H. Jones Graduate School of Business at Rice University.

Across all the sectors in health care, health plans are the most enthusiastic adopters of AI-powered services. That's not just me saying that — consider the following responses from **our 2019 survey:**

- **88% of health plans** reported they have implemented an artificial intelligence (AI) strategy, and four out of five are in the middle-to-late stages of deployment.
- **92% of health plan respondents** indicated they trust AI to support administrative tasks.
- **89% of health plan respondents** are confident they'll see a full return on investment for AI technology or services.

Where does that confidence come from? To me, there are a few characteristics that all health plans share that help explain this convergence. The first is a long-standing commitment to statistical analysis and risk prediction. Many of today's cutting-edge applications of AI stem from an evolution of

the mathematical models that have underpinned health plans for years, so there is already an organizational dependency and appreciation for model-driven decision-making.

Another area is consumer-centricity and the influence of other industries like retail and finance. Whether it's due to Medicaid expansion, individual marketplaces, the proliferation of Medicare Advantage plans, or more traditional employer-sponsored plans, consumers have more choices than ever, and the competition for members has led to the adoption of many AI-enabled best practices that have changed how we shop, bank and communicate. Likewise, there are also troves of new information about members that can be leveraged by AI to help keep them engaged and displaying higher levels of ownership over their health. This isn't just about keeping members happy — health plans can learn a lot, too, thanks to these new data streams.

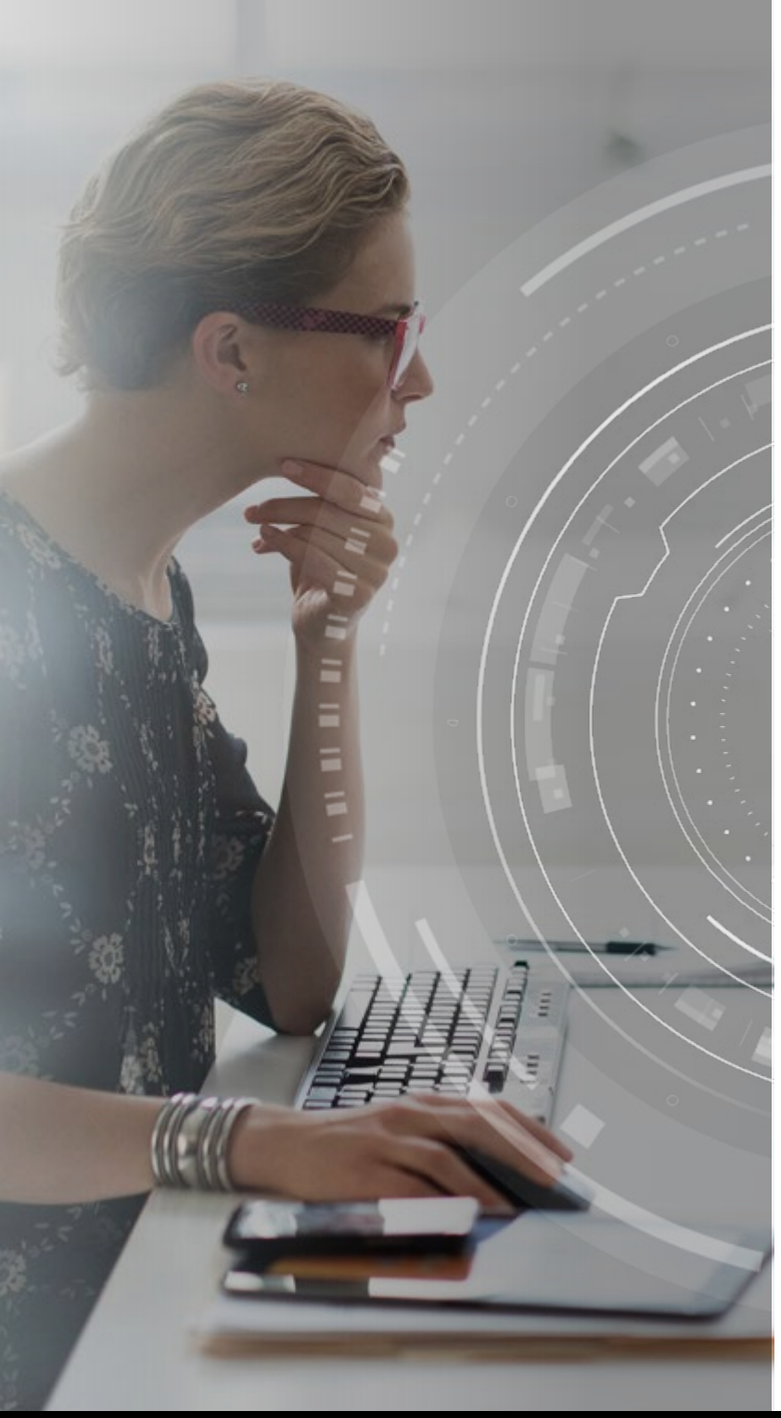
Practicality prevailing over tech hype

AI isn't the only technology that's setting the course for the new decade, though. How health plans adapt to the ever-widening Internet of Things (IoT), the introduction of 5G wireless capabilities, and the use of blockchain will also influence their performance in the years to come. Here are some of the ways that technologies will create real results in 2020.

Removing friction is a win-win-win

Consider the millions of calls that health plan customer service centers handle daily. Every extra minute it takes to track down information costs the plan money and tests the patience of the member. When databases are connected using graph technology — which treats the relationships between data points and the data points themselves as equally important — connections can be made in seconds. Layering in a machine learning model can help the representative offer customized services to the caller by predicting which programs he or she is most likely to engage in. The original reason for the call is addressed and additional opportunities to improve health and well-being can be acted upon.

Or consider prior authorization (PA). PA is cited as a leading cause of provider burnout — 86% of physician respondents in a 2018 survey described the burden due to PA as high or extremely high.[7] Delays in care for patients are compounded by the frustration and anxiety they and their family members experience. With the right combination of AI and expertise, routine PA requests



can be streamlined and more complex cases can be flagged for expert human review. The endgame here is to embed streamlined payer-specific PA requirements directly into the provider's own workflow, so that the whole process is less cumbersome.

In these two high-touch processes, technology improves the quality of life and the bottom line for patients, providers and health plans.

Letters and numbers to know: IoT and 5G

While providers and consumers were forced to quickly adopt telehealth as a viable care option in the face of COVID-19, the ability to connect virtually with members is about to go through another round of upheaval with the rollout of 5G wireless technology.[8] With its simultaneous exponential increase in the quantity of data that can be transmitted and much lower latency, you can expect to see continued innovation in remote patient monitoring, access via telemedicine and even drone delivery in the supply chain. As updated smartphones become available, members will have more connectivity than ever — which means they'll demand easier access to information about their health, just as in other aspects of their lives. There will also be more avenues to help promote adherence to care plans and equip care managers with near real-time information.

The ramifications for benefit design going into 2021 will be immense. Empower your technology teams today to investigate how incorporating some of these new capabilities can either streamline your operations or enhance engagement with your members, before they become part of the mainstream. And watch the market landscape to see how new applications and use cases develop.

Amid the competition, cooperation

Blockchain is a shared, distributed ledger on which transactions are chronologically recorded in a cooperative and tamper-free manner.[9] Information stored on a blockchain can act as a single source of truth that multiple organizations or individuals can access. That makes it a compelling option to track data that every health plan needs but doesn't qualify as a proprietary competitive advantage: for example, up-to-date provider demographic data. Around $2.1 billion is spent annually across the industry chasing and maintaining provider data, and this technology has the potential to alleviate much of those operational costs. The reduced administrative burden lets health plans invest more dollars on member care and lets providers focus more energy on their patients. Expect more exploration into common ground issues that get to the root of administrative waste and complexity.

It's time for the risk-averse to be bold

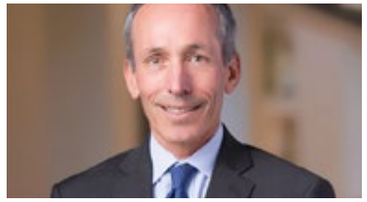
Health plans are already leading the way when it comes to AI adoption, and I think that's how it's going to stay until clinical applications of AI catch up to the performance we see today from administrative use cases. But the sudden onset of remote care will only work to push the rest of the industry toward technology, including AI solutions.

Managing risk within populations will always be central to a health plan's core business objectives, and with new ways to predict the needs of members, quickly react to changes in the market, and partner with members to embrace healthier choices, we're going to see even greater acceleration when it comes to the use of emerging technology.

BACK TO TABLE OF CONTENTS

EMPLOYERS:

Technology and the pursuit of well-being



Seth Serxner, PhD, is the chief health officer of OptumHealth.
Seth Serxner's deep knowledge of behavior change, population health, well-being, social determinants of health and measurement allow him to visualize and deliver on program innovation. He has more than 25 years of experience in health and productivity management and has published more than 40 articles.

Prior to joining Optum, Dr. Serxner served for nine years as partner and senior consultant for Mercer's Total Health Management specialty. He also spent a decade each in academia and private industry. He holds a Master of Public Health from UCLA and a doctorate from the University of California, Irvine. He's a board member of HERO and vice president of the C. Everett Koop Health Project. He also edits and is a reviewer for several peer-reviewed journals.

The aperture has widened in the last year when it comes to approaches that boost and support employee health.

We've seen the emphasis shift from wellness (the characteristics or behaviors that might predispose someone to poorer health outcomes) to well-being (the factors that allow people to live long and happy lives). Well-being encompasses more than the lifestyle choices that affect weight or blood pressure or other traditional "medical" measures.

More than ever, employers are trying to balance the demands of staying in business with the desire to support employee health and well-being. Some of the changes made to keep employees heathy and equipped to work during the pandemic may revert to normal. Other services, such as telehealth, may expand. As we press into a coronavirus disease 2019 (COVID-19) world, employers will continue exploring new ways technology can be used to affordably deliver benefits.

◀ BACK TO TABLE OF CONTENTS

Many employers have found that taking a broader view of the circumstances affecting their workforce — things like financial acumen or behavioral health needs — has allowed them to tailor benefit programs that more acutely address the underlying factors that affect engagement, productivity and employer loyalty.

To me, that sounds an awful lot like what's happening in the clinical domain. To get a better handle on population health, physicians or care coordinators need a more complete view of a patient or member's life and the factors that influence it — you've likely heard the term social determinants of health to describe this collection of information. Armed with this additional insight, leaders can take action at both the individual level and community level to address inequities and improve overall health.

Likewise, a more holistic approach toward employee well-being depends on two foundational elements: data (lots of different kinds of data, and lots of it) and technology (to both unearth insights and then act upon them).

How employers can tap into health tech

Employers and benefit consultants are turning to AI-enabled services that can personalize outreach efforts and guide investments by leveraging vast new data resources. And with many employers now rethinking their business models to allow for more workforce flexibility, a gap is forming, which new, innovative solutions will be expected to fill. Here are three areas where I expect employers to take great strides in 2020.

It's all about me

Our on-demand, consumer-centric culture has created expectations that are tough to meet when it comes to personalization. But across our industry-wide survey on artificial intelligence (AI) in 2019, employers were the most optimistic group when it came to AI's ability to provide individuals with relevant health actions using personalized communications — 63% of employer respondents signaled they would trust AI on this front, compared to just 46% across providers, health plans and life sciences leaders.

Using information from claims and other demographic sources, models can predict which programs or care plans individuals are likely to enroll in, and outreach efforts can be tailored appropriately.

Technology and the nudge effect

Behavioral economists originated the "nudge theory" over a decade ago, but the abundance of internet-connected devices today offer ever-evolving ways to coax more

health-conscious decisions out of your workforce. The idea is to subtly guide a person's decisions in a way that still preserves and empowers individual choices — for example, a wearable device could alert its wearer that he has been sitting for an extended period and that it might be a good time to go for a walk, or that it's time to start getting ready for bed to get a full night's rest.

Nudges can be effective at improving health outcomes. One study found a 15% increase in healthier consumption choices to battle obesity when nudge approaches were used.[10] When employees opt into a program, the data from wearable devices can help encourage participation in well-being programs and track incentives earned. Gamification and recognition of individual successes in an employee wellness platform goes a long way toward promoting a healthy culture, too.[11]

Paving the way toward medical-behavioral integration (MBI)

Over 60% of people in the United States have at least one chronic illness, and they account for over 80% of total medical, behavioral and pharmacy spend.[12] We've found that when individuals suffer from both medical and behavioral conditions, their costs are 1.6–2 times higher than average.[13] Whether or not you're self-insured, all employers benefit when care is coordinated and aligned for their employees with comorbid medical and behavioral conditions.

In conjunction with your health plan, analytics can help pinpoint where investments in care coordination can yield the best results. Health is beyond the four walls of the provider office, and knowing their employer cares about their health makes for more invested employees.[14] Machine learning and other statistical techniques can churn through behavioral health claims, medical claims, clinical data and pharmacy data to stratify your population by MBI opportunity. With the knowledge of where to intervene and how, programs can more ably tackle the total cost of care.

In the 10th Annual Wellness in the Workplace Study, employers told us that three ways they are improving access to behavioral health services are analytics or technology driven: pursuing medical/behavioral integration best practices (61% pursuing), implementing digital tools (61%) and implementing virtual visits (51%). Employers will continue to see an increase in demand for behavioral health services as populations endure crisis and change in the wake of the pandemic.

In the end, it's about your people

None of the top concerns I hear about — supporting behavioral health needs, managing chronic conditions like obesity or diabetes, improving financial literacy, or alleviating stress — are easy to deal with. But it's telling that what employers value about applications of AI — things like automating and improving customer service, personalizing care recommendations and accelerating research for new therapeutic discoveries — all coalesce under the theme of a better experience for consumers of health care, and therefore a better experience for employees.

Technology and AI are critical enablers of that better experience. Today's workforce has been drastically changed by COVID-19, and employees have new expectations. Offerings such as remote work (when possible) and telehealth coverage will need to become standard offerings in a post-COVID-19 future. As a result, employers will continue to seek an edge by leveraging advancements in both retention efforts and recruitment.

BACK TO TABLE OF CONTENTS

STATE GOVERNMENT:

The diamond in the rough

Dennis Vaughan is the CEO of Optum State Government Solutions. Mr. Vaughan supports state governments with enabling technologies and services to improve the lives and health care of their residents. He is a seasoned executive with more than 30 years of experience and a commitment to supporting public sector health care. Mr. Vaughan specializes in managing, operating and transforming Medicaid and Children's Health Insurance Program systems. Before joining Optum he spent 33 distinguished years with DXC Technology, formerly Electronic Data Systems and Hewlett-Packard Enterprise, where he directed the organization's largest U.S. public sector region. His focus on solutions engagement, client satisfaction and his commitment to operational process quality and maturity has earned him many industry recognitions.

Health and Human Services (HHS) organizations are under unprecedented pressure. As I think about the immense challenges they face in the wake of the COVID-19 crisis, that's the word that sticks with me the most: pressure. And that got me thinking about diamonds.

Mankind has developed a few ways to speed up nature's billion-year process to make diamonds. One method involves a device called a cubic press, which uses six pistons to exert monumental amounts of pressure on the carbon at the center of the press simultaneously from the back and front, top and bottom, and each side.

Consider the dilemma creating pressure on HHS agencies across the United States:

- Their mission to protect at-risk populations and support public health is under direct attack by the novel coronavirus.
- Due to enhanced sanitation efforts and social distancing, it's more difficult and

BACK TO TABLE OF CONTENTS

costly than ever to foster community well-being and provide services, even as stay-at-home orders begin to be lifted.

- The risk of transmission has caused many individuals to delay needed care, which may ultimately result in higher acuity cases when they do seek care.
- The financial toll of the virus and related containment efforts has caused historic unemployment, which in turn has swelled Medicaid rolls.
- Thanks to temporary regulatory guidance from the Centers for Medicare and Medicaid (CMS), the use of telehealth has skyrocketed in many places — but nearly 20 million Americans still lack high-speed internet access, thus limiting its potential.[15]
- States are trying to manage all this often using antiquated IT infrastructure that keeps data in silos and hampers coordination among agencies.

If an HHS professional feels like the walls are closing in from all sides, I don't blame him or her.

While policy and funding will obviously play important roles in addressing both the efforts to curtail the pandemic and the fallout afterwards, the role of analytics and technology can't be overlooked.

Crystallizing the need for tech modernization

The need for efficient, state-of-the-art, digitized processes and workflows has never been higher. It's only by embracing solutions driven by analytics and emerging technology that states can quickly find a path back toward normalcy and fiscal stability. In a 2019 survey, 500 executives from across health care told us why they're pursuing the use of artificial intelligence in their organizations. Their top three responses?

- More accurate collection and use of data
- Reduced administrative or operating costs
- Increased efficiency

Those are goals that every state agency strives for. They enable better-informed decision-making, better allocation of resources, and better performance. That's exactly what's needed in these times of crisis, and that's why even amidst all the upheaval, strategies to modernize operations must continue.

Here are the three areas where state HHS organizations can invest their time and money now in order to create lasting benefits for their constituents.

You're eligible for an upgrade

If only an eligibility or Medicaid module was like your smartphone: When your contract is up after two years, they offer you a deal to upgrade to the latest and greatest

tech. The reality is that states need to cope with systems that weren't meant to handle the incredible data streams that are active in today's world. The legacy systems tend to be too expensive to maintain and too inflexible to adapt to rapidly changing state business needs. The deadline for FHIR compliance is right around the corner, and interoperability practically demands upgrades to infrastructure. The need to transform the enterprise to reduce the legacy burden and better support the business is acutely compelling.

The potential of recurring waves of COVID-19 infections only heightens the importance of modern systems. States with a data-driven understanding of what has happened in previous waves can be much better prepared to meet challenges in the future and can start planning earlier. And if that isn't enough, a 2019 NASCIO survey of IT leaders across 45 state governments cited their legacy IT infrastructure as the most prevalent barrier to AI adoption. That's a hurdle that must be overcome if we're going to see the benefits in this next section materialize.

Build it (AI) and they (results) will come

COVID-19 has made it clear that the current state of analytics is often too little, too late. The delay between when claims are initiated and when the data is analyzed by HHS leaders often means that the opportunity to provide a timely intervention has already passed. Removing data barriers between HHS agencies can also enable a more holistic understanding of the health situation and the appropriate intervention strategies for individuals and communities. State agencies are recognizing the critical importance of more timely, accurate, integrated information and a sound platform for analysis.

So much data is created in the provision of health care and social services. When it is integrated and analyzed by AI — specifically machine learning models — that information can be used to deliver actionable insights to better inform health care and human services decision making. Without AI, there's no way for an organization to fully track the experience of any single client or member who requires multiple services. Individually, those client interactions generate data useful to that person's experience. When combined, those disparate data sets can tell a more complete systemic story. It's a virtuous circle that fuels better predictions to help categorize and size risk, identify gaps in care and prioritize services.

But it's not just constituents who will benefit from greater adoption of AI. In that same NASCIO survey, 79% of respondents either agreed or strongly agreed with the statement, "we don't have enough staff to keep up." Today's AI is well-suited to automate repetitive administrative tasks, freeing up human staff to focus on efforts where more judgment and emotional intelligence

is needed. Along those lines, AI-powered chatbots can answer questions about benefits or even enroll people automatically into programs they qualify for, which can help reduce backlogs and increase capacity. A combination of these efforts and more is how we'll see that 79% number drop in the coming years.

Toward a telehealth future

The COVID-19 crisis has shown that access to high-speed internet connectivity is not a luxury anymore — it's a necessity. By the end of March, 33% of behavioral health claims for Optum members were for a telehealth visit, compared to 2% prior to COVID-19.[16] There could be one billion telehealth visits by the end of 2020,[17] and the health system is going to need to adjust as virtual care becomes more of a mainstream option. There's already evidence that the convenience of a telehealth visit will mean lasting changes in how people access care.[18] Seema Verma, Director of the Centers for Medicare and Medicaid Services, says she "can't imagine going back."[19]

States play a leading role in expanding the technologies allowed for telehealth service delivery and ensuring their accessibility for patients. Particularly in rural areas, remote patient monitoring enabled by internet of things (IoT) devices can simultaneously reduce costs and improve access to care. Broadening access to both mental health and substance abuse disorder treatment via virtual visits has the two-fold benefit of removing geographic barriers to care and helping to avoid social stigma. It's hard to think that the momentum the industry has picked up in the last few months is going to dissipate when the virus does. States will play a leading role in shaping the telehealth future through investments in broadband infrastructure, new payment structures and public health policy.

The other kind of diamond

Most people envision luxurious jewelry when they hear the word "diamond," but the diamonds forged by cubic presses aren't destined to adorn a finger or an ear. They're the ones that are trusted for the toughest jobs in industrial applications around the world because of their strength, grit and their ability to withstand the heat. That sounds like a lot of the people at HHS agencies around the country that I've had the privilege to meet and serve.

As tireless advocates for the populations they serve, HHS agencies already had a difficult job. The pressure is mounting as those communities are among the hardest hit by the virus. Equipped with the right tools, those teams make all the difference in the world when an individual or family is in need. We are honored to serve our HHS partners.

FEDERAL GOVERNMENT:

The power of protective technology

Karoom Brown is the president and chief executive officer of the Technology Services division of OptumServe. He is also the chief growth officer of OptumServe, the federal health services business of Optum and UnitedHealth Group. Karoom is responsible for the growth and strategic direction of the OptumServe™ business, which supports the health needs of federal agencies serving Military Service Members and their families, Veterans and Medicare recipients.

Prior to joining OptumServe, Karoom was the senior vice president of business development and strategy at Leidos Health, which included the 2016 merger with Lockheed Martin's Information Systems & Global Solutions line of business. Karoom has a master's degree in information systems management from New York University Tandem School of Engineering (graduating as class valedictorian) and a bachelor's degree in electrical engineering from Johnson and Wales University.

As the ultimate authority for the health and security of America's people and interests, federal government agencies can't afford to focus only on the direct effects of coronavirus disease 2019 (COVID-19).

When it comes to things like supporting state government efforts, coordinating national responses, caring for active and retired military service men and women and their families, and solidifying our nation's health information technology (HIT) infrastructure, there aren't really trade-offs to be made: All of it needs to happen.

So how do we bridge the gap between where we are now, and where we want to be? I look for connective forces that help us build resiliency. They can be inherent individual traits, like duty or perseverance. They can be collaborative and community-building, like the pursuit of a common goal. And they can be enabling and catalyzing, like technology.

◀ BACK TO TABLE OF CONTENTS

Don't get me wrong; I recognize technology is not a panacea. But today's analytics and constantly evolving technology can help us protect and nurture the well-being of our country's residents in ways that are fundamentally different than what we've been able to do in the past.

Technology's role to protect and serve

At the end of the day, federal agencies all share the same mission: to protect the welfare of those they serve. It's impractical to list all the ways technology will play a role for the balance of 2020 and into the coming decade, so instead, let's focus in on a handful of applications I see as truly critical to the goal of protecting populations.

Telehealth gets a boost

While nobody could have anticipated the speed at which telehealth was adopted this year, proponents have long argued that virtual visits — enabled by video conferencing, Internet of Things (IoT) connected devices and the patient-generated health data (PGHD) they capture — were the key to more accessible, more convenient, less resource-intensive and more personalized care. Combine those benefits together, and you get more efficient operations and better outcomes.

Telehealth services themselves aren't new to active duty and retired military service members (and their families), thanks to the Military Health System Nurse Advice Line, but during the pandemic they have played an integral role in reducing the risk of exposure while accessing routine care and common health questions. But while we can all look forward to the return of "the way things were" in many parts of our lives, I believe the embrace of telehealth is just an acceleration of an inevitable shift toward more convenient and cost-effective care. As new ways to connect from afar — think the rollout of advanced 5G wireless cellular networks, drone delivery, perhaps even augmented or virtual reality — become more commonplace, we'll be able to provide even more value and better care for service members and their loved ones.

AI combats a tragedy that is too common

The suicide rate of Veterans is 1.5 times greater than that of the general population.[18] That so many of our Veterans suffer to that extent is deeply discouraging, but artificial intelligence (AI) and shared data platforms do give us reasons for hope.

The first step is medical/behavioral integration. The last time I checked, the head was still connected to the body — but at some point, we decided to treat the two separately in health care. When you combine data

from encounters on both the physical health and the mental health sides, you open the door to new waves of potential. Machine learning models ingest enormous amounts of data and, under the guidance of data scientists, essentially teach themselves to look for patterns that can create predictive insights. By analyzing clinical information, data about social determinants of health, and insights derived from behavioral health records, we may be able to identify at-risk Veterans and engage them in programs and services that alter their trajectory.

Tech battles tech

The battle against cybersecurity threats is as relentless as they come: Attackers constantly probe for weaknesses while defenders look to fortify them. The scale is dramatic: Our enterprise responds to over 1 trillion of them a year.[21] But it does illustrate that a mastery of data privacy and information security strategies is needed today.

That's a skill set that health-focused entities within the federal government may not have themselves, but it's one that's sorely needed. That the data they protect involves personal health data or socio-economic status just compounds the importance. Cyber threats will continue to evolve in complexity and through new channels as more devices become internet-connected and capture data. The billions and billions of data points that need to be analyzed point to the role AI and cloud computing will play, helping to root out suspicious actors and avoid disruptions to the delivery of care and social services.

Building resiliency through a digital ecosystem

Serving those who have served our nation, and federal agencies that promote the welfare of our communities, is a privilege and honor. COVID-19 has tested us like never before, but we also have ways to cope — and eventually thrive — that we didn't have before either.

The digitally enabled connections between agencies and the people they serve will become even more tightly woven together throughout the decade, giving us new tools to achieve long-term goals like greater and more cost-effective access to care, a focus on preventive and whole-person care, and information security. In its totality, that web of connections allows us to confront adversity with resiliency — a fact that gives me comfort in the midst of the pandemic and optimism for our future.

Sources

1. aha.org/system/files/media/file/2020/05/aha-covid19-financial-impact-0520-FINAL.pdf.

2. ama-assn.org/practice-management/physician-health/new-survey-shows-decline-physician-burnout.

3. fda.gov/drugs/new-drugs-fda-cders-new-molecular-entities-and-new-therapeutic-biological-products/novel-drug-approvals-2019.

4. optum.com/campaign/ls-ms/optum-drn/thought-leadership/research-participation.html.

5. raps.org/news-and-articles/news-articles/2019/4/pfizer-uses-ehr-data-to-support-expanded-indicatio.

6. news.mit.edu/2020/artificial-intelligence-identifies-new-antibiotic-0220.

7. ama-assn.org/system/files/2019-02/prior-auth-2018.pdf.

8. nytimes.com/2020/01/08/technology/personaltech/5g-mobile-network.html.

9. synaptichealthalliance.com/about-us.

10. bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-3272-x.

11. hbr.org/2019/05/improving-health-care-by-gamifying-it.

12. Buttorff C, Ruder T, Bauman M. Multiple chronic conditions in the United States. RAND Corporation, 2017. rand.org/pubs/tools/TL221.html.

13. optum.com/content/dam/optum3/optum/en/resources/fact-sheets/wf512282-pophealth-mbi-exec-sum-rlp_hr.pdf.

14. optum.com/content/dam/optum3/optum/en/resources/ebooks/wiw10-ebook_2019.pdf.

15. fcc.gov/reports-research/reports/broadband-progress-reports/eighth-broadband-progress-report.

16. healthcarefinancenews.com/news/optum-expands-number-behavioral-telehealth-providers

17. forrester.com/press-newsroom/us-virtual-care-visits-to-soar-to-more-than-1-billion/.

18. fiercehealthcare.com/payer/unitedhealth-execs-patients-are-using-telehealth-for-convenience-not-as-a-necessity.

19. statnews.com/2020/06/09/seema-verma-telehealth-access-covid19/

20. mentalhealth.va.gov/docs/data-sheets/2019/2019_National_Veteran_Suicide_Prevention_Annual_Report_508.pdf.

21. UHG Enterprise Information Security (EIS) data.

www.optum.com/innovation

About Optum

Optum is a leading information and technology-enabled health services business dedicated to helping make the health system work better for everyone. We deliver integrated solutions infused with OptumIQ™, our unique combination of data, analytics and health care expertise, to help modernize the health system and improve overall population health.