Expert interview:
The use of artificial intelligence in federal health care

Ron Ozminkowski, PhD
Senior Vice President of Consulting, OptumServe

Dr. Ron Ozminkowski joined OptumServe in 2019 as senior vice president in the consulting division. He is responsible for executive review of analytics and methods and for driving the use of machine learning and artificial intelligence (AI) to benefit government clients.

Ozminkowski is an expert in health care analytics, machine learning and AI. He has more than 20 years of total management experience. His executive experience includes 13 years in senior leadership and chief scientific officer roles at IBM and Optum®, leading large groups of analysts.

Ozminkowski has a doctorate in health services organization and policy and master's degrees in applied economics and health services administration (medical care organization), both from the University of Michigan. His bachelor’s degree is in health education. He brings an integration of all these perspectives to his work at OptumServe.

In the next 10 years, where do you foresee AI and machine learning having the biggest impact on federal health care?

I think the biggest impacts will be on:

• Facilitating back room processes related to Medicare, Medicaid and other programs’ contract management
• Claims and utilization management
• Provider and payer audits to assure payment integrity
• Clinical decision support services for providers, patients and caregivers

There will also be a big push to engage beneficiaries more directly into the management of their care, facilitated by AI features that will help them more easily apply for benefits, understand their coverage, and work with private sector and Department of Veterans Affairs (VA) providers.

AI will combine with internet-of-things technologies, using sensors of many sorts to track and help manage chronic conditions. Simulation technologies will help us better predict and understand the likely implications of policy options under discussion that are meant to improve access, quality of care and health care spending needs.
Technology modernization plans at the Food and Drug Administration and the VA will focus on updating IT environments and other resources to take more advantage of computing clusters, supercomputers and cloud or hybrid cloud computing. This will allow for more powerful genetic, proteomic and other analytic projects using a variety of data that come in different formats, frequencies and sizes, and with varying degrees of reliability and validity. It will also allow contractors to take advantage of a much more powerful ecosystem that provides access to big data and the resources to analyze those data within federal IT environments and externally.

**What benefits can AI provide specifically to federal health care systems?**

In addition to the impacts mentioned above, AI can be quite useful in executing population health management programs that can improve quality, control costs and enhance greater access to care.

Federal agencies and private sector providers can leverage a wide variety of ever-improving machine learning and deep learning models to assess clinical and utilization-based risks that beneficiaries have. **Those risks may be related to:**

- The likely onset of a chronic condition
- The need for inpatient, outpatient, urgent care and emergency room care services to treat those conditions
- The onset of comorbidities, complications or adverse events
- The risk of death

For acute problems such as the COVID-19 pandemic, AI and simulation work will help us better understand the likely spread of the disease by individuals and among populations. They also will help figure out how many people are really susceptible to it and help manage the distribution of preventive and therapeutic services. This knowledge will point to gaps in care that when filled can mitigate those risks, control costs, enhance quality of life and save more lives. The federal government can lead by providing the right incentives to use AI in ways that better enable it and the private sector to improve health and health care for everyone.

The federal approach will not be just about technology. AI works best when it incorporates diverse perspectives, uses broadly representative data, and leads to well-designed and implemented programs, facilitated by learning and communication efforts that can maximize the utility of those programs across many population groups.

**In what ways is AI shaping telehealth and virtual health care delivery services?**

Telehealth can use machine learning approaches and natural language processing reviews of written text from provider notes and patient self-reports to make the best matches. These technologies will also facilitate adherence to clinical practice guidelines and help document reasons why and when it makes sense to try novel therapies.

Other examples include advances in imaging and communication that will result in faster and more accurate diagnostic information. Telehealth can also use internet-of-things technologies to better understand how patients are feeling and how their bodies are working in real time, between visits, leading to more productive telehealth calls.
Telehealth can use AI to find the best combination of communication by person and by machine (e.g., via chatbot). That way, human time by the patient and provider is focused on the most important parts of the discussion, leveraging information AI has provided to them.

Finally, telehealth providers and other providers who see patients face to face can use AI to coordinate their services by better understanding patient risks, previous use of services and the patient’s prognosis. We are seeing this play out right now in efforts to fight COVID-19, and learnings from that will help guide AI and telehealth for future applications.

What are common hesitations agencies have prior to implementing AI, and how can those be overcome?

Ethics and bias are best addressed by incorporating diverse perspectives and representative data in the development of AI approaches, and by using proactive efforts to prevent and investigate likely sources of bias. Recent advances in software can help in this regard and can also help enhance security and beneficiary protections, and help avoid black boxes by showing users how AI has generated results.

It is also worth noting that AI is a team sport and should be guided by humans. Involving clinicians, payers, patients and other stakeholders in AI model design can greatly enhance the confidence in the results AI produces. One way to gain confidence in AI is to use it to do tedious, repetitive tasks at scale, freeing humans to spend their time in ways that best leverage our training, interests and skills. Taking care of the little jobs can create the confidence in AI that is needed to invest in and develop its potential to do more important things later. AI also can help guide better programs and services to test, allowing humans to maximize their investments in it.

How can AI help in treating patients proactively versus reactively?

Many machine learning and deep learning approaches excel at predicting the near future. A nice example of the use of deep learning was recently published in a peer-reviewed journal by Optum researchers. They were able to predict the onset of dementia with high degrees of accuracy so doctors and patients can better prepare for what’s coming and organize services and treatments accordingly. Predictive models related to the onset of 25 conditions have been generated as well, along with hundreds of related models investigating treatment, utilization and cost issues. Examples of these are available upon request.
What is needed to successfully utilize modern and upcoming AI technologies?

Success with AI is much more likely if a sound long-term strategy has been devised and executed to guide that work. Research and experience note several important components of a good strategy:

- A clear and well communicated vision of what success will look like
- A sense of urgency about what AI can do, how it can be helpful, and the organization changes and investments that may be required to use it well
- A domain or conceptual basis for applying AI, thereby leveraging insights from existing science as a guide
- A strong governance and compliance approach to guide the everyday use of AI
- An ethical perspective focused on stakeholder and public value
- A collaborative approach that blends the insights, participation and data from a diverse and representative population of intended users
- Well-designed, executed and evaluated programs and policies that can leverage the insights produced by AI
- Transparent and frequent reporting of successes and failures to all stakeholders, based on evidence
- Efforts to align and synch AI within corporate, clinical and other relevant cultures

Why is OptumServe a fitting partner to help federal agencies with their AI and machine learning initiatives?

OptumServe has decades of experience providing research, analytics, reporting, program design and implementation, policy research, program integrity, and learning and communication services to federal agencies. We also provide clinical and information technology services. This combination of experience is unparallel and augurs well for the success of AI efforts.

Our enterprise has invested heavily in a Microsoft Azure-based FedRAMP-authorized computing environment for AI work and has developed numerous AI models for internal use and to produce offerings for external clients. We provide AI training, consulting and management services for our clients that can help them maximize the benefits of AI. All of this is guided by our Guiding Principles and Resources for the Responsible Use of Advanced Analytics, which are available upon request. We are happy to discuss how we can serve our federal clients in the ever-evolving AI era.