



# Data capture and analysis lay the foundation for innovation

Machine learning and artificial intelligence help uncover trends that impact costs, health outcomes and member experiences.

Craig Kurtzweil has been in the analytics business for 20 years, and he's witnessed a significant evolution in the power and prominence of data in the health care space. As he thinks back to the early days of his career at UnitedHealthcare, the form and function of data and analytics looked nothing like it does today.

"My first couple weeks on the job, I was literally taking printed PDF reports and typing numbers into Excel files to bring the story to life in different ways," says Kurtzweil, vice president for the Center for Advanced Analytics at UnitedHealthcare. "It was a pain in the neck to even get the data, let alone be able to translate it and visualize it in a way for the audience to understand what it meant and act upon it."

It's clear times have changed.

"Now, it feels like technology has outpaced the human part of data collection and analysis," he says. "Science has outpaced the art of it over the last 5 to 10 years or so. It's more scalable and efficient. We have broader access to all sorts of data and can integrate it together."

It's no secret: Data is foundational to the health care industry.

- Providers are using real-time data to improve the care delivery experience with members
- Employers are using population data to build employee engagement strategies targeting specific segments of their employee populations
- Members are using tools backed by data to choose providers and make care decisions every day



Data is also driving innovation efforts from payers and other industry stakeholders. Without vast data sets and a process to turn bytes into insights, innovation agendas may come to a screeching halt.

Kurtzweil and others at UnitedHealthcare and its parent company, UnitedHealth Group, are putting data to work as part of a broader innovation agenda aimed at reducing costs, improving outcomes and creating stronger member experiences. In particular, focusing on these 3 areas of data capture and analysis is helping advance innovation efforts that generate meaningful impact.

- 1 Putting data to work for employers and employees**
- 2 Leveraging machine learning (ML) and artificial intelligence (AI)**
- 3 Identifying and addressing health disparities**

## Putting data to work for employers and employees

As part of employee engagement strategies and incentivizing healthy choices, more members have access to devices that help provide a clearer line of sight into daily activities, blood pressure, blood-sugar levels and more. For example, more than 75% of consumers believe wearable devices help them change their behavior.<sup>1</sup>

“I think the acquisition of signals is going to be significantly important,” says Jaime Murillo, senior vice president and chief medical officer with Optum Labs—the research and development arm of UnitedHealth Group. “The information allows us to learn from member behavior. If we learn about those behaviors and apply AI and ML to that story, we can identify patterns that will help design solutions to modify those behaviors and, thus, help achieve better health outcomes.”

For Kaylene Thompson, vice president of innovation for UnitedHealthcare, the access to data via digital devices can help deliver on the goal of personalization. Knowing more about a member allows solutions to be tailored to specific needs on one’s health care journey. For example, advocates can suggest next best actions based on what they see in their dashboards related to a member’s medical history, preferences and behaviors.

Thompson’s team spends time with members in their homes and with providers in their offices to build out their innovation agenda grounded in human-centered design. This helps ensure the team obtains a deeper understanding of the challenges these stakeholders face and how things like digital advancements can help deliver stronger experiences.

When Kurtzweil and his team meet with employer groups about their health plan performance, the conversation extends well beyond volume-based discussions and top-line results. Employers are looking for data analysts to make specific recommendations they feel will impact costs, outcomes and experiences.

“We need to have that data, integrate that data and apply the algorithms and machine learning to it,” Kurtzweil says. “But at the end of the day, it needs to be clear and concise for the members what actions they need to take.”

## Leveraging machine learning and artificial intelligence

As more data is captured via devices and overall engagement with the health system, the volume is too large for human analysis alone. That’s where AI and ML come into play. Behind the scenes, these technologies are a driving force of innovation at UnitedHealth Group—within Optum and UnitedHealthcare—helping make sense of 1 trillion health transactions annually.<sup>2</sup>

“Arguably, we have the largest health care database in the nation, and we’re building AI and ML capabilities to extract that data and come up with information we couldn’t with only manual labor,” Murillo says. “And we are building the AI and ML capabilities that will then allow us to design clinical solutions to improve care and design products as part of that.”

In assessing the value of AI and ML, speed and quality stand out as key value drivers.

Regarding speed: Reducing the time it takes to gather intel and turn that into actionable insights is critical in an industry hyper-focused on cost control and employee engagement. No matter how fast the data is captured, without the analysis to make sense of what it means for employers and employees, the quality is lowered.

**“Humans are incredibly nuanced. Everything they need is unique to them, and we have to think about solutions in the same way.”**

**Kaylene Thompson**  
Vice President of Innovation  
UnitedHealthcare

“In the past, you had data, but it could take months to get your hands on it as it slowly went through the claims process,” Kurtzweil says. “Now there are floods of data. But you need AI and ML strategies to translate that ocean of data into real-time insights.”

From a quality perspective, AI and ML help paint a clearer picture of the segments and sub-segments within an employer population. For example, it’s common today to understand that a group of employees who have high blood pressure are driving higher claims costs than their peers without hypertension. What AI and ML can further uncover, though, is socioeconomic data that helps employers and insurers better understand the social determinants impacting those with high blood pressure—where they live, their access to food, their financial situation and more.

“We can then build more customized data that will drive the decisions,” Murillo says. “Now, instead of focusing on the entire population of those with hypertension, employers can address the sub-group with greater needs that might be having the most impact on costs.”

## Identifying and addressing health disparities

In considering the data capture happening today and the tools in place to help more quickly analyze the data and bring forward solutions, there are many potential benefits that employers and their employees can realize including:

- Improved health care decision-making
- Predictive actions members can take versus reactive measures
- The ability to help reduce health disparities (a benefit that has become increasingly critical due to the pandemic)

With the right data analysis in place, solutions can be designed for populations that are most vulnerable from a health and wellness standpoint—not just based on where they are today but where they might be in 6 months.

Murillo highlights a recent example of an initiative Optum Labs led focused on heart attacks. The team analyzed 10 years of data on heart attacks to understand which groups of people are more adversely affected and whether there were any insights or trends within the affected group related to behaviors.



The team found that heart attacks were climbing in the Black population, especially among younger individuals and females. The research also showed that blood pressure, diabetes, obesity and smoking were higher among this population. The prevalence of heart attacks in this specific group was a surprise and against the overall trend historically of those episodes occurring mostly among older white males, Murillo says.

Optum Labs took that information and built a pilot program in Detroit specifically aimed at controlling blood pressure within the Black population. The team feels confident, based on the data in hand, that solutions like this can help tackle this important challenge.

**“We’re starting to make great progress, but data innovation needs to go even further. We need to make the providers’ lives easier, help their patients become healthier and drive costs down by making smart connections with the data in the system.”**

**Jaime Murillo**

Senior Vice President, Chief Medical Officer  
Optum Labs

**Learn more**

Contact your broker, consultant  
or UnitedHealthcare representative

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<sup>1</sup> Betts D, Korenda L and Giuliani S. Are consumers already living the future of health? Key trends in agency, virtual health, remote monitoring, and data-sharing. Deloitte, Aug. 13, 2020. Available: <https://www2.deloitte.com/us/en/insights/industry/health-care/consumer-health-trends.html>. Accessed: Aug. 1, 2022.

<sup>2</sup> UnitedHealth Group internal data collection and reporting, 2021.

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