



Data capture and analysis lay the foundation for innovation

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

Craig Kurtzweil has been in the analytics business for more than 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, chief data and analytics officer for UnitedHealthcare Employer & Individual. "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."

Data is foundational to the health care industry:

- Providers are using real-time data to help improve the care delivery experience with members
- Employers are using population data to help 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.

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Turning insight into action 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.¹

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.

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 can 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 members to understand what actions they need to take."

"Humans are incredibly nuanced. Developing innovative solutions requires a deep understanding of how these nuances impact engagement."

Jennifer Pinerski

Senior Vice President
Commercial Reinvention
UnitedHealthcare Employer & Individual

Leveraging machine learning and artificial intelligence responsibly

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 1T health transactions annually.²

"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," says Dr. Jaime Murillo, senior vice president and chief medical officer of enterprise strategy and innovation for UnitedHealth Group.

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

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. Yet no matter how fast the data is captured, reliable human analysis is critical to making sense of what it means for employers and employees.

"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 can 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** that could be impacting those with high blood pressure—where they live, their access to food, their financial situation and more.

"Using these insights, employers can then work with their health plan to implement strategies that aim to address the needs of that sub-group of employees — those who are having the most impact on costs," Murillo says.

While AI and ML may be an important tool in health care moving forward, developing and implementing it responsibly — and ensuring the privacy and security of member health data is protected — matters. Understanding this, UnitedHealth Group continually assesses the use of emergent technology and advanced data and analytics and is focusing on the areas in which its application can help inform decisions and improve operational efficiencies.

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 may realize including:

- Improved health care decision-making
- Predictive actions members can take versus reactive measures
- The ability to help reduce health disparities

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 UnitedHealth Group led that 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 historic trend of those episodes occurring mostly among older white males, Murillo says.

UnitedHealth Group took that information and built a pilot program in Detroit aimed at controlling blood pressure within the Black population. The team feels confident, based on the data in hand, that solutions like these 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.”

Dr. Jaime Murillo

Senior Vice President, Chief Medical Officer
Enterprise Strategy & Innovation, UnitedHealth Group



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¹ 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. 2, 2023.

² UnitedHealth Group internal data collection and reporting, 2021.

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