



MOVING FROM PREDICTIVE TO PRESCRIPTIVE INTELLIGENCE:

Getting Ahead of Member Health Deterioration With Clinical AI

Ten years ago, a health insurer established a heart failure management program after discovering that similar programs in other disease areas improved outcomes and overall cost savings.

The program was an unqualified success, leading to decreased hospitalizations and mortality, enhanced quality of life and lower cost of care. Then came the COVID-19 pandemic. Now, all bets are off for the program, which depends heavily on regular monitoring and data collection.

This payer is not alone — similar problems are occurring across the health care system. Consider:

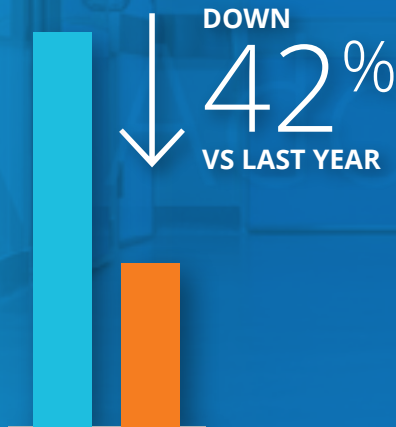
- A Kaiser Family Foundation poll shows that nearly half of Americans say they have or a family member has skipped or delayed care because of the pandemic. Moreover, about 1 in 10 respondents say the medical condition worsened because of the postponement.¹
- Indiana School of Medicine researchers report that health care visits declined by about 40% in the US during the first six weeks of the pandemic.²
- In June, the National Cancer Institute projected that COVID-19 would lead to 10,000 additional deaths on top of the expected 1 million deaths from breast cancer and colorectal cancer.³

The numbers are extremely disturbing. It's no wonder the health insurer's heart failure program is in trouble. Three-fourths of the payer's heart failure patients have stopped coming for in-person visits. Providers are assigning about half of those patients to receive either telehealth or more intensive monitoring, but the payer is having difficulty determining which

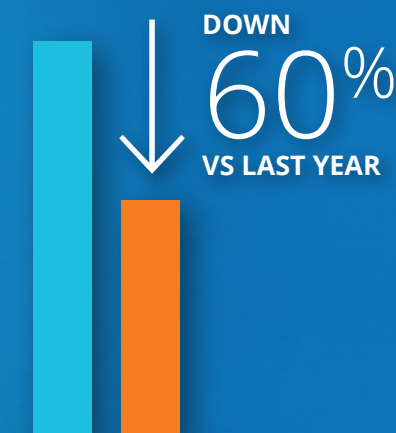


As many plans are discovering, predictive analytics go only so far. One major driver of predictive analytics is past utilization — ED visits, procedures performed, inpatient visits, well visits, etc. But utilization history is becoming irrelevant in the wake of COVID-19. For example, early in the pandemic, ED visits were down 42%.⁶ Elective procedures plummeted.⁷ Primary care visits decreased by at least 60%.⁸

ED visits



Primary care visits



patients in the remaining half need the most help. As time goes on, more high-risk and near-high-risk individuals will end up in the emergency department (ED) and then the hospital. Their quality of life will plummet, many will be at risk of dying and the payer's costs will skyrocket.

This scenario is playing out industrywide, contributing to higher pandemic-related costs to health plans, which are expected to reach between \$56 billion and \$556 billion during 2020 and 2021.⁴ Insurance executives are warning that higher costs will be driven partly by more intensive care for patients whose conditions worsened during the pandemic.⁵

But it doesn't have to play out this way. Right now, the capability exists to identify not only patients at high risk but also patients on the cusp of becoming high risk because of circumstances that are unfortunate but modifiable. Validated prescriptive clinical artificial intelligence (AI) is being employed to identify individuals who are most vulnerable because of the unique correlations and interactions of clinical, socioeconomic and behavioral factors, particularly during the pandemic. This lets plans and providers intervene earlier, improving outcomes and lowering overall costs.

THE PROBLEM WITH PREDICTIVE ANALYTICS

There is no shortage of data. The problem is that as data sources continue to multiply, an organization's data lake can grow in size but not relevance. Analytics should be able to facilitate valuable connections and inferences from data, but only if quality data is used and analytics are employed to account for gaps when they appear. Now, because of COVID-19, there are more gaps than ever.

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Utilization-driven models designed to inform future risk and strategies to mitigate it are no longer valid. Algorithms are based on assumptions; when circumstances change, the assumptions can end up misguiding clinicians, wasting resources

and harming patients. In addition to clinical consequences, this leaves payers with an overwhelmed and burned-out provider network resulting from an influx of members with advanced illness who need to be managed.

Even more troubling is that stakeholders responsible for delivering care might not fully understand the impact delays have on their ability to proactively support a member before the person needs acute care.

- In a diabetes eye disease management program, case managers use historical data to identify patients to call based on usual risk factors that indicate disease progression. But if patients are not going to the ED out of fear of COVID-19, case managers miss them. Many eventually end up presenting late in the ED and then need to be hospitalized.
- Plans and providers depend heavily on the LACE index to predict the likelihood of hospital readmission. The score relies on the number of ED visits. With patients avoiding the ED during the pandemic, the LACE index is rendered largely useless.

When the floodgates of delayed care open, payers will find themselves reacting to deteriorated health conditions and the resulting utilization — most of which likely was avoidable had data and analytics strategies been evaluated and adjusted to account for data disruption caused by the pandemic. Traditional predictive analytics will not work in what has become a very nontraditional situation.

FAILURE TO ADAPT CAN MEAN DEVASTATING CONSEQUENCES

Payers and providers that fail to adapt face potentially devastating clinical ramifications in the following areas.

- **Oncology:** Fewer cancers will be caught in early stages, leading to increased mortality.
- **Chronic Conditions:** Delayed treatment will result in more complications and more rapid deterioration.
- **ED Care:** Delays in ED presentation will lead to more critical illness. For example, there has been a 38% decrease in cardiac catheterizations during the pandemic because people have not presented to the ED.⁹ The result could be more serious cardiovascular outcomes, including death.

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Consider These Success Stories, Powered by the Jvion CORE™:

STATUS QUO: A 68-year-old woman with an extensive history, including diabetes, transient ischemic attack/stroke, cardiac disease, blindness and low vision, falls and fractures her forearm. Her difficulty with motor coordination affects her ability to manage diabetes alone and to participate in the recommended daily physical activity. She tends to rely on her spouse for help, but he has health issues of his own. Under the status quo, the likelihood of her diabetes becoming uncontrolled and the risk of a secondary fall with injury are high.

JVION CORE: The Jvion CORE identified the patient's need for optimizing blood glucose management based on her visual and motor coordination deficit. This patient likely needs assistance or additional tools to check her blood glucose and to administer insulin treatment at home. Additionally, the CORE advised clinicians to assess her for candidacy for cardiac rehabilitation. Given the combination of her recent fall, lack of coordination and prescribed antihypertensives, she is at risk for orthostatic hypotension and likely would benefit from physical therapy to optimize cardiovascular health.

STATUS QUO: An 86-year-old woman has chronic obstructive pulmonary disease, concurrent Alzheimer's and a history of vitamin D deficiency. Her condition requires a complex medication regimen that includes multiple inhalers, one of which is difficult to handle because of her dexterity issues. Her osteoporosis (as evidenced by the vitamin D deficiency) and need for continuous oxygen make it difficult to move around the home and to visit her health care provider. She is overdue for labs and wellness visits, she has not received education or assistance with inhaler use, and she has not been seen by a pulmonologist. Under the status quo, she is more likely to need emergency and/or hospital services, and she likely would be at risk for a fall with injury, deterioration from improper management of COPD and improper medication management related to forgetfulness from Alzheimer's.

JVION CORE: The Jvion CORE identified a need for the outreach care team to address her difficulties with breathing, which were not previously recognized. Although she had been filling prescriptions regularly, the technique and manual dexterity required to achieve therapeutic effectiveness with inhalers

had not been addressed. Additionally, mobility had not been addressed as a priority in her plan of care. The care team was able to coordinate home health assistance and adjust its telehealth program to virtually assist and monitor the patient as she used inhalers. The patient was also supplied with a small, lightweight oxygen device that lets her move easily around the home and minimizes difficulty getting to her provider.

STATUS QUO: A 61-year-old woman with a chronic history of primary hypertension and atrial fibrillation was diagnosed with depression and placed on an antidepressant. She lives alone in a rural community, which might be contributing to her depression. In addition, because of a previous back injury, she prefers to not exercise outside her home and tends to walk around her home for exercise. Although she has been placed on a cardiac diet, she tends to shop at a nearby convenience store, and her nutrition is suboptimal for her cardiovascular condition. She visits her provider as required and discusses her care plan with the provider. Under the status quo, she is likely to see a decrease in mobility and become unable to perform activities of daily living.

JVION CORE: The Jvion CORE identified a need to address the patient's historical back pain and how it was limiting physical activity, including activities of daily living. The patient noted she didn't want to use pain medication because of the risk of addiction, so the care coordinator arranged for a physical therapist to come to the home and develop a safe exercise program with follow-up. Jvion also prompted an assessment for social support and medication compliance, which revealed the patient had stopped taking her antidepressant because she felt it wasn't working. The care coordinator and the patient discussed enrolling in a local community center's senior program to enhance social support, as well as allowing a realistic amount of time for an antidepressant to begin working. Finally, the Jvion CORE identified a nutritional counseling need, and the care coordinator shared information and resources on the diet required with an anticoagulant the patient was taking. The patient had been unaware that her diet was negatively contributing to her health. After these interventions, the patient experienced significant improvement in her depression, physical condition and overall sense of well-being. ■

SUCCESS IN ACTION

While there is a tendency to fall back on predictive analytics, this can lead to overreliance on nonmodifiable risks, such as age, past ED use and last HbA1c reading, even in ordinary times. A more logical approach relies on a more complete picture of risk factors, including social determinants of health that are modifiable, such as barriers to care and knowledge deficits, using AI to correctly interpret and use this data. Prescriptive clinical AI helps avoid unnecessary care utilization and costs by connecting clinical and socioeconomic factors to flag individuals who are not yet high risk but are on an accelerated path to become high risk.


This is where Jvion's prescriptive clinical AI approach comes in. The Jvion CORE™, built on Microsoft Azure, is a secure and scalable clinical AI intelligence repository that aggregates structured and unstructured data, augments that information with clinical, socioeconomic and experiential data on 30 million individuals, and applies sophisticated algorithms to find correlations and inferences that matter. Jvion's approach is person-centric, not problem-centric. The significance of this is when one understands the underlying risk profile for an individual, one can view that profile through different lenses, such as avoidable admissions, medication adherence and depression. The CORE surfaces individuals and populations that can be affected, and how. This eliminates a need for customers to rebuild and retrain models when the area of risk they want

to address changes. This flexibility will remain relevant even after the pandemic, when health care returns to a steadier state.

The decrease in care utilization and clinical data feeding analytic models has revealed a need for nontraditional data sources to be integrated and leveraged so payers never lose the ability to identify hidden risks that can be modified. The Jvion CORE helps plans harness the power of AI by producing an SDOH-driven "vulnerability index" that can outperform even clinical projections¹⁰. The vulnerability index adds a key element to the clinical care equation, accounting for what is going on in a patient's life and how those events can negatively affect outcomes. It allows stakeholders to not only understand risk but also know what to do about it.

PERSONALIZATION AND PRIORITIZATION

Prescriptive clinical AI is superior to traditional models built to address a problem or attain a target because they have to be rebuilt when a new problem or target arises. The Jvion CORE aligns all members with their clinical and socioeconomic risk factors, meaning plans and providers need only to "ask the CORE" to find individuals at risk of a newly identified problem or in danger of missing a new target. The output, which can be accessed in various ways, provides a prioritized roster of members who are modifiable, reducing unnecessary cost and utilization as well



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as guidance on how to best engage with each member based on lifestyle and behavioral data.

For example, the cost of care for patients hospitalized for pneumonia averages nearly \$11,000. While, the pneumococcal vaccine reduces related hospital admissions by nearly 24%, the pandemic has slashed the number of eligible individuals receiving the vaccine by 55%. This could lead to more than 10,000 potentially avoidable hospitalizations in the fall and winter, at a cost of more than \$110 million, if these eligible members aren't identified with proactive outreach to provide the vaccine.¹¹

These measures will be critical because preventable ED use was already estimated to cost about \$8.3 billion annually pre-pandemic.¹²

Not only can the Jvion CORE clearly see high-risk individuals, but, more importantly, it also identifies members and patients who are on the cusp of high risk. Payers can then intervene to keep these individuals from progressing. Jvion takes this even further, personalizing and prioritizing recommendations based on the uniqueness of each member's risk makeup and providing guidance on a member's preferred channel and time for receiving communications.

The sooner payers and providers adapt to the new clinical AI environment the better, because there may never be a return to normal.¹³ It's time to make the "new normal" mean well-informed, proactive care that addresses all risk factors — SDOH and clinical — and that improves clinical outcomes for members and patients, during the pandemic and beyond. ■

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ABOUT JVION

Jvion enables healthcare organizations to prevent avoidable patient harm and lower costs through its clinical AI solution. An industry first, the Jvion CORE goes beyond simple predictive analytics and machine learning to identify patients on a trajectory to becoming high risk and for whom intervention will likely be successful. Jvion determines the interventions that will more effectively reduce risk and enable clinical action.

For more information:
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