ACO Saves $1.5 Million Using AI to Optimize Care Management

In 2017, a prominent Accountable Care Organization (ACO) comprised of nine federally qualified health centers (FQHCs) was facing the same challenges as many healthcare provider organizations: how to improve patient health while simultaneously reducing the total cost of care. Serving more than 200,000 patients in the Chicago area, the ACO asked themselves an important question: **Can artificial intelligence (AI) more effectively identify high-risk patients that need targeted preventative care?**

A GOOD STARTING POINT

Working with a prominent actuarial consulting firm, the ACO created a proprietary health risk assessment (HRA) focused on social determinants of health for its 200,000 safety-net patients. In addition to the HRA, the consulting firm developed a rules-based scoring engine that used the survey's results to risk stratify patients by a projected total cost of care. Patients were grouped into three categories: low, medium, or high risk. Patients deemed high-risk were enrolled into a care management program, developed to provide high-utilizers with interventions that would improve health and lower costs. Interventions included care coordination, transportation assistance, and connection to local social services (food, housing, etc.)

OPPORTUNITIES TO IMPROVE

HRAs were chosen by the ACO as the primary source of data to inform risk scoring because they allowed for the collection of social factor information that would not be captured in traditional data sources (medical claims, EHR, etc.). However, as with any patient-reported data, some patients failed to correctly report health issues.

Issues regarding inaccuracy were further compounded by the lack of timely data. While the HRA collected new data points not previously known, the surveys were conducted only once a year, resulting in risk scores that represented a single point in time. These risk scores failed to track the patient's risk over time as new health data became available from other sources.

Lastly, the HRA-based risk scores failed to provide explainability beyond a simple "high-risk" label. Care managers were given no context as to why a patient had been labeled high-risk. Further, they had no way of determining which high-risk patients were most in need of preventative care. By putting all these patients in one opaque high-risk bucket, the ACO missed the opportunity to provide precise, personalized interventions based on individual patient needs.

"As an ACO we must ensure that the next phone call we make, the next intervention we apply, will make an impact. We had to look beyond our rules-based approach to manage the success of our care management program and our patients' wellbeing".

- President of Chicago ACO

SHOWING VALUE IN 24 HOURS

In 2018, the Chicago ACO approached ClosedLoop with one question in mind: **"Can ClosedLoop.ai help our organization more accurately identify high-risk patients?"**

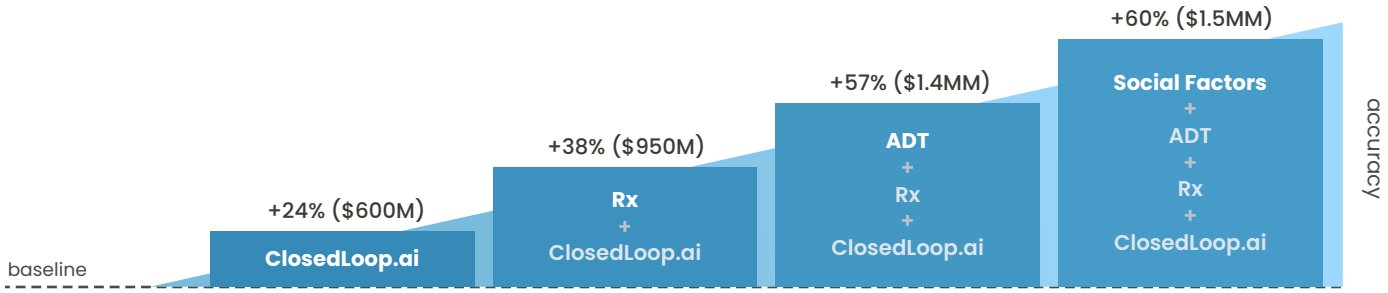
ClosedLoop began by feeding the original historical HRA responses from more than 200,000 patients into their AI-based predictive analytics platform. The ACO also provided ClosedLoop with historical medical claims, which supplied the actual costs associated with these patients over the test period, while holding back 20 percent of the claims information as a test set. This test set represented the true "answers" to the question of predicting total utilization. Based on this HRA data, risk scores were generated for all patients, stratifying them from most at risk to least at risk.

In only 24 hours the ClosedLoop.ai platform learned from the patterns in the ACO's historical data and produced risk scores that were 24 percent more accurate than the ACO's existing rules-based scoring system.

FROM GOOD TO GREAT

24 percent accuracy improvement in only 24 hours was a great start, but the ACO and ClosedLoop both recognized an opportunity to leverage the ACO's additional data sources to strive toward more accurate, transparent, and timely risk profiles.

Integrating the ACO's diverse sources of raw patient data including prescription claims, ADT feeds, and social factors, led to additional improvements in accuracy. **This layered-data approach helped achieve a 63 percent improvement in correctly identifying the ACO's high-risk patients and also reduced false positives by 80 percent.**



The new data sources also provided care managers with a comprehensive view of their patients' overall health risks. **Information from multiple data sources allowed ClosedLoop.ai to surface intelligent insights regarding the most important factors impacting each patient's risk for becoming a high utilizer.** ClosedLoop.ai's Contributing Factors included a variety of insights such as social factors, age, prior medical spend, and specific diagnosis codes, to name a few.

The added data sources also provided visibility into the changes in patient risk over time. Risk scores were now updated daily, reflecting the most up-to-date information available on each patient, flowing from all available data sources.

"We find that many organizations like the Chicago ACO have access to millions of data points. Each source of data can be layered into the ClosedLoop.ai platform to provide comprehensive and timely insights at the patient and population level."

- Dave DeCaprio, CTO & co-founder, ClosedLoop"

EFFECTIVE CARE MANAGEMENT = BETTER OUTCOMES & LOWER COST OF CARE

With more insight into patient health and individual comprehensive risk profiles, care managers and clinicians effectively applied interventions to the right patients at the right time, resulting in saving the ACO a projected $1.5 million within the first 12 months

SHOWING VALUE IN 24 HOURS

Identifying high-risk patients is just the beginning of a successful care management program. ClosedLoop continues to work with the ACO to identify new areas where AI can help align preventative interventions with the most impactable patients. Additional use cases include:

- Which patients are at the highest risk for developing a chronic disease?
- Which patients are at the highest risk for hospital readmissions?
- Which patients would most benefit from transportation assistance?

Today, ClosedLoop.ai plays a foundational role in the ACO's care management program. Together they ensure patients who need care the most receive effective targeted interventions - improving patient health and ultimately reducing costs.

ABOUT CLOSEDLOOP

Created in 2017, ClosedLoop.ai is an AI-based predictive analytics platform for real-world healthcare data. ClosedLoop is committed to bettering the healthcare industry by providing healthcare organizations with the power to predict health outcomes with ease and transparency. Learn how ClosedLoop.ai can equip your organization with the insights needed to improve patient health and lower costs.

www.closedloop.ai