

Rural Innovation Profile

Predictive Analytics Shape Care Processes

What: Predictive analytics software built into a state-based health information exchange (HIE) informs healthcare organization development of proactive interventions for their patient populations.

Why: Healthcare organizations entering into value-based arrangements, including accountable care organizations need to improve the health of their communities, achieve high-quality clinical outcomes, and drive down the cost of care.

Who: Community Care Partnership of Maine, a collaboration of nine federally qualified health centers and three community hospital systems located throughout the state.

How: Identify patients with the highest risk and plan interventions to support care management.

Key Points

- Maine has a single centralized HIE that allows all its organization members to enter and access their patients' data, rather than several disparate HIE systems that often cannot connect and share patient data with each other.
- Predictive analysis enables health care staff to identify patients at risk before their health declines.
- Working proactively with patients who have high-risk scores can prevent a decline in their health and reduce use of unnecessary high-cost health care services, like hospital stays or emergency room visits.
- The accountable care organization uses standard care management workflows based on insights from predictive analytics risk scores.
- HIEs that allow for easy queries of data fields can reveal opportunities for new intervention approaches.





“Every day it feels like we're innovating with the predictive analytics tool because it's just so robust.”

Theresa Knowles, Chief Quality Officer, Community Care Partnership of Maine

OVERVIEW

Community Care Partnership of Maine (CCPM) is an accountable care organization (ACO), formed in 2015. It is comprised of nine federally qualified health centers (FQHCs) and three community hospital systems throughout Maine, which collectively serve more than 150,000 patients. St. Joseph's Healthcare, a community hospital system, and Penobscot Community Health Care (PCHC), a community health center, are two of the founding members of CCPM.

CCPM participates in the state's Medicaid ACO, as well as commercial ACO shared savings programs. CCPM also participates in a Medicare Shared Savings Program, which produced \$2,130,758 in shared savings for performance year 2016, and \$4,184,087 for performance year 2017.

CCPM leverages the predictive analytics platform which sits on top of Maine's statewide health information exchange (HIE) to identify patients at risk for a health crisis or issue and to improve approaches to care delivery across the organizations in the ACO.

BUILT-IN PREDICTIVE ANALYTICS

Nearly all of Maine's 1.3 million residents are supported by the statewide HIE, which collects clinical information from 32 of the 36 state's acute care hospitals and 376 ambulatory providers (including FQHCs). Maine's hospitals and ambulatory provider systems supported a centralized system that was in the best interest of patients. They pay an ongoing per member per month fee to participate. Patient information is updated in the HIE every night with all the transactions from the previous day. This keeps the data current within 24 hours.

HealthInfoNet, the independent nonprofit organization that manages Maine's HIE, added a predictive analytics service option in 2015 that is now part of the standard HIE product. The service includes a dashboard showing patient risk scores related to readmissions; hospitalizations; emergency room (ER) visits; risk of mortality, heart attack, and stroke; and rising risk—an increase in their risk score over the last three months. These risk scores are recalculated daily based on the nightly HIE data updates.

St. Joseph Healthcare and PCHC were early adopters of the predictive analytics tool. St. Joseph Healthcare was the first organization to field test HealthInfoNet's predictive analytics service by running risk scores on patients every morning using near real-time data. When patients leaving St. Joseph Hospital had a high risk of 30-day readmission, their primary care provider office was alerted and risk concerns were communicated. PCHC found the new workflow so beneficial to coordinating patient care when working with St. Joseph Healthcare, it decided to invest in the predictive analytics tool as well. St. Joseph Healthcare has reduced hospital readmissions below 10 percent—about 5 percent below the state average. That includes a 15 percent drop in readmissions coming through the emergency department in a six-month period.



Once CCPM formed, founding members St. Joseph Healthcare and PCHC encouraged other member organizations of CCPM to adopt the predictive analytics tool. Care management leadership from St. Joseph Healthcare has been instrumental in developing the workflows and data queries within the tool, and have helped train other members of CCPM on use of the predictive analytics tool.

USING PREDICTIVE ANALYTICS FOR CARE MANAGEMENT

CCPM has a prescribed set of care management interventions that many of the ACO's member organizations have implemented. Every morning case managers check for notifications from the HIE about patients who have been admitted or discharged from inpatient and emergency room settings across all provider organizations connected to the HIE. All discharged patients receive a call by a medical assistant or nurse within 48 hours, using standardized questions and education points based on their condition. Responses to the questions provide a better picture of patient needs and update the factors used for predictive analytics. PCHC makes home visits to some patients based on their risk of readmission.

At least weekly, CCPM uses predictive analysis to review which of its patients are most at-risk for poor outcomes. According to the ACO's protocols, patients with certain risk factors require care management services and must be seen by a primary care provider with a particular frequency. Member organizations can exceed the ACO requirements. For example, PCHC provides an in-home transition visit for patients coming out of the hospital who are flagged as high risk for readmission. The visit includes assessments, barrier identification, and chronic disease management teaching. The care manager does a warm handoff of care by introducing the patient to their embedded care manager and provider team.

PCHC meets monthly to discuss patients in its high-utilizers group. All patients who have a "rising risk" are identified as potential candidates for care management services. The highest risk patients receive interventions. The number of patients selected is based on available resources to support interventions. As resources change, additional patients receive interventions until the ACO feels it can manage the population.

INNOVATION

CCPM continuously explores new ways to use the predictive analytics service to query its patients' information in the HIE. For example, PCHC has started pulling lists of patients who have visited an ER or have been hospitalized for an opioid overdose. The cases are reviewed for interventions, such as provision of Suboxone and treatment programs. They also have started to generate lists of patients who were evaluated or hospitalized for attempted suicide, outreaching in an attempt to facilitate counseling as soon as possible.



WHATS NEXT?

CCPM and HealthInfoNet are discussing how to integrate social determinants of health into Maine's HIE. In many cases, CCPM member organizations already have discrete data fields in their respective electronic health record systems to allow for capture of identified social determinants—such as information on housing, medical transportation, ability to afford medication, and child services. These data need to be assessed and mapped to the HIE software, displayed in a useable way, and incorporated into the predictive analytics tool. Social determinants of health data will allow for an even more robust risk assessment and informing of necessary interventions. CCPM wishes patient information on mental health and substance use disorders was available to further improve predictive analysis, but patient opt-in requirements limit data availability.

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