Mon Health System Saves Over 800 Lives With Disease Prediction

Using disease prediction modeling, Mon Health System identified individuals at risk for lung cancer, then deployed targeted communication encouraging patients to get screened, prompting lifesaving treatment for those diagnosed.

Challenge

Treatment of late-stage lung cancer creates immense difficulty for both patients and healthcare providers but detecting nodules before they spread is challenging. Most individuals are already in an advanced disease state before diagnosis, leading to expensive treatment and high rates of mortality. Mon Health System recognized the risk was even greater in its community and took action.

Why lung cancer prediction?

Community Health Needs Assessment Results

Four priority areas were identified to improve the health of community members:

1. Cancer

2. Substance Use & Abuse

3. Mental Health

4. Obesity

West Virginia Lung Cancer Rates

West Virginia has one of the highest incidences of lung and bronchus cancer in the U.S. – 82.8 per 100,000 people.

Lung Cancer Leads U.S. Cancer-Related Deaths

Many patients already have advanced disease at the time of initial diagnosis. Accurate classification of nodules is critical to reducing lung cancer morbidity and mortality.

Approach

With early detection being critical to saving patient lives as well as freeing up provider resources from costly treatments, Mon Health System drew on the power of Huron Intelligence® Analytic Suite to create an effective predictive model for lung cancer.

Predictive Technology

Using claims data within the Huron Intelligence® analytic platform, Mon Health System and Huron identified a large collection of patients with lung cancer diagnoses from across the United States. Next, they ran a correlation analysis of all diagnosis and procedure codes. Using the codes with the strongest indicators of disease, the teams ran the data through an ensemble of models, leveraging machine learning to establish a predictive algorithm. After testing its accuracy, Mon Health System ran patient data through the predictive model to identify at-risk individuals within its network.

Patient Communication

With at-risk patients identified, the teams developed an outreach strategy to encourage individuals to consider a screening without alarming them. Patients at the highest risk received direct communication from their primary care physician's office while lower-risk patients received less direct outreach focused on prevention.

Change Management and Departmental Alignment

Given the novelty and impact of disease prediction technology, engaging stakeholders across departments, including risk management, IT, legal, marketing, service lines, physician services, and business development, was critical to gaining buy-in. Departments aligned on the vision and measures of success, which enabled the health system to successfully reach patients and assure the best patient outcomes.

Results

Proactive patient care

811 patients who received communications from Mon Health System came in for a screening and were diagnosed with lung cancer, prompting treatment.

Enhanced care experience

New patient experiences outside of the traditional patient-provider relationship were developed through thoughtful outreach.

Scalable technology to improve population health

With an accurate model for predicting lung cancer, Mon Health System is expanding its use in predicting breast cancer and knee replacements, furthering the organization's mission to enhance the health of its communities, one person at a time.

"To truly impact our community required a mindset shift. We learned to apply new technologies and created impactful communications to transform the care experience. Huron helped us live out our mission of enhancing the health and wellness of the community, one person at a time."

DAVID GOLDBERG, PRESIDENT AND CEO, MON HEALTH SYSTEM AND EXECUTIVE VP, VANDALIA HEALTH

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