actium

Demystifying AI for Health Systems and Clinics

Why providers should start using AI today
to unleash countless benefits

Artificial intelligence (AI) has demonstrated huge potential in countless fields — from finance and self-driving vehicles, to medical imaging and diagnostics. AI can also transform the way health services are delivered today.

Every year, a typical patient produces the equivalent of more than 300 books of data. Multiplied by several years and thousands of patients, the result is too much data for any person to analyze. This is where AI can produce extreme value. It can do what no person can do alone (even the most qualified data scientist) and comb through millions of data points to deliver patient care insights — automatically adjusting those insights as it learns more.
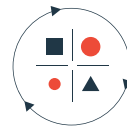
Leveraging AI with EMR Data Can Help Health Systems and Clinics

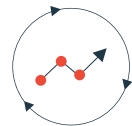**IMPROVE CONTRIBUTION MARGINS, ACCELERATE APPOINTMENT BOOKINGS**

OPTIMIZE AVAILABILITY BY PRIORITIZING THE HIGHEST-RISK PATIENTS

**ENHANCE PATIENT SEGMENTATION WITH REAL-TIME PATIENT AUDIENCES**

MOVE THE NEEDLE ON QUALITY METRICS AND COMPLIANCE

Data Analytics vs. AI

TRADITIONAL, RULES-BASED ANALYTICS

In traditional data analytics, programmers and data analysts manually develop logical rules to transform raw data into results. For example, health system and clinic analysts may use EMR data to find all patients overdue for a preventive screening or who live in an area near a new location opening. Applying those simple rules to patient data would result in output — in the form of patient audiences — used to drive patients to a particular action, like making an appointment.
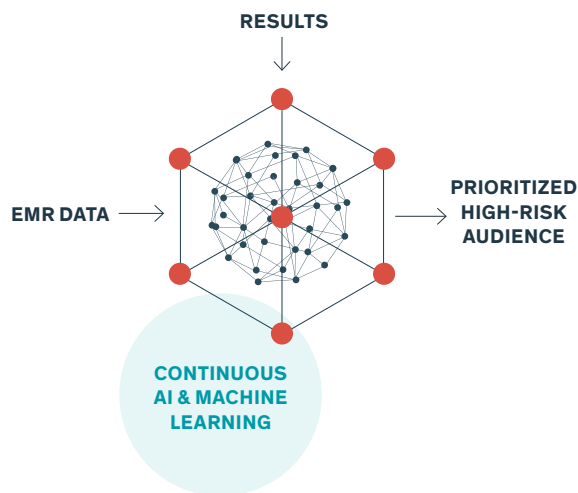
But rules-based traditional data analysis only gets you so far. In fact, using industry-standard rules to predict readmissions is only about 25 percent effective. That leaves health systems unprepared to prevent readmissions and other serious health complications despite the troves of data they have available.
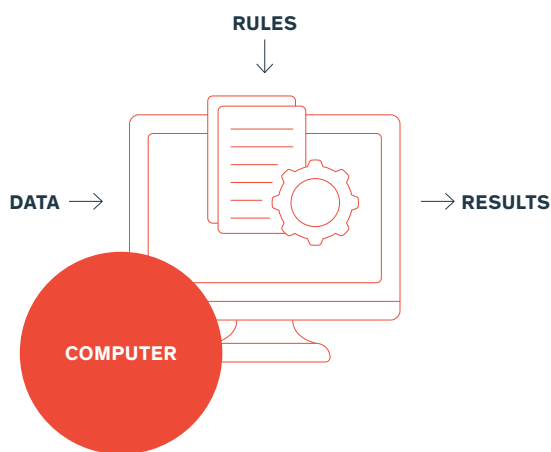
HEALTHCARE AI, LEARNING THE RULES FROM PAST RESULTS

AI flips this traditional model on its head. It reverse engineers the process, analyzing 100 percent of all past "successes" and "failures" in order to develop rules that identify the highest-risk patients. In this way, AI models continuously learn and improve over time, developing more and more accurate predictions. They lead to results that are 2-4X as predictive as results from traditional analytics.

AI leads to patient audiences that are smaller and far more precise. The result? More relevant patient communications, far more efficient outreach efforts, and maximized conversions resulting in greater contribution margins.

RULES

DATA → RESULTS

COMPUTER

RESULTS

EMR DATA → PRIORITIZED HIGH-RISK AUDIENCE

CONTINUOUS AI & MACHINE LEARNING

Debunking Four AI Myths

Too often, AI is a source of mystery, confusion, and pushback. But AI is a tool, and, like any tool, it can be tailored to unique situations and improved upon overtime.

There are countless myths surrounding AI. To help you better understand how AI can improve healthcare, let's debunk four common myths:

MYTH #1

DATA SCIENTISTS CAN DO THE SAME LEVEL OF ANALYSIS AS AI CAN DO.

The real value of AI is that it can take large amounts of data — thousands upon thousands of EMR fields, for example — and develop highly accurate predictions based on that data. AI models work at a scale far beyond what a person could do, even with the most sophisticated data analytics tools at hand. EMR systems contain tremendously rich data on everything from encounters with diagnosis and procedure codes, to lab results, mediations, vitals, and more. However, making use of all of those data elements is difficult. AI unlocks the value of all the data that has been collected over many years to create highly accurate predictions.

MYTH #2

AI MODELS ARE NOT TRANSPARENT AND CANNOT BE MANUALLY ADJUSTED.

Many people are under the impression that because AI works with such large amounts of data, it is impossible to break down how it develops models and processes data. The reality, however, is that AI models and algorithms can be visible and understandable. Some models are more complicated than others, of course, and may require more exploration than others. But all AI models can be explored and adjusted, breaking down the best predictors of patient need, patient engagement, and other outcomes of interest.

MYTH #3

YOU NEED A LOT OF IT RESOURCES TO IMPLEMENT AN AI SOLUTION.

It used to be that healthcare analytics projects required large IT teams to wrangle data and make it useful. Pre-built AI products only need simple healthcare data exchange using either an industry standard like HL7 or a simple flat-file exchange. Data integration to enable AI can be completed in weeks, not months, and only requires mere days of IT staff time.

MYTH #4

AI PROPAGATES BIAS.

AI can actually be used to mitigate bias, targeting patients with the highest levels of need and social determinants of health in order to close care gaps and advance health equity. Unchecked, AI does have the potential to exacerbate differences already found in the data. However, using downstream auditing, score thresholds, and other techniques, you can alleviate bias in AI models and work on reducing health disparities.

Actium Health CENTARI™: AI for Better Care

Actium Health CENTARI has worked with countless health systems and clinics to train AI models on EMR data and develop insights for marketing campaigns, patient segmentation, and quality of care goals.

10,000
Different EMR features regarding each patient are used to predict health risk and probability of engagement

98%
Accuracy rate for predictive AI models

10X
More likely that patients identified by CENTARI's Clinical AI Models will need care in that clinical area

CENTARI uses two types of AI models to identify patients for outreach campaigns: Clinical AI Models and Influence AI Models. These models work together to develop highly-targeted patient audiences that can be used to optimize patient mix, enhance patient outreach and activation, and increase contribution margins and quality scores.

CLINICAL AI MODELS
Analyze complex clinical data and predict which patients need which services

HOW THEY WORK:

1. Use clinical criteria vetted by medical doctors and coders
2. Feed the criteria into AI models to identify patterns
3. Test, train, and refine the models
4. Apply the models to diverse business challenges, including population health, service line growth, and patient activation
5. Predict patients' health needs
6. Deliver prioritized patient audiences based on risk, revenue potential, business objectives, and capacity

INFLUENCE AI MODELS
Analyze historical data to predict a patient's personalized likelihood to respond to a call-to-action

HOW THEY WORK:

1. Deliver actionable intelligence to influence patient behavior and close care gaps
2. Segment patients by demographics, communication preferences, provider location, doctor type, and more
3. Identify the communication channel most likely to generate a response
4. Personalize outreach campaigns to increase conversion
5. Automatically execute a prioritized activation plan for every patient
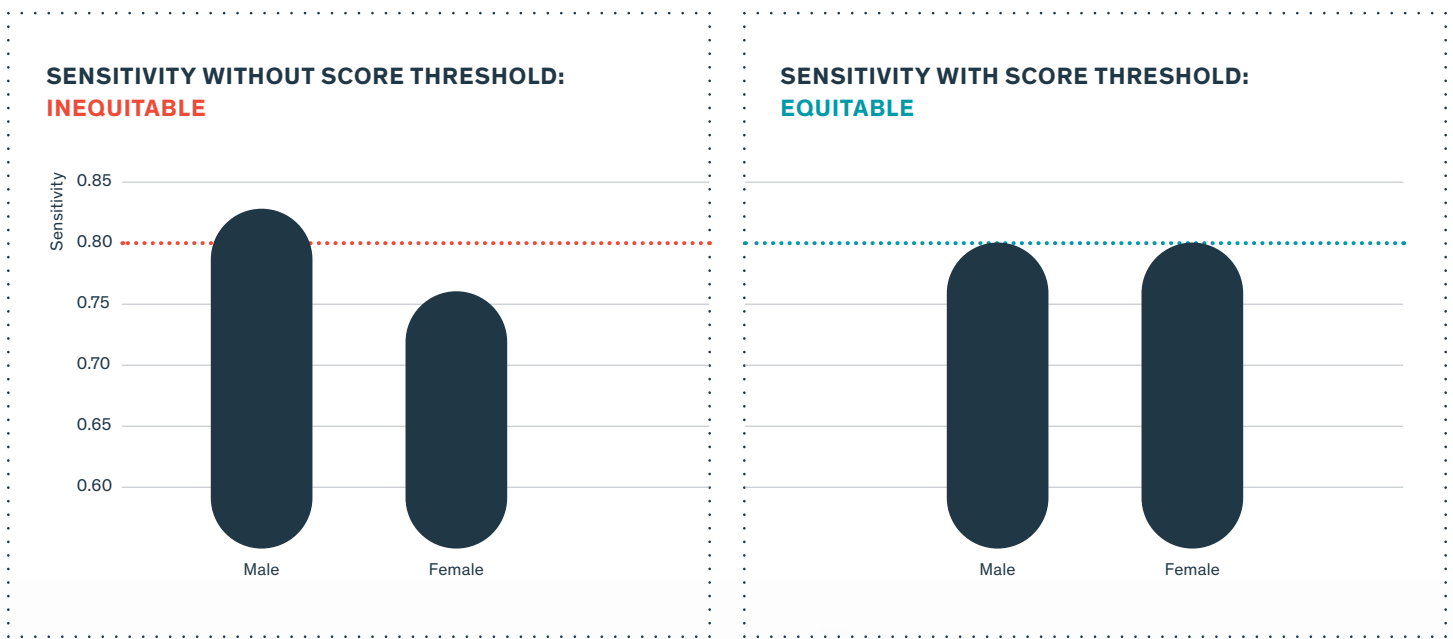
Combating Bias in AI

Used inappropriately, AI has the potential to exacerbate disparities found in existing EMR data. Existing inequities by socioeconomic status, religion, sexual orientation, disability, race, and gender that are reflected in EMR data can be reflected in AI model predictions if left unchecked. However, using methods like score thresholds and downstream auditing, those inequities can be directly addressed, leading to predictions that actually reduce health disparities.

A 2019 paper by Dr. Ziad Obermeyer showed that AI models led to less outreach to Black patients. This was because the algorithm equated money spent with level of need. Due to underrepresented groups showing up less in EMRs, some AI models might assume they're healthier. Correcting the model would have increased care for Black patients by nearly 30 percentage points.

THE CENTARI APPROACH

CENTARI develops a score threshold so that no particular racial group or gender is underrepresented. For example, traditionally, women are underrepresented in cardiology service lines. Therefore, a recent CENTARI model initially identified 60% men and 40% women for outreach in cardiology.

Using the results of those models without any adjustments would have exacerbated existing disparities in access to cardiac care for women. However, by using score thresholds, CENTARI equalized these percentages. That way, outreach results were adjusted to advance health equity and reduce existing gender disparities in heart care.

SENSITIVITY WITHOUT SCORE THRESHOLD: INEQUITABLE

Sensitivity

0.85
0.80
0.75
0.70
0.65
0.60

Male   Female

SENSITIVITY WITH SCORE THRESHOLD: EQUITABLE

Male   Female

A Powerful New Tool for Health Systems and Clinics

Artificial intelligence can help health systems and clinics of all sizes extract insights from their EMRs, develop hyper-targeted patient audiences, and make the best use of resources to meet patients' needs. AI models can go far beyond what people can do, ingesting large amounts of data to develop highly accurate predictions. The technology is ready. AI can be used today to inform patient outreach, optimize patient mix, increase contribution margins, and maximize quality scores for health systems and clinics of all sizes.

ABOUT ACTIUM HEALTH

Actium Health leverages AI to transform patient outreach. Here are some of the ways Actium Health can transform your system or clinic:

- Intelligent setup designed to break down data silos
- Insights tailored to your unique goals
- Prioritized patient audiences
- Automated, always-on campaigns
- Exportable patient lists for one-off campaigns
- SMS communications that maximize patient activation
- Outbound calling management to boost call team productivity
- Dynamic throttling to drive volume where you need it — and avoid overbooking
- Enhanced reporting and attribution for marketing ROI and direct revenue impact

INTERESTED IN EXPLORING HOW AI CAN TRANSFORM YOUR HEALTH SYSTEM OR CLINIC?

Connect with the Actium Health team today at info@actiumhealth.com.

"With Actium's proactive, AI-driven outreach campaigns, we were truly able to touch people's lives."

Ryan Younger,
VP Marketing at Virtua Health

Where Others See Patient Data, Actium Health Sees Human Potential

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