CASE STUDY

Lightbeam AI's Precise Targeting Enabled an Integrated Delivery Network to Reduce the Risk of Avoidable Admissions by 43% Among its Medicaid Plan Members

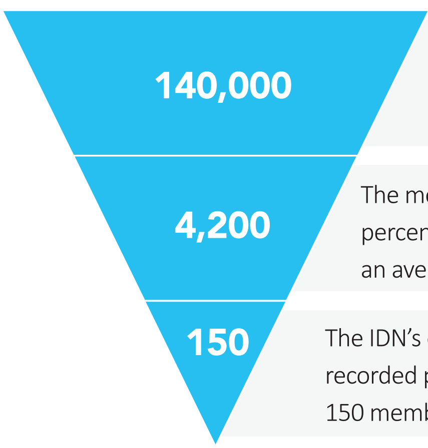
Challenge: Reducing Avoidable Admissions

A large Integrated Delivery Network (IDN) located in the Southwest operates a health plan for the state's Medicaid program. The IDN aims to improve care coordination and outcomes and sought to prioritize reducing avoidable admissions among its high-risk Medicaid plan members.

Solution: Identify Members at Risk of Avoidable Admissions

The IDN deployed Lightbeam AI's 30-day Avoidable Admission model to proactively identify high-risk members. The Avoidable Admission AI model uses patient-specific clinical data along with socio-economic data to risk stratify members, identifying those at risk of an avoidable admission within the next 30 days. In addition to AI-produced risk stratification, the model provides tangible, patient-specific risk factors and recommendations to the care team. The IDN's care managers perform member outreach and intervention based on risk order.

Monthly Risk Stratification & Intervention Workflow



Lightbeam's AI model performed a monthly assessment of the IDN's 140,000 member Medicaid population.

The model returned a list of patients ordered by risk percentile along with recommended actions. It returned an average of 4,200 high-risk members each month.

The IDN's care managers outreached to patients and recorded progress. They intervened with an average of 150 members each month.

Large IDN in the Southwest

Monthly Risk Stratification & Intervention

140,000
Medicaid Plan Members

4,200
Identified as High Risk

150
Intervened with Monthly

Outcomes

-5.3%
Admit Rate Difference

-43%
Relative Risk Reduction

65
Prevented Admissions

$637,000
Estimated Cost Savings

The model returned a list of patients ordered by risk percentile along with recommended actions

(972) 831-7270 | www.lightbeamhealth.com

Impact Analysis Methodology

We conducted an impact analysis using a match-control methodology to isolate the impact of the model usage. The intervention group includes the patients who the care managers were able to successfully outreach and intervene on, while the 1:1 matched control group includes patients sharing the same age, gender, and risk level as the intervention group using a nearest-neighbor matching algorithm. In other words, the intervention group should exhibit the same outcome trajectory (30-day IP admission rate) as the control group if the care managers did not act on the insights provided by the Avoidable Admission model.

Outcome

The IDN's care managers performed outreach and intervention based on risk order and were able to achieve a 5.3% reduction in admission rate (43.3% relative reduction) when comparing the intervened population to a match-control population. This impact translates to a $637,000 reduction in medical costs over the 12-month period of the analysis.

30-day Inpatient Admit Rate Difference Between Intervention & Control (May '23 to May '24)

	High Risk Patients	IP30 Admit Events	30-Day Admit Rate	Admit Rate Difference	Relative Reduction
Intervention Group	1226	85	6.9%	**-5.3%**	43.3%
1:1 Matched Control Group	1226	150	12.2%		

Financial Impact of Inpatient Admits Avoided

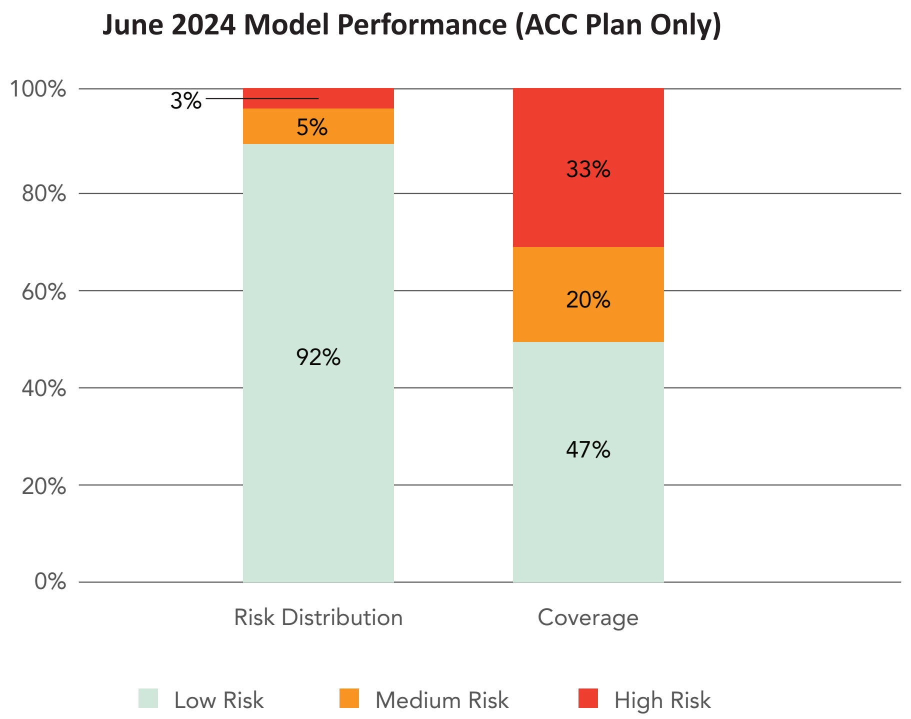
IP30 Admits (Intervention)	IP30 Admits (Control)	IP30 Admit Avoided	Avg. IP Admit Cost*	Estimate Cost Avoided
85	150	65	$9,800	$637,700

*Based on AHRQ data for average inpatient admits for Medicaid population from a national level. [Source]

Evaluating the AI Model Performance

To evaluate the AI model's performance, we reviewed how well the prediction captures the real-life events. In this sample month of June 2024, the high-risk members predicted by Lightbeam AI are only 3% of the population while linked to 33% of the admission events in the time period, and the medium-risk patients are only 5% of the population while linked to 20% of the admission events. In other words, by targeting the top 8% of the population ranked by the Avoidable Admission model, the care team can intervene on >50% of the would-be admission events. The precise targeting enables the care team to efficiently intervene on those who need help the most.

To further show how the AI model enables precise targeting, we review the IDN's Medicaid population and see that 3% of highest risk members (3,847) had an admission rate of nearly 11%, representing 420 admissions. The model's number needed to intervene or (NNE) of 9, meant that staff would have needed to outreach to 9 patients to reach 1 likely avoidable admission, resulting in a highly effective care manager outreach.



Conclusion

The IDN was able to improve the effectiveness of its avoidable admission reduction program amidst care team capacity constraints. The AI model assessed the risk of a massive 140,000-member population monthly, including socio-economic datasets in addition to clinical data, which would otherwise not be possible to do manually. Care teams were able to identify the 4,200 high-risk members, a much smaller subset to intervene with. Care teams were also able to leverage the model's detailed patient risk factors and recommended actions to efficiently intervene and efficiently reduce avoidable admissions.

To Learn More Scan the QR Code or Visit: https://lightbeamhealth.com/request-a-demo/

Lightbeam Health Solutions