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**Lightbeam**  
Health Solutions

**A Winning Workflow:** How a Resource-Constrained ACO Integrated AI to Slash Avoidable Admissions by 4%

VBCExhibitHall  
.com



*Educational Webinar Series*

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Lightbeam Health  
Solutions

## Learning Objectives:

- Evaluate use cases pertaining to population health that could benefit from AI and how it can enhance existing workflows.
- Explore common challenges clinicians encounter when integrating AI into their practice and discover effective strategies to address.
- Learn how an AI-enhanced workflow enabled an ACO with limited resources to reduce avoidable admissions by 4%.

# Agenda

- Learning Objectives
- Background
  - VBC Population Health Challenges
  - Population Health Use Cases for Clinical AI
  - Considerations for Adoption of Clinical AI
- Client ACO Case Study
  - Challenges Facing a Rural ACO
  - Solution Implemented
  - Integrating AI into the Workflow
  - Admissions Reduction and Staff Feedback
  - Current Enhancements
- Q&A

# Background

# VBC Population Health Challenges



Industry-wide growth in value-based care contracts and risk exposure



No growth in financial & staff resources



Staff's ability to manage risk is constrained



Innovative approaches needed to increase impact of existing staff



AI can reduce staff burden and improve outcomes, yet AI adoption remains low

# Challenges Faced



## Population Demands

- **51.8%** with at least 1 chronic condition
- The aging adult population is expected to **triple**
- > 65+ age group will exceed those under the age of 5
- Americans over age 45 show overall **increase in physician visits**

## Clinician Scarcity

- A shortage of 124,000 of full-time physicians by 2034
- Approximately **23% of RNs** plan to **retire** in the next **5 years**

## Time Scarcity

- Average task length **55 seconds**
- Preoccupied with next task
- Interrupted **every 32 minutes**
- **20-37%** of time is spent with the patient
- **55-98%** one or more tasks left unfinished

## Resource Scarcity

- Lack of resources contributing to **burnout**
- Unavailable resources/supplies/medications
- Malfunctioning equipment

# Preventative Care Models & Informing Clinical Decision Making

- Human brains are not capable of processing and storing large amounts of data
- AI can consume information from millions of medical journal pages without skipping a beat
- Machine learning algorithms are being used to boost clinical decision making

1. Hofman M. A. (2014). Evolution of the human brain: when bigger is better. *Frontiers in neuroanatomy*, 8, 15. <https://doi.org/10.3389/fnana.2014.00015>
2. Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., . . . Wang, Y. (2017). Artificial intelligence in healthcare: Past, present and future. *Stroke and Vascular Neurology*, 2(4), 230-243. doi:10.1136/svn-2017-000101
3. Lamanna, C., & Byrne, L. (2018). Should artificial intelligence augment medical decision making? The case for an autonomy algorithm. *AMA journal of ethics*, 20(9), 902-910.





# Clinical Use Cases for AI

Efficiency Gains in  
Patient Care

Risk Stratification  
& Management

Whole-Patient  
Health

Provider  
Experience

Effectiveness  
Gains of Patient  
Care

# Overcoming Challenges in Implementing AI



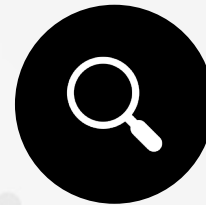
Clinical fear must be overcome



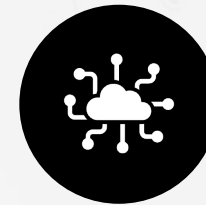
Transparency is key to success



Sufficient education and training is necessary for users



Evidence-based or within current standards of care

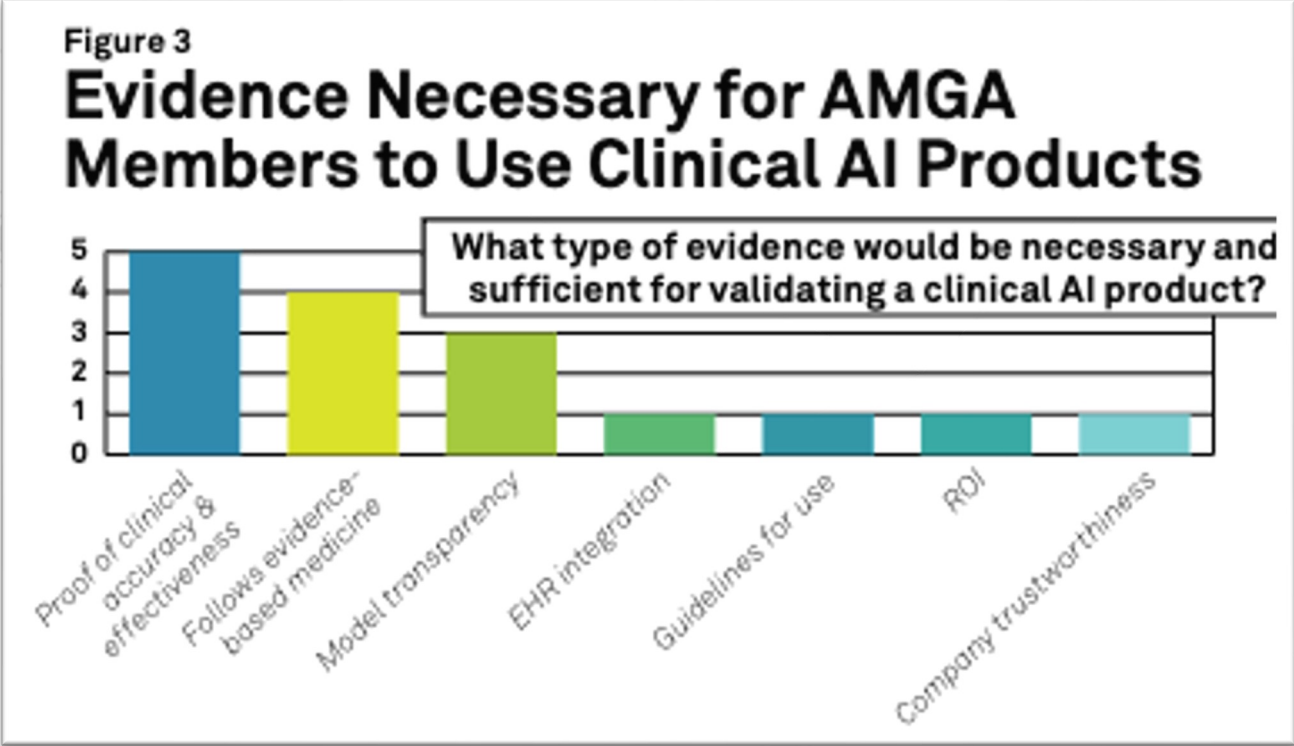
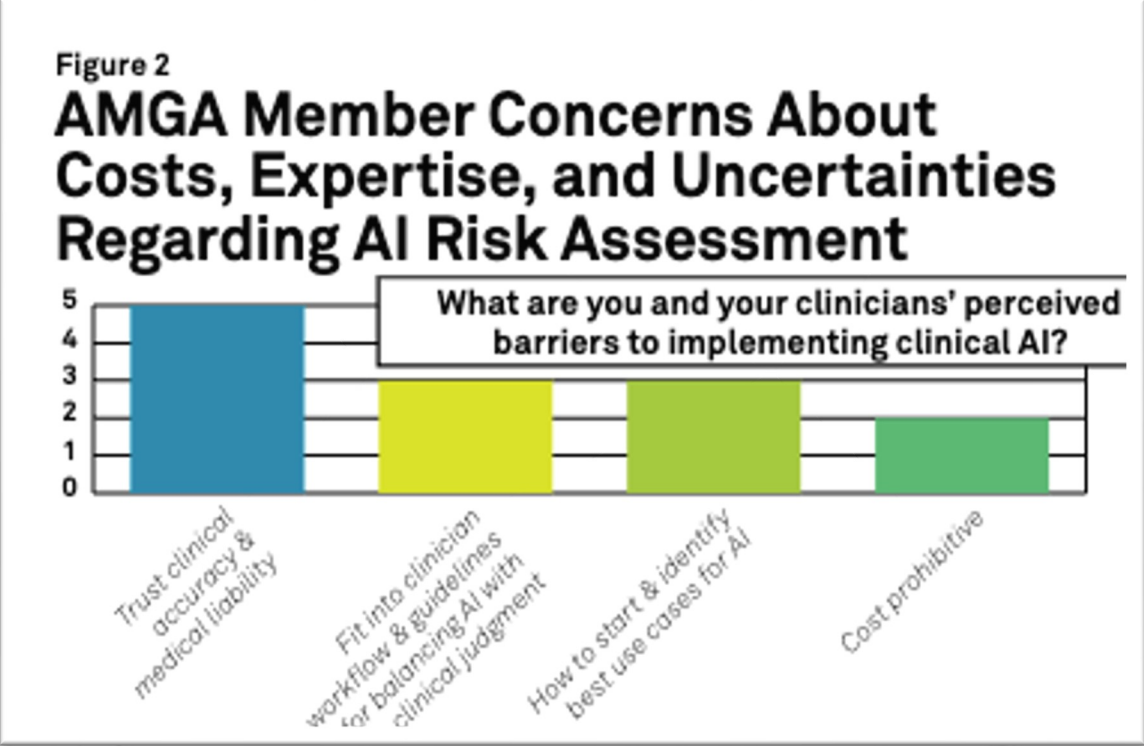


Workflow is where the potential is realized or wasted



Add value to the workflow versus demand

# Considerations for Adoption of AI



Published AMGA's Group Practice Journal, June 2024 Edition

# ACO Case Study: AI Clinical Impact

# Challenges Facing the Rural MSSP ACO

- Multiple provider organizations
- Multiple states
- Multiple EHRs
- 16,000 attributed ACO lives
- Rural geographic area
- Low-resource, older patient population
- Four RNs across decentralized Population Health Centers

# Current Workflow Challenges

- In VBC, still addressing what's in front of us, not looking ahead, screening modalities, we're reactive care model, put a band-aid on it, long term hope for the best. Need to move from symptomatology management to proactive care.
- Time spent on chart reviews using old claims data, and lacking SDoH data to identify at-risk patients
- Manual efforts to aggregate claims and discharge lists from 6 EHRs, and manually assigning patients to care managers
  - Patients still slipping through the cracks

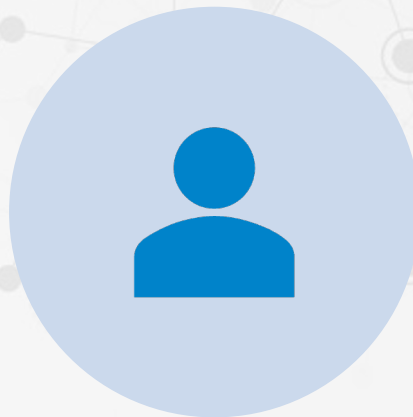
By relying on stale claims data, the ACO's care teams felt frustrated not knowing the patients where proactive interventions would impact outcomes and costs. According to the VP of Clinical Operations at the ACO, “Our case managers would say, this happened 4 months ago, do you really want me to call this patient now?”

# Lightbeam Solutions Implemented



## AI Model

Predict 30-day avoidable admissions



## Cohort Builder

Segment patients into manageable volumes



## Care Management Module

Patient assignment and documentation

## Avoidable Admissions



### Definition

Identify patients who are on a pathway toward an avoidable inpatient admission within the next 30-days.



### Value

- Enable proactive outreach
- Identify rising risk patients
- Inform clinical decision making
- Strategic use of clinical resources

## Outcomes



Reduce avoidable Admissions



Reduce high-cost resources



Increase efficiency in patient outreach

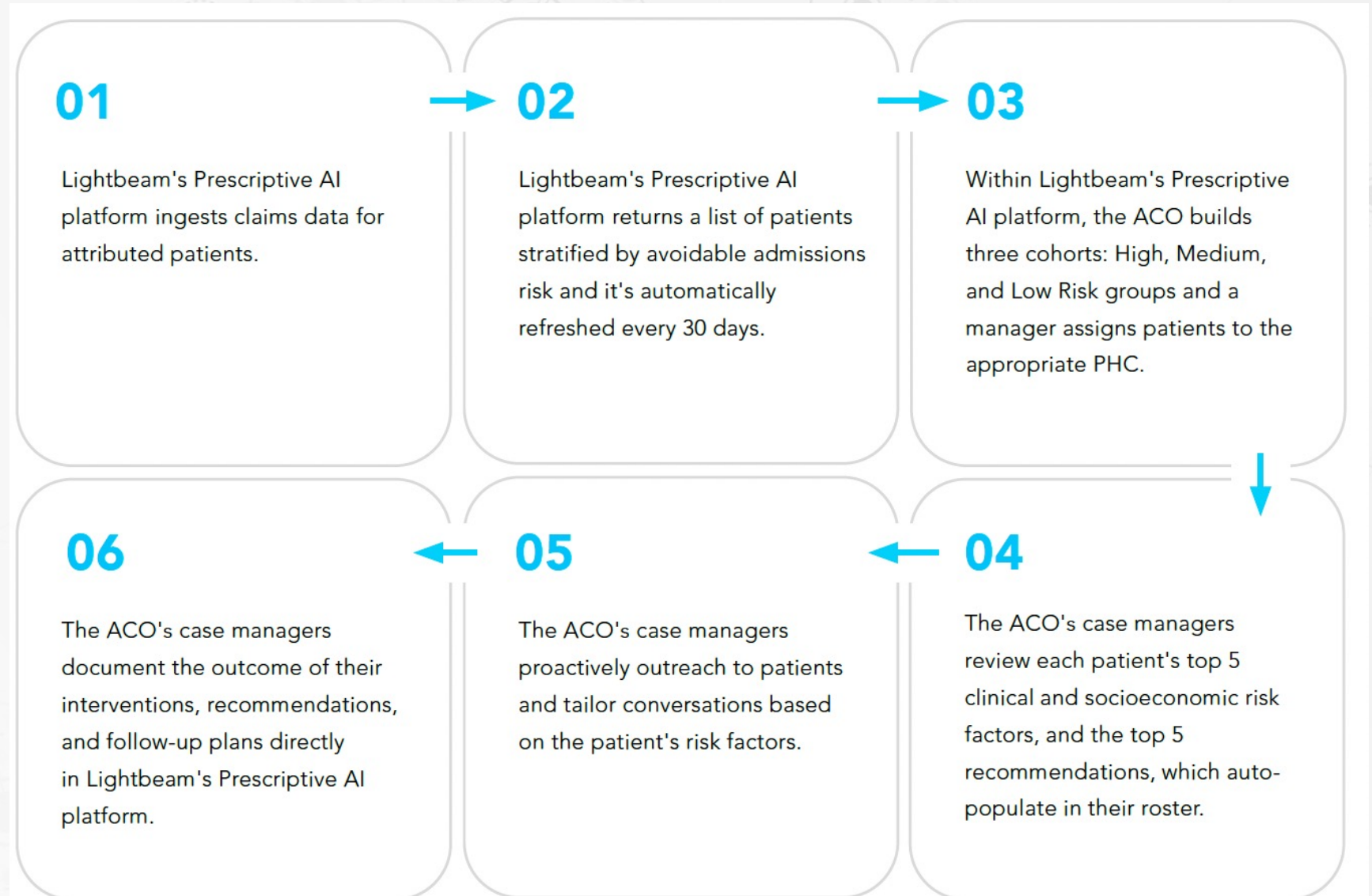


Increase patient engagement



# Workflow

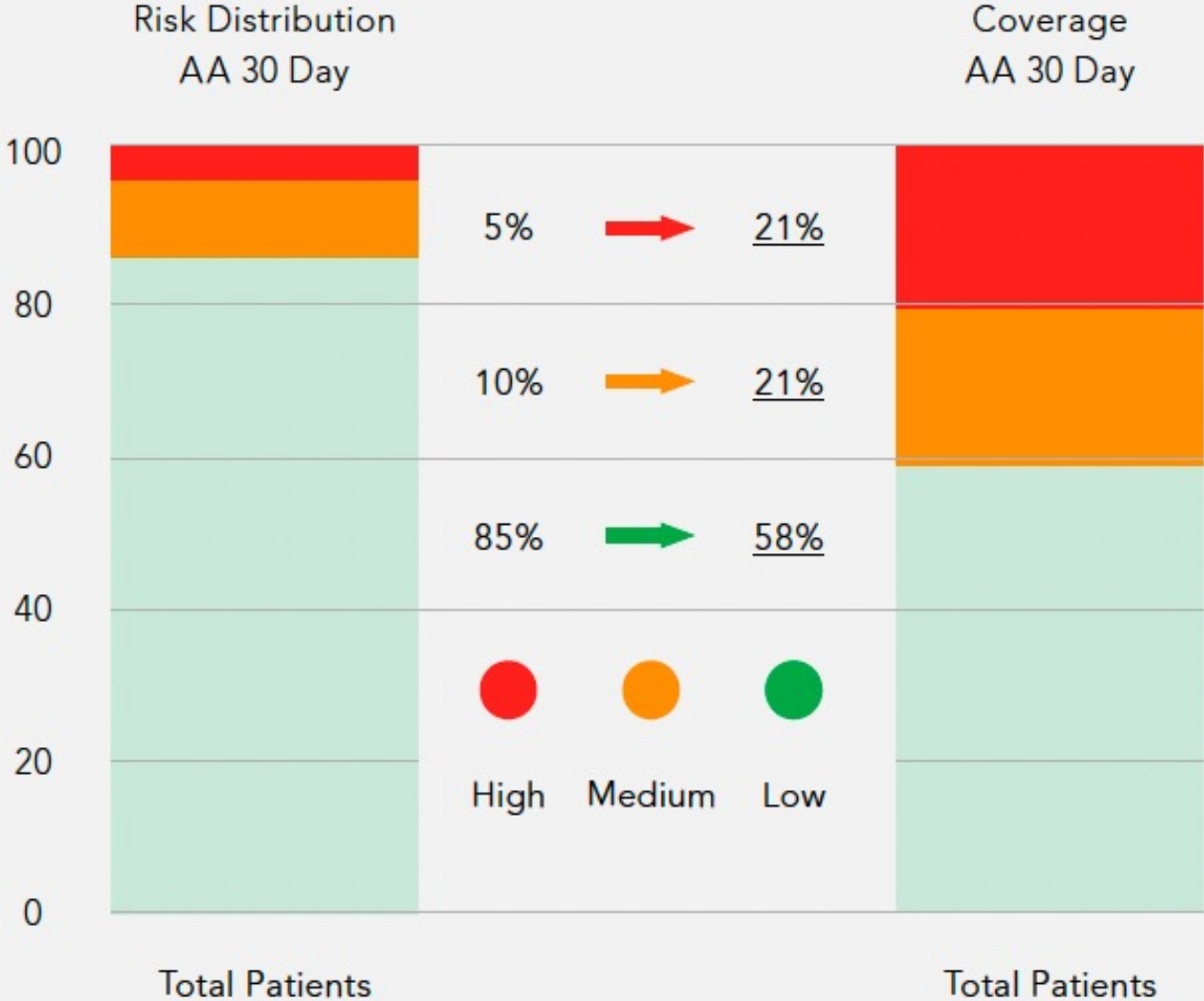
The ACO workflow streamlined identifying, assigning, and intervening with at-risk patients



# Model Assesses the Entire Population

The Prescriptive AI model assessed the entire population and found that just 5% of high-risk patients drove 21% of its avoidable admission risk

Quarterly Avoidable Admissions Risk Distribution Across Patient Panel



# Model Focuses on the Most Impactable Patients



Quarterly Avoidable Admissions Risk Distribution Across Patient Panel

Drilling down further, Lightbeam identified the 830 patients a month that fall within the top 5% of highest-risk profile and how many patients the ACO would need to intervene with to reduce avoidable admissions.

Risk Level	IP30 Admits	Total Patients	NNE	Admission Rate	Coverage
High Risk	198	2,515	13	7.9%	<u>21%</u>
Medium Risk	198	5,079	26	3.9%	<u>21%</u>
Low Risk	550	44,255	80	1.2%	<u>58%</u>
Grand Total	946	51,849	<u>55</u>	1.8%	100%

# Example Top 5 Impactable Risk Factors and Interventions

## Risk Factors

### Clinical

- Type 2 diabetes mellitus with foot ulcer
- Essential primary hypertension
- Furosemide, loop diuretic, oral
- Shortness of breath
- Inhalation treatment for acute airway obstruction

### Socioeconomic

- Very rural area
- Low household income
- Low transportation availability
- Education likely limited to high school
- Lack of other adults in household

## Recommendations

### Interventions

- Focus on medication compliance and access
- Activity of daily living review
- Optimize glucose control
- Explore barriers to care
- Review of symptoms: dizziness / fainting on standing

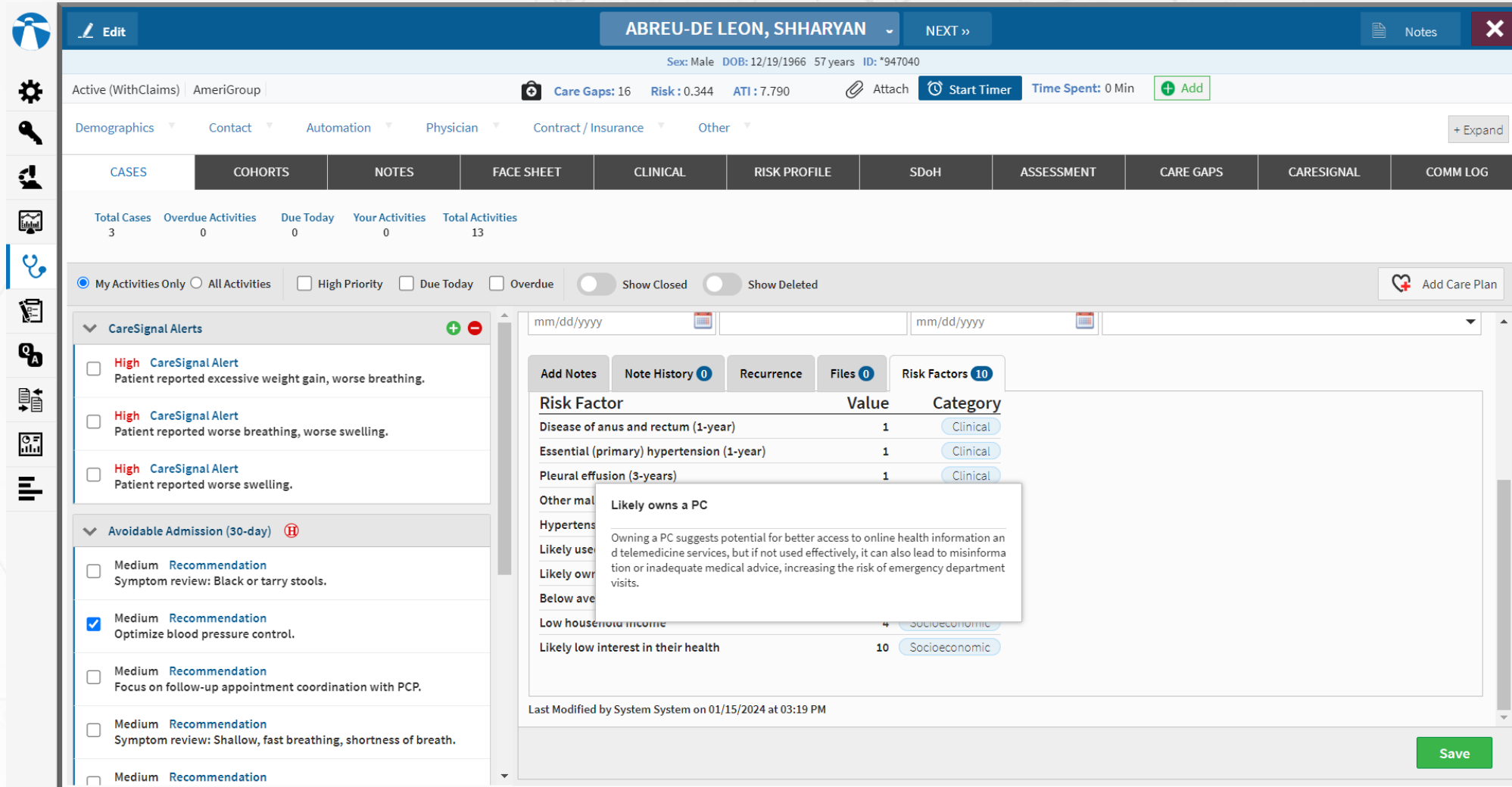
## Accessing Hard to Reach SDoH Data to Deliver Whole-Patient Care

*"Previously, we tried to get social determinants data by calling patients and asking them, but it was hard because they don't want to disclose it and it's hard to start those conversations unless you have background data," the care manager shared. Lightbeam's recommendations added an extra layer to help start and guide the conversation.*

*Before Lightbeam, we were calling to say hey I saw you were in the ED 6 months ago, as a result, we wouldn't get a lot of engagement. Now, when we say hey, I see that not only clinically these things are happening, but maybe socially these things may become a barrier, so I wanted to check in on you and see how things are. Patients are way more inclined to engage then."*



# Acting on SDoH Data



**ABREU-DE LEON, SHHARYAN** | NEXT >> | Notes

Sex: Male | DOB: 12/19/1966 | 57 years | ID: \*947040

Active (WithClaims) | AmeriGroup | Care Gaps: 16 | Risk: 0.344 | ATI: 7.790 | Attach | Start Timer | Time Spent: 0 Min | Add

Demographics | Contact | Automation | Physician | Contract / Insurance | Other | Expand

**CASES** | COHORTS | NOTES | FACE SHEET | CLINICAL | RISK PROFILE | SDoH | ASSESSMENT | CARE GAPS | CARESIGNAL | COMM LOG

Total Cases: 3 | Overdue Activities: 0 | Due Today: 0 | Your Activities: 0 | Total Activities: 13

My Activities Only | All Activities | High Priority | Due Today | Overdue | Show Closed | Show Deleted | Add Care Plan

**CareSignal Alerts**

- High CareSignal Alert: Patient reported excessive weight gain, worse breathing.
- High CareSignal Alert: Patient reported worse breathing, worse swelling.
- High CareSignal Alert: Patient reported worse swelling.

**Avoidable Admission (30-day)**

- Medium Recommendation: Symptom review: Black or tarry stools.
- Medium Recommendation: Optimize blood pressure control.
- Medium Recommendation: Focus on follow-up appointment coordination with PCP.
- Medium Recommendation: Symptom review: Shallow, fast breathing, shortness of breath.
- Medium Recommendation

**Risk Factor Table**

Risk Factor	Value	Category
Disease of anus and rectum (1-year)	1	Clinical
Essential (primary) hypertension (1-year)	1	Clinical
Pleural effusion (3-years)	1	Clinical
Other mal		
Hypertens		
Likely use		
Likely own		
Below ave		
Low household income	4	Socioeconomic
Likely low interest in their health	10	Socioeconomic

Other mal: Likely owns a PC  
Owning a PC suggests potential for better access to online health information and telemedicine services, but if not used effectively, it can also lead to misinformation or inadequate medical advice, increasing the risk of emergency department visits.

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Save

# Outcomes

“*At first I was skeptical of using an AI model to identify our highest-risk patients. But as I started doing outreach, I was amazed by how accurate the risk predictions and recommended actions were.*”



**Vice President of Clinical Operations**, sharing case manager feedback

“*One of the biggest benefits [of the Care Management Module] is the reporting - to be able to know how many patients our social workers are touching in a day. As a manager, I need to know, is it enough and is it working?*”



**Vice President of Clinical Operations**



# Efficiency Improvements Total 1 FTE

## Efficiency Improvements Total 1 FTE

On average, the ACO's care teams addressed 400 high-risk patients per month.

With a time savings of 25 minutes per patient, the team saved 41 hours per week, the equivalent of 1 FTE.

### Pre Call:

Chart Review Time Saved = 10 Minutes

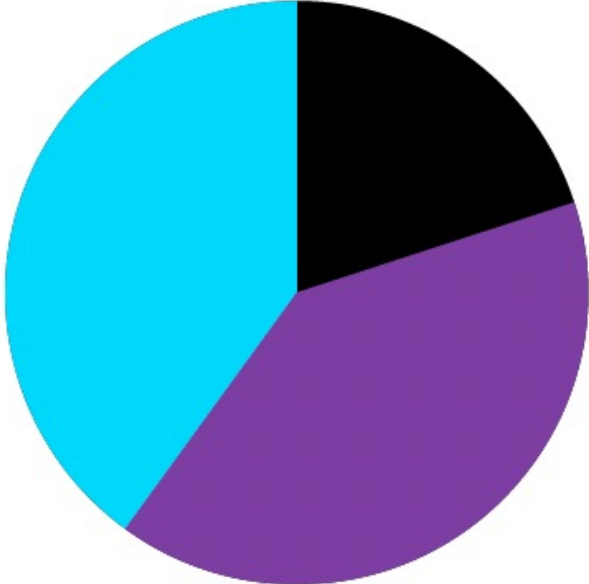
### During Call:

Precise Assessment Time Saved = 10 Minutes

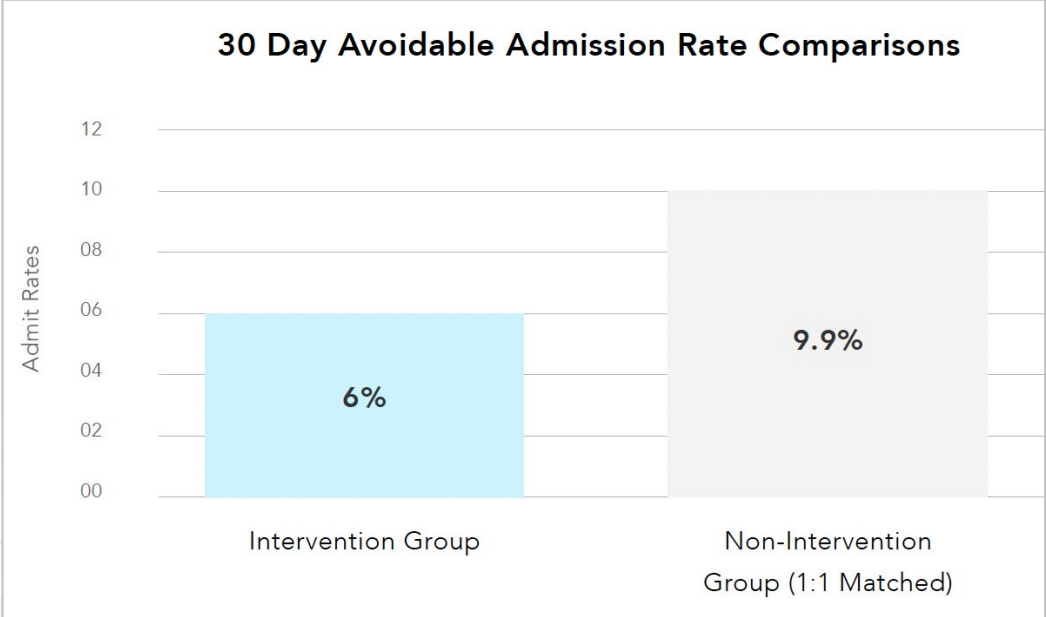
### Post-Call:

Documentation Efficiency = 5 Minutes

25 Minutes Total Saved Per Patient Outreach



# Nearly 4% Reduction in Avoidable Admissions



Group	IP30 Admits	At Risk	Admit Rate	Absolute Rate Reduction	Relative Rate Reduction	Avoided Cases	Avoided Cost
Intervention Group	203	3,373	6.0%	3.9%	39%	130	\$1,911,000
1:1 Matched Non-Intervention Group	333	3,373	9.9%				
Everyone Else (Non-Matched Patients)	2,548	40,977	6.2%				



# Q&A

For More Information Scan the QR  
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