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***How Carle Health's  
Automated Population  
Health Workflows  
Improve Staff Capacity***



# How Carle Health's Automated Population Health Workflows Improve Staff Capacity

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As the volume of value-based contracts expands and exposure to downside risk grows, healthcare organizations are increasingly focused on reducing cost and avoidable utilization. At the same time, they face a convergence of obstacles: rising workloads, overstretched teams to do the work, and continued pressure to meet aggressive quality, utilization, and satisfaction measures.

This case study shows how healthcare organizations can learn from Carle Health's experience and improve efficiency while improving quality, as well as how automating manual tasks creates more efficient care workflows, enabling providers to scale population health initiatives to extend care to larger populations.

## Introduction

Based in Urbana, IL, Carle Health is an integrated healthcare system that includes eight hospitals with more than 1,400 beds and 1,300+ providers within multispecialty physician groups. It oversees two health plans: Health Alliance and FirstCarolinaCare. Carle Health is also a part of Stratum Med ACO, which was formed in July 2019 as a large collaborative accountable care organization (ACO) to shift the focus from pay-for-performance to a value-based care system.

To support its value-based care initiatives, Carle Health had three primary goals:

1. To reduce avoidable utilization and costs
2. To proactively monitor and improve the quality of care for high- and rising-risk patients recently discharged and with chronic conditions, including chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), and hypertension
3. To increase patient satisfaction by offering patients additional support and improved communication with their care team

Meeting these goals meant Carle Health had to develop strategies to close care gaps and ensure patients with the highest needs received timely outreach. "We wanted to make sure that we close care gaps. Were [the patients] able to meet their needs? Were they picking up their meds? Did they have any follow-up questions?" posed Kristin Kohl, MSN, director of Population Health Clinical Improvement at Carle Health.

With these goals in mind, Carle Health knew it faced certain challenges that could stand in the way of its value-based care success, namely those related to reactive workflows and staffing challenges that limited Carle Health's skilled clinical team from performing proactive care to their growing rising-risk population segment.

"We're a robust team, but we cannot—from a staffing perspective—do it all," Kohl declared. "How do we reach these patients in a way in which we don't have to necessarily bulk up our overall staff, yet maintain some financial responsibility?"

## Challenges

### Limited Capacity for Proactive Care

Across the country, patients have returned to care facilities and face-to-face visits, but staffing and resources have either stayed level or declined.

Kohl posed the question, "How many times have you pulled your staff from a task to go do something else because you have a staffing shortage?"

This is a challenge when it comes to managing care for patients with high-utilization conditions, such as COPD, CHF, and hypertension. Out of necessity, organizations focus their care managers on the highest-risk and highest-cost patients. But managing outcomes and cost of care in value-based arrangements also requires paying attention to the patients with rising risk—the high-risk and high-utilization patients of the future.

### Managing Rising-Risk Population Necessitates a New Care Management Approach

Rising-risk populations are often much larger than high-risk, and organizations are unable to simply scale the number of care managers needed to support this population. In order to provide the highest quality of care while reducing avoidable costs, Carle Health knew it was time to create a rising-risk population management strategy that paired investments in technology with

*"The biggest driver with our partnership [with Lightbeam] for Carle Health was really looking at overall staffing capacity. How do we reach these patients in a way in which we don't have to bulk up our overall staff and maintain some financial responsibility? How do we reduce utilization? How do we get the patient the right care at the right time while making sure that we close out?"*

— Kristin Kohl, MSN

strategic investments in staffing to yield scaled patient engagement capacity.

## Solution

### Combining Technology and Care Management to Streamline Workflows, Increasing Staff Capacity

Carle Health partnered with Lightbeam Health Solutions to focus on its value-based care populations, including the Medicare ACO-attributed patients and Health Alliance plan members. Carle Health focused on patients who were diagnosed with CHF, COPD, or hypertension, or were recently discharged from a facility. Carle Health wanted to provide additional support to these patients proactively.

To tackle its growing rising-risk populations, Carle Health extended care to more patients by pairing dedicated care management with patient engagement

technology. The hybrid approach included two primary components:

- **Scalable Technology:** Carle Health implemented Lightbeam’s Deviceless Remote Patient Monitoring® (RPM) to engage patients via text messages or phone calls using their own cellular phone or landline. Deviceless RPM was chosen over traditional RPM because the accessible nature of the technology allows patients to answer automated SMS and phone call prompts and send in clinically relevant data without the technological barriers of learning how to use a separate device.
- **Dedicated Care Management:** Carle Health paired this technology with Lightbeam’s staffing augmentation which provides a human Registered Nurse in a decentralized location known as a Virtual Care Navigator (VCN). This VCN is licensed to serve in their state, acts as an extension of Carle Health’s in-house team, and focuses entirely on managing the patients enrolled in Deviceless RPM programs. The VCN manages all responses and connects patients to the right provider when an alert is generated.

## Automated Enrollment Processes Maximize Efficiency

Technology is only as useful as the ability to get patients to use it. Early in the partnership, Carle Health made referrals into the Deviceless RPM program based on office visits and manually adding patients to programs based on symptom acuity or emergency department utilization, which was a reactive approach.

To address these issues, Carle Health created an automated approach to maximize referrals into the Deviceless RPM program. Through this new process, Carle Health sends Lightbeam an automated daily feed of recently discharged patients eligible for post-discharge follow-up, and the Lightbeam team receives that list and enrolls eligible patients each day on behalf of Carle Health. Automation not only saves time and effort, but also takes the guesswork out of figuring out which program is an ideal match for a patient.

Working with Lightbeam’s dedicated enrollment team has been another plus, enabling Carle Health to take the entire patient education and enrollment process off its plate.

## Enable Shift from *Reactive to Proactive Care*

### Before Deviceless RPM:

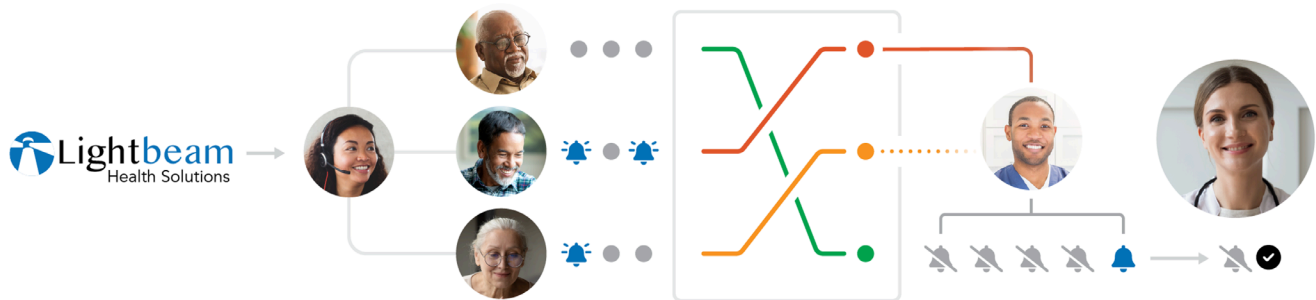
1. No RPM program
2. Reactive and manual process of adding patients to programs based on acuity
3. Manual outreach limited the team’s ability to reach rising-risk members and prevent ED visits

### After Deviceless RPM

1. **Proactive and automated assignment to Deviceless RPM programs**
2. **Lightbeam team dedicated to enrolling Carle Health patients**
3. **Ability to engage more patients and catch issues before patients end up in the ED**
4. **Virtual Care Nurse dedicated to responding to patient alerts**

## The Workflow

# Population Health Enablement Workflow



### EHR Integration

### Automated Daily Feed

Carle sends Lightbeam an automated daily feed of recently discharged patients eligible for post-discharge follow-up

### Enrollment Process

CareSignal enrolls patients, determines individual preference for communication, provides education, and confirms participation consent

### Patients

Answer automated SMS and phone call prompts, sending in clinically-relevant data

### Deviceless RPM

Categorizes at-risk patients and triggers alerts in real-time

### LCS

Care Managers monitor dashboard and follow standard operating procedures

### Providers

Receive escalations, only as needed

*“As we shift and focus on value-based care priorities, we need to make sure we are able to reduce avoidable utilization and cost. We must make sure that the patient is on the correct pathway to receive the right care, at the right time, with the right provider, and in the right setting.”*

— Kristin Kohl, MSN

## Results

### Simplifying Workflows and Improving Care Manager Capacity Yields Impressive Outcomes

Carle Health’s implementation of technology and staff was the catalyst for operational transformation through enhanced workflow with automated pathways. The automated pathways improve care team efficiency by taking hours of manual work out of Carle Health’s skilled team’s hands, enabling nurses to work at the top of their license while managing more patients, more effectively.

As a result of efficient enrollment and automated follow-ups, Carle Health saw more than 1,300 patients enrolled and sent more than 45,000 automated touches. Out of the 45,000 automated touches, patients indicated 1,350 times they were struggling with their health. Carle Health’s assigned VCN received these alerts and responded within eight hours on average, often on the same day the alert was generated, to get the patient the care they needed and reduce the likelihood of an avoidable admission.

## Automated Pathways Improve Care Team Efficiency



One notable outcome is the 3% average alert rate, which means that on any given day only 3% of patients need support, making it a manageable volume for the VCN care manager and guiding the care manager to maximize their time by focusing on patients who need support.

Since the start of the partnership, high-risk patients with high blood pressure saw an average 12.69 mmHg drop in systolic blood pressure (sBP) from a baseline of >160 sBP.

### New Program Drives Significant Improvements to Patient Satisfaction & Engagement

Carle Health's patients have given the Deviceless RPM program positive feedback in patients surveys with more than 500 respondents. Using a scale of 1 (lowest satisfaction) to 9 (highest satisfaction), patient surveys report an average care satisfaction score of 7.8 and report improved communication with an average score of 7.7.

One patient said, "It's easy to take my readings and to send them [to my care manager.]" Another patient commented on how "[the technology] keeps me

*"Time and time again, we hear that we are offering patients a form of support they did not have before."*

— Kristin Kohl, MSN

checking blood pressure regularly and holds me accountable throughout the week."

Patients also cited the program's ability to facilitate timely care. "My doctor is aware of my health, and I know that someone is watching my entries for possible negative trending," one patient noted.

### Patient Story

A patient enrolled in Lightbeam's Post-Discharge and General Medical programs received an automated message from their assigned LCS care manager: "Are you having any new symptoms?"



# Scaling Engagement to Thousands of Patients



**1,341**

Patients Enrolled



**45,000**

Total Automated Touches



**28,000**

Total Automated Text Messages



**17,000**

Total Automated Phone Calls



**1,350**

Proactive Alerts Triggered



**3%**

Average Alert Rate



**8hr**

Average Alert Response

07/20/22- 01/04/23

The patient then described a hole in her ankle that persisted for several months, which she believed to be a spider bite.

An LCS care manager followed up on the alert within hours and scheduled a wound consult. The wound was a vascular compromise, also called an abscess. The patient was immediately given the medical care she needed to treat the abscess and prevent it from spreading or worsening. The abscess soon healed, and the patient regained full functionality in the ankle and foot areas.

“It was our program prompting her to report these symptoms,” remarked Jessica Scruton, BSN, VP of Clinical

Services at Lightbeam Health Solutions. “Who knows if she would have reported them otherwise?”

## Future Vision

With the notable success of this partnership, Carle Health has two primary goals to expand the workflow it has created with Lightbeam. According to Kohl, “The immediate next step is to add in a diabetic program to help proactively monitor those controlled and noncontrolled patients. We want to monitor our entire diabetic population [using Deviceless RPM].” Ultimately, Carle Health hopes to complete a large-scale rollout of this partnership for the entire organization.



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