

Advocate Aurora Health Achieves Dramatic Advances in Care Delivery

System-Wide Patient Flow Management Platform Cuts Costs While Improving Patient Experience

1. Challenge

The Challenge

Advocate Aurora Health (AAH) is a healthcare provider serving communities in Wisconsin and Illinois. They are the 10th largest health system in the U.S. with 27 hospitals and 500 clinics. AAH is committed to enabling better care models with technology.

Like other health systems across the nation, AAH faces growing pressures, such as doctor and nurse shortages and more patient volume as baby boomers age. These trends can drive longer wait times, bad patient experience and higher safety risk.

AAH and EmOpti identified a major potential area for improvement in the mismatch of facilities, staffing levels and patient demand, especially in situations involving unscheduled acute care. On slow days, too many staff are scheduled, causing excessive costs. On the other hand, busy days lead to overloaded staff, long waits and increased patient safety risk.

Dr. Paul Coogan, President of the WI Emergency Medicine Division at AAH, says, "You can either hang on to the past and try to sludge your way through, or you can leverage new ideas about how to more efficiently see all these patients with limited resources."

AAH committed to work with EmOpti to find innovative ways to improve productivity of both its facilities and its providers.

2. Solution

3. Results

Exhibit A Advocate Aurora Health by the Numbers

One of the
Top 10
Largest Health Systems
in the United States



28

Hospitals



500

Clinics



2.7M

Patients



8,100

Physicians

Exhibit B Core Results

Core performance metrics improved across three facilities using the EmOpti Patient Flow Management Solution

80+%

of Patients
Use EmOpti

10+%

More Patients Treated
with Same Staff

120K

Total Remote
Consults

40 → 10 min.

Door-to-
Provider Time

98%

Patient
Satisfaction

1016%

Return on
Investment

1. Challenge

2. Solution

3. Results

Ed Barthell, CEO of EmOpti and a physician for 25 years, says “As I go around the country, I’m amazed how many stories I hear about patients that died in waiting rooms. It’s a dirty industry secret that rarely gets publicized. As an emergency clinician all those years I was convinced we were doing a good job, but the care model was structured in a way that caused us to waste lots of money, and ultimately mortality was higher than needed - people died because of the accepted norms. Now is the time to fix that. To AAH’s credit, they said ‘We are going to do things a better way.’”

AAH decided to look at possible solutions to these problems. Requirements for a solution were:

- 1 Analytics & Virtual Care:** Analytics and virtual health technologies integrated into current workflows, cutting costs while improving clinical outcomes.
- 2 High Speed, High Volume:** High speed performance to improve patient flow and experience in the face of high patient volumes in busy emergency departments.
- 3 Seamless Rollout:** Fast and easy implementation and training process, integrating with the existing EMR and associated clinical workflows.
- 4 Enterprise Scalability:** Scalable across multiple facilities and use cases, providing a “system approach” to clinical care with a large positive return on investment.



People died because we accepted the norms.

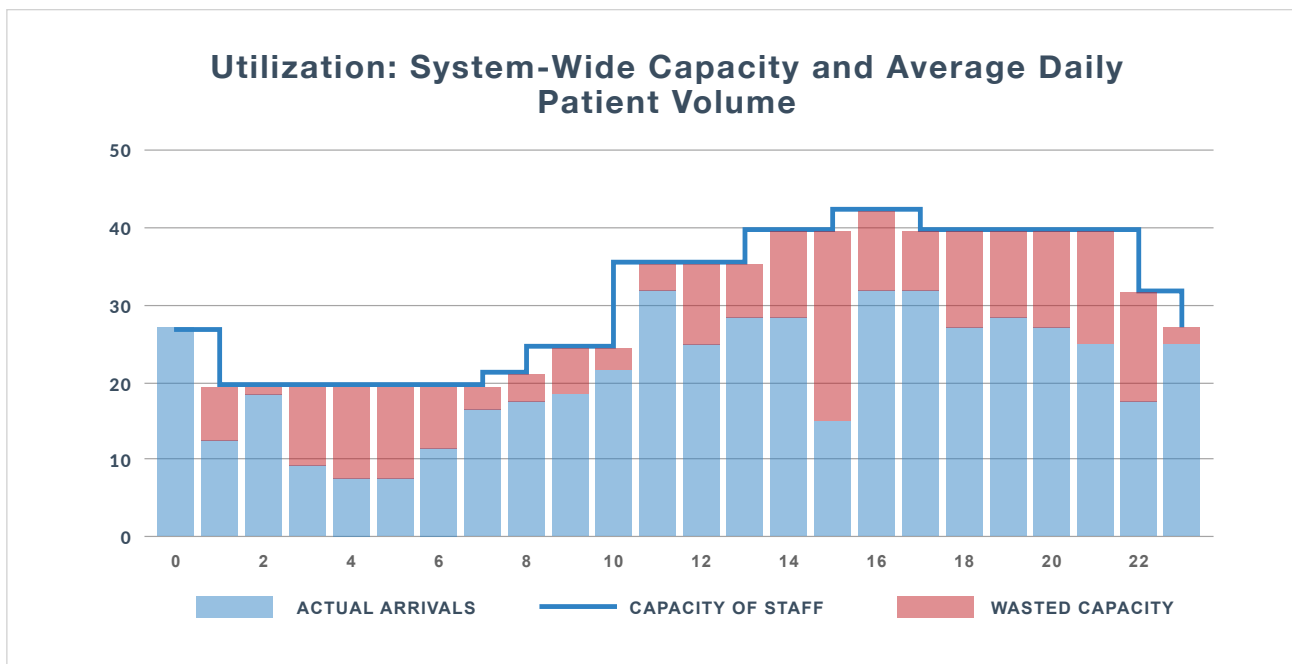
As an emergency clinician, all those years I was convinced we were doing a good job. But the care model was structured in a way that caused us to waste lots of money, and ultimately mortality was higher than needed.



Edward Barthell MD
Chief Executive Officer
EmOpti

Exhibit C (Below)
Sum of Utilization of Staff on Duty at Multiple Facilities

This chart shows 72% utilization of available capacity across the system on days with average system-wide patient volumes. These facilities could optimally handle approximately 200 additional patients across the system without increasing staff or facility size. This unused capacity represents a system-wide waste of resources and excessive staff costs.



The Solution: Integration of Virtual & On-Site Resources Saves Lives

After considering potential solutions, AAH decided to partner with EmOpti. AAH management was impressed by the ability of EmOpti technology to scale across multiple facilities, services and use cases with an impressive return on investment. An initial target, which has now been exceeded, was to cut on-site labor costs in departments using EmOpti technology by at least 10% while simultaneously improving clinical metrics and patient experience. The initial deployment featured one remote command center covering three emergency departments. A single remote clinician in the command center assisted with triage of patients at all three ERs, ordering tests and treatments much more efficiently than before.

With EmOpti in place, AAH has deployed a modern system-wide care delivery approach with load leveling across facilities that better matches staff and facility resources with variable patient demand.

High Speed and High Volume Leads to Happy Patients and Staff

EmOpti has easily handled the demanding speed and volume needs of AAH's busy ERs. Dr. Coogan states, "Our virtual consult numbers rose and rose. We never knew the numbers would grow so fast. When you see the use of telemedicine in neurology or psychiatry it is really small numbers. We are using EmOpti for hundreds of patients every day. I'm thrilled we hit 100,000 consults in such a short time and I'm looking forward to 1,000,000."

Physicians, APC staff and nurses are all happy that EmOpti saves them time, making them significantly more productive and less stressed. Patient volumes have increased over 10% without need for increased staff. Operations managers are pleased with the bottom line savings that result from more efficient patient flow and less wasted staff resources.

Patients are happier and safer now that they see a clinician much sooner. Tests are ordered quickly and patients consistently enjoy the virtual consult experience. "We were concerned initially that patients may find it impersonal, but the patients have been very receptive and have liked it. To our surprise, elderly patients were the ones that found it the most 'cool'," notes Dr. Coogan.



Exhibit D

Actual Remote Consult with EmOpti at Advocate Aurora Health

Dr. Coogan using EmOpti technology to consult with a patient during triage. On this day, Coogan serviced 3 facilities simultaneously, providing 112 virtual consults over a 7-hour shift.



I'm thrilled we hit 100,000 consults in such a short time and I'm looking forward to 1,000,000.

When we implemented EmOpti we decided we would integrate the platform into our daily workflows and use it for the intake process on every ambulatory patient. Now each day our remote providers see double the patients they used to see with an in-person shift.

Bottom line is patients are happier and our staff is happier. I'm excited to roll EmOpti out across the system and other use cases."



Paul Coogan MD FACEP
President of the WI Emergency Medicine Division at AAH

Ease of Implementation

AAH and their IT team were pleased that the implementation process was quick and straightforward. EmOpti seamlessly integrates with their EMR, Epic. After just two minutes of training, nurses are ready to start doing virtual consults. Dr. Coogan says, “We trust EmOpti. They really care about our success. The implementation process went very smoothly and they’ve continued to be a key partner of ours.”

With extensive clinical experience, EmOpti’s team deeply understands the concerns of high-volume high-intensity departments. They provide consulting services during the implementation to ensure the new care model is integrated with existing workflows. Their virtual consult routing and queueing technology is powerful, taking industry-leading experts years and millions of dollars to create. The result is a high speed solution for complex high volume scenarios, maintaining a seamless user experience from end-to-end.

A big question for AAH was whether they should try building a solution themselves. As they got a better feel for the demanding requirements, they decided they did not have the bandwidth or certainty and chose to work with EmOpti.

“We realized we can’t reproduce it at a cost-effective manner,” Dr. Coogan adds, “You can’t just use Skype in these complex environments. And we don’t have developers just sitting around. So we said, ‘Why not use a proven solution that’s ready to go?’”

Scalable Across Facilities and Across Clinical Domains

AAH did not want just another point solution vendor. They wanted a true partner who would collaborate with them and easily scale across their many facilities and use cases.

With EmOpti that’s exactly what they get. Dr. Coogan explains, “Because of our success, like everything people see working, others are now planning to use it to help their departments. There are all kinds of uses for this product, in other specialties and in emergency medicine. Sky’s the limit. It’s great how we can easily expand our EmOpti command centers to cover many more facilities. We’re excited about it.”

Coogan adds, “The more we work with EmOpti, the more we feel like we were operating in the dark before. Now we can see things much more clearly. We feel good knowing we have a great foundation for the future.”

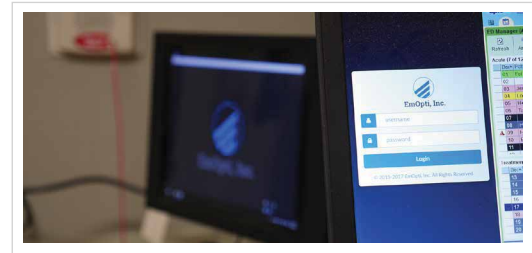


Exhibit E

EmOpti Requestor Platform

The in-person clinician manages the Requestor side of the EmOpti platform. This includes a Patient Device plus the Requestor Clinician Interface that lives securely and seamlessly next to the EMR interface.

Exhibit F

Training & Implementation

The EmOpti platform is built for quick and easy implementation and training. This means minimal demand on IT resources and an easy new end user experience.

35 hours	3 min.
Average IT Implementation Time*	Average New User Training Time

*IT time estimations for single command center with three facility endpoints

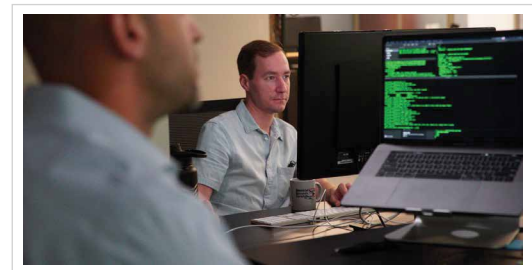


Exhibit G

Scaling System-Wide with EmOpti Clinical & Development Teams

The clinical and development teams at EmOpti have decades of experience scaling IT solutions across health systems.

Results: Improvements in Clinical and Financial Outcomes

AAH has seen incredible clinical results using EmOpti, as shown by the improvement in specific metrics detailed in Exhibit B. With remote command centers, the same staff are now treating more patients (up to 11% volume increase) with better throughput metrics and clinical outcomes.

In addition to these positive clinical benefits, AAH has realized major financial returns. With a more efficient care model, wasted staff resources have been significantly cut. Left Without Being Seen Rates have decreased substantially, in some cases more than 50%. Because less people walk out due to waiting, more people are treated, leading to an increase in incremental revenue. In total, AAH has seen a financial return on investment that exceeds 1016% with this early program. Further expansion to additional hospital facilities serving a variety of clinical departments is ongoing and will multiply these gains.

“EmOpti has helped us cut costs while improving the experience of our providers and patients. It really is a win-win-win,” states Dr. Coogan.

AAH continues to see the benefits of a system-level approach, with meta-level oversight to optimize care. Facilities are no longer disparate silos. They are an integrated system combining virtual and on-site resources. This improves productivity and enables more intelligent and efficient care. The future of healthcare has arrived.

1016% Financial Return on Investment

Justifying System-Wide Expansion

Advocate Aurora Health will be using EmOpti in eight facilities by the end of 2019. By the end of 2020, the organization plans to have implemented EmOpti across each of their 14 Wisconsin facilities.



Exhibit H
Improving Patient & Staff Satisfaction

Beyond positive results with clinical and financial outcomes, both patients and staff have drastically improved satisfaction ratings with the EmOpti platform.



About EmOpti

EmOpti is an enterprise analytics and virtual care software company named Finalist for 2019 Healthcare Startup of the Year by the American Hospital Association (AHA).



About AWS

EmOpti and Amazon Web Services (AWS) partner to enable best-in-class care delivery. With Amazon DynamoDB, ECS & EC2 with Auto Scaling, and 70+ services, EmOpti provides scalable and secure solutions.

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