



Jefferson Health Removes Barriers to Delivering Unscheduled Care with EmOpti on AWS

Jefferson Health boosted staff productivity, reduced labor costs, and increased revenue while maintaining quality patient care by using AWS Select Technology Partner EmOpti's Emergency Medicine Workflow Solution built entirely on AWS. Jefferson Health wanted to decrease the rate of patients who leave emergency departments without being seen or evaluated. By using EmOpti's workflow optimization and virtual health software solutions, two of Jefferson Health's hospitals decreased the number of patients who leave without being seen by 50 percent, saw an impressive return on investment, and were able to handle a 25 percent spike in patient volume overnight when a nearby hospital closed.

Capacity planning is a constant challenge for hospitals. They must handle unpredictable surges with finite resources, which often leads to delays in initiating care. As a result, more than two million patients arrive at a US emergency department and leave without being seen (LWBS) every year. Those patients suffer, and hospitals lose not only the chance to treat them but also revenue that could be reinvested in their facilities.

[Jefferson Health](#), a nationally ranked healthcare system in the Philadelphia region, sought to decrease its LWBS rate using solutions created by [EmOpti](#) and built on Amazon Web Services (AWS). A small startup, AWS Select Technology Partner EmOpti provides highly available, scalable, elastic, and secure software solutions to improve the patient care delivery process.

Focused on patient care, the healthcare industry is cautious when it comes to changing processes or adopting new technology too quickly. However, using EmOpti's Emergency Medicine Workflow Solution, which combines onsite and virtual resources to optimize patient care workflows, Jefferson Health balanced its workload, boosted staff productivity, reduced labor costs, and increased revenue, all while maintaining the quality of its care.

Enabling Healthcare Facilities to Innovate Quickly and Simply

Like many emergency departments across the United States, Jefferson Health staffs its emergency rooms with triage nurses who check in patients and register them into the hospitals' electronic health record systems. But relying on a fixed number of onsite staff to triage emergency room patients is neither efficient nor cost effective. In emergency rooms, day-to-day patient arrivals may vary by as much as 50 percent from the expected mean. On some days, unanticipated increases in patient volumes can make some facilities appear relatively understaffed, which can result in patient care delays. As a result, LWBS rates—often 2–5 percent in the United States—can, during patient surges, reach as high as 15 percent. On other days, facilities are overstaffed, leading to excess costs.

After witnessing this industry-wide problem for more than 20 years as an emergency physician, Dr. Edward Barthell founded EmOpti. Since its inception, the startup has used AWS and employs 60 AWS services in its technology stack. This has been critical for quickly and seamlessly implementing its solutions in healthcare facilities. "Being architected on AWS is a real advantage for us because we don't have to go into the data center at the hospital

Reduced patient wait times **by up to 75%**



Company: EmOpti

Website: <https://www.emopti.com/>

About EmOpti

EmOpti offers an in-facility workflow optimization and virtual health software to improve the care delivery process in medical centers. It was founded in 2016 by Dr. Edward Barthell, who worked as an emergency physician for more than 20 years.

About Jefferson Health

Jefferson Health comprises 14 hospitals, 2,851 licensed beds, 3,700 physicians and practitioners, and 7,200 nurses in the Philadelphia region. It's nationally ranked by *US News & World Report* in nine specialties, including ophthalmology and rehabilitation.

Benefits

- Handled 25% spike in patient volume overnight
- Implemented Emergency Medicine Workflow Solution in 2 weeks
- Reduced patient wait times by up to 75%
- Performs an average of 150 daily consults using Emergency Medicine Workflow Solution

AWS Services Used

- [Amazon Chime](#)

“If Jefferson Health says, ‘Let’s turn on another three hospitals next week,’ we can do that with ease because the AWS infrastructure scales so dynamically.”

—Edward Barthell, founder and CEO, EmOpti

and put a big stack of servers in place,” explains Barthell. “It’s done through a cloud-based system, and it’s quick and simple to scale up.”

An early adopter of EmOpti’s Emergency Medicine Workflow Solution, Jefferson Health uses it in Thomas Jefferson University Hospital and Jefferson Methodist Hospital. Integrated with the hospitals’ electronic health record systems, the lightweight solution takes just 2 weeks to implement. Much like a telephone switchboard, it routes remote consult requests. A triage nurse or technician uses the EmOpti interface on a tablet to input a patient’s information and direct a consult request to a queue for multiple healthcare facilities. A doctor can then choose the patient who has waited the longest or has the most serious injury.

“The queuing feature is the ‘secret sauce’ of EmOpti,” says Dr. Judd Hollander, senior vice president of healthcare delivery innovation at Thomas Jefferson University. “I know who’s in the queue. I’m seeing people from multiple places, and I can put them in

order. Homegrown solutions don’t do that well.” A doctor can then launch a videoconference—with virtually zero latency—with the patient in the triage bay by using [Amazon Chime](#), a communications service that lets users meet, chat, and place business calls. Then the doctor closes the session and moves on to the next one. “All routing and queue management are done on AWS using the control software we built,” explains Barthell. “The AWS team also signs off on the HIPAA business associate addendum and provides us with the security audit logs we need to pursue HIPAA compliance.”

Optimizing Hospital Resources

Jefferson Health’s use of the EmOpti solution to tend to patients faster has been critical during the COVID-19 pandemic. Onsite clinicians have experienced an increase in productivity, with decreased exposure risk and reduced need for personal protective equipment. On average, hospitals using the EmOpti tool have seen 12 percent more patients without adding extra staff, plus a 50 percent decrease in LWBS rates.

Wait times to see a physician have decreased by up to 75 percent, and clinicians can do 15–20 remote consults an hour. EmOpti’s solution has facilitated 400,000 remote consults across its customer base, including those conducted by Jefferson Health. With an average of 150 consults daily, Jefferson Health has performed up to 235 in a day.

Using EmOpti’s solution, Jefferson Hospital is better prepared for unpredictable surges. “When a center closed on short notice, we absorbed a 25 percent increase in patient volume overnight while delivering quality care,” says Hollander. “We didn’t have time to hire more staff, so we relied on the tele-intake process.”

Hospitals that use the EmOpti solution have seen substantial returns on their investments. Now Jefferson Health only needs one remote provider at a time for two

hospitals. “We didn’t have to hire more staff, and we saved money,” says Hollander. “By using EmOpti, Jefferson has been able to make back its LWBS revenue. Other hospitals may be able to achieve similar results.”

On AWS, EmOpti seamlessly scales and replicates so that its customers can provide the same construct of care across their entire network. “If Jefferson Health says, ‘Let’s turn on another three hospitals next week,’ we can do that with ease because the AWS infrastructure scales so dynamically,” says Barthell. “Making the user interface superfast and reliable for clinicians is what we need in a dynamic and high-intensity environment like an emergency department.” The reliability of the AWS infrastructure also reduces the need for maintenance and troubleshooting, minimizing the workload for hospital IT teams.

Streamlining Medical Workflows

EmOpti’s offerings began as solutions for emergency departments, but it’s quickly graduating to supporting other units: virtual rounding enables medical staff to use tablets to communicate with hospital patients without stepping into rooms or donning personal protective equipment. Using EmOpti, hospital staff can rapidly discharge patients, and scribes can listen virtually to live patient examinations and take notes for medical records.

Using EmOpti’s solution on AWS, Jefferson Health optimized its patient care workflows, increasing productivity, revenue, and patient satisfaction. “Anytime that two organizations come together, they need to have synergy to be successful, not just great technology and workflows,” says Frank Sites, vice president of connected care operations for the Jefferson Enterprise. “That’s one of the great advantages of partnering with EmOpti.”