Optimizing Emergency Medical Care

Aurora Health Care’s Innovative Approach to Decrease Wait Times and Improve Clinical and Financial Performance

Introduction

Like many health systems across the country, Aurora Health Care emergency departments have seen increased challenges with crowding and wait times as patient volume increases. Although alternatives to emergency department care continue to grow, the aging of the baby boomer population is expected to lead to increased numbers of emergency department visits for many years. Emergency Medicine staff are in short supply across the nation, and capital expansions to emergency departments are very expensive, so new approaches are needed.

The Problem

Emergency Medicine is generally still practiced the same way today as it has been for the past 40 years. Using a fairly linear process, patients receive a triage evaluation, and most patients then wait for a room and doctor to become available. If the doctor is busy working with a critical patient, or rooms are full of emergency patients waiting for inpatient room placement, the emergency waiting room develops long lines of patients waiting for care.

Nationwide about 3 million people each year become tired of waiting and walk out of the facility. Not only is this a problem on its own, but patient dissatisfaction also creates a snowball effect across the department where the work environment becomes overly challenging and discouraging for staff.

Deploying the EmOpti Triage Optimization Solution in its emergency departments, Aurora has achieved a 75% decrease in average time waiting to see a doctor, and an overall decrease in total throughput from 3.5 hours to 2.5 hours.

The effort promises to help hospitals capture millions of dollars of otherwise lost revenue.

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The World is Changing

Health system administrators are dealing with an increasingly competitive environment and are grappling with value-based purchasing. Hospitals are continuing to merge with others into multi-hospital networks. The need to improve operational efficiency in this environment is paramount.

At the same time, additional pressure is mounting from new regulatory processes. In Emergency Medicine in particular, the Centers for Medicare and Medicaid Services (CMS) is now routinely collecting metrics from hospitals showing emergency medicine waiting times and left without being seen rates. CMS is considering how to incorporate these same metrics into the formula used for the prospective payment system for hospitals. So in the near future, emergency performance scores will likely impact hospital reimbursement.

The Solution

In search of new innovative approaches to help deal with these pressures, Aurora Health Care collaborated with EmOpti, Inc., a company that specializes in the optimization of emergency medical care. The collaboration included the implementation of a command center infrastructure and software solutions including advanced analytics and custom telemedicine technology. This infrastructure enables Aurora clinicians in the command center to achieve meta-level oversight of emergency department patient flow, and to provide telemedicine-based consultation as needed to help improve operations. The doctor is able to deploy more expertise faster, assessing patients and routing ambulances among many hospitals.

Triage Optimization

The first use case Aurora deployed for its Emergency Medicine optimization effort was adding remote clinician consultation to the triage process. Previous studies had shown benefits from physician involvement with triage, but the process can be prohibitively expensive. By stationing the physician in a command center and servicing multiple hospitals simultaneously, the process becomes much more cost-effective.

"Imagine how the airline industry would function if they did not use an air traffic control system to coordinate flights and use of airports. Yet this is how much of the health care system operates today. We decided to leverage lessons learned in the airline industry and use a command center approach, providing meta-level real-time reporting and oversight of acute care patient flow, and intervention using telemedicine to help speed the care process."

Dr. Paul Coogan, President Aurora Emergency Services

Results with EmOpti

| LESS WAITING TIME | 75% shorter Door-To-Doc Wait Time |
| FASTER TREATMENT & RESULTS | 60 min. reduction Total Throughput Time (Length of Stay) |
| MORE PEOPLE TREATED | 2% → 0% Decrease in Rate of Left-Without-Being-Seen |
| BETTER OUTCOMES | 88% → 98% Patient Satisfaction Ratings |

"EmOpti allows us to get orders started immediately, treat patients faster and get the results back quicker. Patients are amazed with the technology and it makes my job more fulfilling."

Triage Nurse
Initial results of this deployment have been overwhelmingly positive. The average time waiting to see a physician at the beginning of an emergency encounter (door-to-doc time) has decreased by 75%. The total throughput time has decreased from about 3.5 hours to 2.5 hours. Patient satisfaction with the new process has improved beyond expectations, from 88% to 98%. Moreover, clinical staff are happier working in a fully optimized department, delivering high quality care to appreciative patients.

Expanding the New Approach

Aurora is now expanding the use of advanced command center technology to provide its clinicians with the ability to provide meta-level oversight across the acute care continuum.

For example, Aurora has dozens of separate urgent care clinics, and would like to keep them open longer hours than what current staffing will allow. By using an advanced practice provider (APP) or nurse at the urgent care clinic, with oversight from a physician in the command center, the urgent care services can be offered with a cost-effective staffing model. Moreover, whenever patients are transferred from an urgent care setting to an emergency department, the same command center clinician can ensure the transfer process is smooth and patient experience is enhanced.

Advanced analytics are also assisting with patient flow at other stages of the acute care spectrum. When emergency patients are determined to require inpatient admission, delays cause patients to stay in the emergency department, resulting in fewer beds being available for new patients. EmOpti has developed tools that allow the need for inpatient beds to be accurately forecasted at the triage stage, so admitting departments can have awareness of cases likely to require admission hours earlier, and they can prepare for more rapid and smooth transitions to inpatient care.

Vision of the Future

Aurora and EmOpti are continuing their collaboration with a vision toward a new future, whereby advanced technologies and command center medicine allow a new level of meta-level oversight and innovative interventions that result in the highest level of quality care across the acute care continuum. Clinicians, administrators and patients alike are excited to see this potential become a reality.

About EmOpti

EmOpti provides innovative analytics and telemedicine technologies that optimize both clinical and financial performance across the spectrum of acute care medicine. EmOpti collaborates with existing providers and hospital systems to help them deliver care in new ways resulting in improved performance metrics and delighted patients and staff.