



CASE STUDY

Next-Gen, AI-Powered Emergency Triage

How we created a robust, highly accurate AI model to predict emergency patient admission.



CLIENT

General Medical and Surgical, Non-Profit Hospital

INTRODUCTION

Across the healthcare industry, cutting-edge technology, such as artificial intelligence (AI), machine learning (ML), and predictive analytics, has become the north star of future innovation. However, providers still face difficulties determining not only how and where that technology fits into existing operations but how it can be introduced efficiently and stably. With the right technology partner, healthcare providers can turn their AI visions into innovative solutions.

OBJECTIVE

As a leading healthcare and services provider with the busiest emergency department (ED) in its county, our client was in search of a way to reduce average emergency room triage times and standardize patient care. The hospital was also interested in exploring opportunities for innovation. X by 2 was engaged to help assess the ways different technologies could solve their problem.

After discussing possibilities with the ER leadership team, X by 2 agreed that AI was a great starting place. AI technologies could process hospital admission data quickly and accurately, resulting in more efficient clinical workflows and faster triage processes. However, in order to effectively enable AI, the hospital first needed to prepare a usable data set.

ENGAGEMENT

In collaboration with the hospital's ER leadership and innovation team, X by 2 initiated a proof of concept for an AI patient admission model. The goal? To prove the model could provide highly accurate predictions based upon several key patient data points.

In less than three months, X by 2's AI approach delivered 95% verifiable predictive accuracy across the key emergency room patient dispositions of ICU or standard admission and discharge.

In order to generate a quality data set from a sample of the hospital's historical emergency room data, it was necessary to create a cloud environment and introduce data cleansing processes at the start of the project. The clean historical data was then leveraged using various techniques, including NLP, to train and test the admission model with a high level of predictive accuracy.

In less than three months — from cloud setup and data acquisition through proof of concept — X by 2 found the AI model delivered 95% verifiable predictive accuracy across the key emergency room patient dispositions of admission and discharge.



OPPORTUNITY

By leveraging the power of AI, emergency departments can empower clinicians, reduce wait times, and streamline departmental operations to improve critical care delivery.

IMPACT & BENEFITS

The key to the successful proof of concept was cleaning and preparing the hospital's data prior to developing the AI model. Bringing together deep healthcare and AI and ML expertise, X by 2 was able to craft an innovative solution to both meet our client's needs and enable future capabilities.

While our initial focus was to predict patient admission with AI, a successful proof of concept could lead to AI applicability across other patient dispositions. Our model proved that, among other things, our client could leverage AI and ML to:

- More accurately predict patient admission and length of stay
- Reduce readmission rates
- Produce healthier patient outcomes
- Balance staffing needs based on the predictive model

In addition, the data-fueled AI approach has the potential to become the engine of a much larger healthcare technology model that can improve operations across the healthcare industry. This model could allow hospitals and other healthcare service providers to:

- Identify and address bottlenecks that inhibit healthier patient outcomes
- Begin developing a foundation to implement hospital command centers
- Use accurate and actionable data to improve healthcare effectiveness and efficiency within the population health framework
- Socialize and scale AI initiatives across hospital functions



ABOUT US

X by 2 uses AI technologies to uncover the hidden value of data, enabling healthcare stakeholders to make more informed decisions, improve patient experiences, and deliver quality care.

Whether you're starting your AI journey, ready to scale, or looking to advance your current solution with AI, our consultants meet you where you are. Let our combination of AI experience and healthcare expertise accelerate your AI transformation.

Ready to explore the power of AI?

Visit xby2.com or email contact@xby2.com to start the conversation.