AI Helped Johns Hopkins Reduce Patient Wait Times by 30%.

This Is How They Did It

HAZ ADVISORS

Johns Hopkins was drowning in ER wait times

Every hospital leader knows the feeling.

Patients flooding the ER.

Beds filling up faster than they can be cleared.

Doctors and nurses scrambling to keep up.

And worst of all?

Patients waiting hours for care they needed now.

At Johns Hopkins, the situation was becoming unsustainable.

- ER wait times were climbing, leaving frustrated patients in overcrowded waiting rooms.
- Doctors and nurses were stretched thin, leading to burnout and lower staff morale.
- Ambulances were being diverted, forcing critical patients to seek care elsewhere.

Every minute spent waiting in the ER wasn't just an inconvenience - it was a risk to patient outcomes.

<u>The hidden costs of ER overcrowding</u>

For hospital executives, the financial impact of long wait times was just as alarming as the operational strain.

- Revenue loss from patient walkouts - Studies show that hospitals lose thousands for every patient who leaves before being seen.
- Increased legal risk - Long wait times increase the chance of medical errors and liability issues.
- Nurse and physician burnout - Overcrowding was pushing hospital staff to the limit, fueling turnover.

Every hospital knows this problem. Few have been able to solve it.

So Johns Hopkins didn't just add more beds.
They didn't just hire more staff.
They turned to AI to rethink how they managed patient flow.

How Johns Hopkins used AI to cut ER wait times by 30% - without adding more staff

Johns Hopkins hospital faced significant challenges with emergency department (ED) overcrowding, leading to prolonged patient wait times and increased strain on medical staff.

To effectively address the challenges of emergency department (ED) overcrowding and prolonged patient wait times, Johns Hopkins Hospital undertook a comprehensive approach to identify and rectify workflow inefficiencies.

Analyzing workflow inefficiencies
The hospital implemented an electronic dashboard system designed to monitor patient flow across various departments.

This system focused on ten key performance indicators (KPIs) encompassing outcome metrics (e.g., length of stay, 30-day readmission rates), process metrics (e.g., timely inpatient unit discharge, ED disposition times), and structural metrics (e.g., occupancy rates, discharge volumes).

By continuously tracking these KPIs, the hospital could pinpoint specific areas where delays and bottlenecks occurred, providing a data-driven foundation for targeted interventions.

Metrics guiding AI application

The decision to integrate artificial intelligence (AI) into the triage process was informed by several critical metrics:

- High proportion of mid-level triage assignments: Analysis revealed that approximately 65-70% of patients were being categorized as Emergency Severity Index (ESI) Level 3. This broad categorization often led to treatment delays, as it encompassed a wide range of patient conditions.

- Inconsistent triage assessments: Subjective evaluations by different nurses sometimes resulted in varying triage levels for similar patient presentations, indicating a need for a more standardized assessment tool.

- Extended Lengths of stay and increased boarding times: Prolonged patient stays and delays in admissions were identified, contributing to ED congestion and resource strain.

These insights underscored the necessity for a more precise and efficient triage system, leading to the development of the AI-driven tool, TriageGO.

Developing the AI triage tool: TriageGO

To address these challenges, a team of Johns Hopkins researchers, including Dr. Scott Levin and Dr. Jeremiah Hinson, developed an AI-powered tool named TriageGO.

This tool was designed to assist ED nurses in making swift and accurate triage decisions. The development process involved:

- Data Integration: Combining patient-reported information, vital signs, and electronic health records to create a comprehensive dataset.
- Algorithm Training: Utilizing this dataset to train machine learning models capable of predicting patient risk levels and recommending appropriate triage categories.

- Iterative Testing: Conducting simulations and pilot programs within Johns Hopkins EDs to refine the tool's accuracy and usability.

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Implementing TriageGO in the Emergency Department

The deployment of TriageGO involved several critical steps:

- Integration with existing systems: Ensuring seamless incorporation of TriageGO into the hospital's electronic health record system for real-time data access.
- Staff training: Educating ED nurses and physicians on the functionality and benefits of TriageGO to encourage adoption and trust in the system.
- Continuous monitoring: Establishing feedback mechanisms to monitor the tool's performance and make necessary adjustments based on user input and outcome data.

Achieving tangible results

The implementation of TriageGO led to significant improvements:

- By accurately identifying low-risk patients, the tool facilitated faster treatment pathways, decreasing overall ED congestion.
- Streamlined triage processes allowed for more efficient allocation of resources and reduced bottlenecks in patient care.
- Providing data-driven triage recommendations bolstered the confidence of nursing staff in their decision-making, leading to increased job satisfaction.

AI transformed Johns Hopkins' ER - and the numbers prove it

Johns Hopkins' AI-driven triage tool, TriageGO, wasn't just another tech experiment - it fundamentally changed how their ER functioned.

Here's what happened when AI met emergency care.

ER wait times dropped by 30%

- Before AI, patients waited for hours due to bottlenecks in triage and bed turnover.
- After implementing TriageGO, wait times fell by nearly a third, allowing more patients to be seen faster.

What this means for hospitals:

- Shorter wait times = higher patient satisfaction.
- Faster throughput = fewer walkouts and lost revenue.
- Reduced overcrowding = less stress on nurses and physicians.

Patient flow became more predictable & efficient

- Triage accuracy improved - patients were placed in the correct priority levels with higher consistency.
- Hospital staff reported fewer bottlenecks in patient movement from triage - treatment - discharge.
- Resource allocation improved - staff knew where they were needed before issues escalated.

What this means for hospitals:

- Better triage decisions prevent ER gridlock.
- AI helps hospitals predict and adjust patient flow in real-time.

More patients treated, fewer walkouts

- Patient walkouts dropped significantly, meaning fewer missed revenue opportunities.
- The AI system flagged low-risk cases early, directing them to faster care alternatives instead of clogging the ER.

What this means for hospitals:

- Every patient kept = revenue saved.
- Efficient triage ensures critical patients are treated first, without unnecessary delays.

Nurses & physicians got time back to focus on care

- Nurses saved hours per shift by reducing manual triage decision-making.
- Physicians saw a smoother patient flow, reducing ER burnout and stress.

What this means for hospitals:

- When AI handles the repetitive work, staff can focus on patient care.
- Lower burnout = higher retention and fewer staffing shortages.

Financial impact of implementing AI-powered triage at Johns Hopkins

Implementing AI-driven solutions like TriageGO has not only enhanced patient care at Johns Hopkins but also yielded significant financial benefits.

1. Reduction in patient walkouts

Emergency Department (ED) overcrowding often leads to patients leaving without being seen, resulting in substantial revenue losses. Studies estimate that each patient who leaves represents approximately $600–$800 in lost revenue.

By integrating TriageGO, Johns Hopkins achieved a 30% reduction in patient wait times, leading to a significant decrease in walkouts.

Assuming a baseline of 1,000 annual walkouts, this reduction translates to retaining 300 patients, equating to an estimated $180,000–$240,000 in preserved revenue annually.

2. Decrease in ED boarding times

Prolonged boarding times in the ED not only compromise patient care but also incur additional costs. Implementing AI solutions has been associated with a decrease in boarding hours per patient.

At Johns Hopkins, the adoption of TriageGO contributed to more efficient patient throughput, reducing boarding times and associated costs. While specific financial figures are proprietary, the operational efficiencies gained suggest notable cost savings.

3. Overall cost savings from AI integration

Beyond immediate revenue retention, the broader implementation of AI in hospital settings offers substantial economic advantages. Research indicates that hospitals employing AI-enabled use cases could achieve annual net savings of $60 billion to $120 billion, representing approximately 4% to 10% of total hospital costs. nber.org

For Johns Hopkins, the integration of TriageGO is a strategic component of this broader financial efficiency, contributing to both improved patient outcomes and fiscal responsibility.

In summary, the deployment of AI-powered triage systems like TriageGO at Johns Hopkins not only enhances patient care but also delivers measurable financial benefits through reduced patient walkouts, decreased boarding times, and overall cost savings.

ER overcrowding won't fix itself - Hospitals that act now will lead

Every hospital talks about fixing ER wait times.

But most will keep doing the same things - hiring more staff, expanding capacity, adjusting schedules - without solving the real issue.

And the cycle will continue.

- Patients will keep walking out before being seen.
- Revenue will keep slipping through the cracks.
- Nurses and physicians will remain overworked and burned out.

Johns Hopkins took a different approach. Instead of reacting to the problem, they redesigned patient flow using AI.

And the results speak for themselves.

- ER wait times cut by 30 percent.
- More patients treated, fewer walkouts.
- A more efficient system that doesn't rely on constantly adding staff.

They didn't just make small improvements. They built a scalable model that other hospitals can learn from.

The Hospitals that move now will lead. The ones that wait will be left behind.

Hospitals that embrace AI-driven solutions today will:

- Improve patient flow without unnecessary staffing costs.
- Reduce stress and burnout for nurses and physicians.
- Cut wait times and retain more revenue.

If your organization is serious about reducing ER wait times and improving efficiency, now is the time to act.

Let's talk about what this could look like for your hospital.