



JARVIS
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We've Been Using CCTV the Wrong Way in Our Hospitals for 30 Years!

Here's What It Was Actually Supposed
to Watch Over

A data-backed playbook for Hospital Administrators, Medical Superintendents, and Healthcare CEOs who want to turn existing camera infrastructure into a patient safety and operational intelligence system.

A Note Before You Begin

This book is about patient safety. Read it that way.

Every hospital has cameras, in corridors, in wards, at nursing stations, in waiting areas, near restricted zones. They are recording every shift, every patient movement, every staff interaction. And in the overwhelming majority of Indian hospitals, those cameras exist for one purpose: to be reviewed after something has already gone wrong.

They are not telling anyone that a patient in Ward 4 has been unattended for 40 minutes after a fall risk flag. They are not showing that hand hygiene compliance at the nurses' station drops sharply after 9 PM. They are not flagging that OPD waiting times on Monday mornings routinely exceed 90 minutes. They are not detecting the smoke building in a utility room before the alarm triggers.

All of this is being recorded, in real time, with a timestamp. None of it is generating an alert, an intervention, or a prevention.

This book is about closing that gap, not by replacing clinical judgement, but by giving hospital teams the one thing they have never reliably had: continuous, automated visibility into what is actually happening across every corridor, every ward, and every shift.

— The JARVIS Intelligence Team, Staqu Technologies



04

Chapter 1

The Fall Happened at 3 AM, The Camera Saw It But The Nurse Found Out 14 Minutes Later

07

Chapter 2

Hand Hygiene Compliance Drops After 9 PM But Nobody Has Ever Measured It.

10

Chapter 3

Your OPD Has Been Losing Patients to Wait Times Nobody Is Tracking.

12

Chapter 4

The Restricted Zone Was Breached But It Took 3 Days to Find Out.

14

Chapter 5

Doctor Rounds Are Logged on Paper But Only The Camera Knows What Actually Happened

16

Chapter 6

Fire, Smoke, and the SOS That Nobody Heard in Time.

18

Chapter 7

They Didn't Hire More Staff But They Just Finally Made the Cameras Watch With Intent



D1

The Fall Happened at
3 AM, The Camera Saw It
But The Nurse Found Out
14 Minutes Later

Patient falls are one of the most common, most preventable, and most consequential adverse events in hospital care. A 2023 study published in the Indian Journal of Critical Care Medicine found that fall-related incidents account for a significant share of preventable harm events in Indian hospitals, with the highest risk concentrated in the hours between 11 PM and 6 AM, when nurse-to-patient ratios are lowest and patient supervision is most stretched

In most Indian hospitals, the detection method for a fall is unchanged from 50 years ago: a patient or a roommate calls for help, or a nurse on routine rounds discovers the patient on the floor. The average documented gap between a fall occurring and clinical staff becoming aware of it, in wards without continuous monitoring, ranges from 8 to 22 minutes.

"A patient's fall is not usually a single failure. It is a sequence: the patient attempted to move unassisted, nobody was watching the ward at that moment, and the response came after the injury was already done. AI changes exactly one link in that chain, the moment of detection."



The Numbers Hospital Administrators Need to See



30% of hospitalised patients aged 65+ experience at least one fall during their admission, globally. (WHO Patient Safety, Falls Fact Sheet)



8–22 min typical gap between a fall occurring and clinical staff becoming aware, in wards without continuous monitoring.



₹3–40L estimated cost of a single fall-related adverse event to an Indian hospital, extended stay, treatment, and potential medico-legal exposure.

What JARVIS Fall and Patient Monitoring Detects

JARVIS uses existing ward and corridor cameras to detect patient posture changes consistent with a fall, not through wearables or sensors attached to the patient, but through computer vision applied to the camera feed already covering the ward. The system distinguishes a fall event from normal patient movement and triggers an immediate alert to the nursing station.

- **Fall detection:** Posture and movement pattern consistent with a fall, detected within seconds. Alert sent directly to nursing station and duty staff.
- **Unattended patient monitoring:** High-risk patients (post-op, sedated, fall-risk flagged) left without staff presence beyond a defined threshold, alert triggered.
- **Unusual movement detection:** Patient attempting to exit bed unassisted, removing IV lines, or showing distress-related movement patterns flagged for review.
- **Restricted bed-rail or restraint monitoring:** For patients under specific care protocols, monitors compliance with positioning and safety equipment use
- **Ward overcrowding detection:** Real-time bed and ward occupancy tracking, flags when patient density exceeds safe staffing ratio for the shift.
- **SOS voice alert:** Patients or staff can trigger an immediate voice-activated SOS alert, routed directly to the nearest available staff member, reducing response time in emergency situations.

None of these capabilities replace clinical staff. They compress the single most dangerous variable in adverse event response: the time between an event occurring and a clinician becoming aware of it.



JARVIS IN ACTION

At a multi-specialty hospital under the Aster Group, JARVIS ward monitoring was deployed across general and post-operative wards to track patient occupancy, staff attendance, and unusual ward activity. The system enabled the nursing leadership to identify patterns in ward overcrowding and staff presence that had previously gone unmeasured, supporting more proactive staffing decisions during high-risk shift windows.

THE FALL RISK AUDIT:

Pull your hospital's fall incident reports for the last 12 months. For each one, find the documented time between the fall occurring and staff response. If that data does not exist, your hospital cannot currently measure its own response time to one of the most common adverse events in care.

A composite image of a hospital setting. In the background, a nurse in blue scrubs walks away down a long, brightly lit hallway. In the foreground, another nurse in blue scrubs is seen from the side, washing her hands at a white sink. A large, teal-colored number '22' is overlaid on the image. The scene is dimly lit, suggesting nighttime.

22

Hand Hygiene
Compliance Drops After
9 PM But Nobody Has
Ever Measured It.

Hand hygiene is the single most evidence-backed intervention in preventing hospital-acquired infections. The World Health Organization has published hand hygiene guidance for over a decade, every Indian hospital has hand hygiene protocols and training, and every accreditation framework NABH, JCI requires documented compliance.

And in almost every Indian hospital, the actual measurement of hand hygiene compliance happens through periodic manual audits, a trained observer walking the ward for a defined period, a few times a month, and extrapolating a compliance percentage from that sample.

This is the equivalent of measuring traffic safety by watching one intersection for 20 minutes a month.

What the Research Says About Real Hand Hygiene Compliance



40% average global hand hygiene compliance rate among healthcare workers when measured continuously, vs. self-reported compliance rates that are typically 20 to 30 percentage points higher. (WHO Hand Hygiene Self-Assessment Framework)



1 in 10 patients in hospitals globally will acquire a healthcare-associated infection, a substantial proportion of which is linked to hand hygiene non-compliance. (WHO HAI data)



₹40,000–4L additional treatment cost per patient for a hospital-acquired infection in an Indian healthcare setting, before accounting for extended stay and reputational impact.

Why Manual Hand Hygiene Audits Systematically Overstate Compliance

This is known in infection control literature as the Hawthorne Effect: people behave differently when they know they are being observed. A staff member who sees an auditor with a clipboard washes their hands. The same staff member, at 2 AM with no auditor present and a ward of 14 patients to manage, often does not, not from negligence, but from the reality of clinical workload under pressure.

Manual audits measure behaviour under observation. They do not measure behaviour under normal operating conditions, which is precisely when hand hygiene compliance matters most.



JARVIS IN ACTION

JARVIS hygiene monitoring, deployed in clinical and wellness environments including facilities under the Bridge Health network, tracks cleaning and sanitation activity in real time, giving facility and infection control teams visibility into compliance patterns that periodic manual audits cannot capture. The continuous data allows hospitals to identify specific shifts and zones where compliance support is most needed, rather than relying on a once-a-month snapshot.

YOUR MOVE THIS WEEK:

Compare your hospital-acquired infection rate for night shift admissions vs. day shift admissions over the last 6 months. If night shift shows a meaningfully higher rate, hand hygiene compliance during low-supervision hours is a likely contributing factor.



3

Your OPD Has Been
Losing Patients to Wait
Times Nobody Is
Tracking.



Outpatient department waiting time is one of the most consistently cited drivers of patient dissatisfaction in Indian healthcare and one of the least precisely measured. Most hospitals know, anecdotally, that OPD waits can be long. Very few hospitals can tell you, with data, exactly how long, for which department, on which day, and why.

The token number system tells a patient roughly where they are in a queue. It tells hospital administration almost nothing about the underlying causes of delay: whether a specific doctor is running behind, whether a particular OPD is structurally understaffed for its patient volume, or whether wait times spike predictably at certain times of day that could be addressed with adjusted scheduling.



The OPD Wait Time Reality in Indian Healthcare



45–90 min typical OPD waiting time reported across Indian government and private hospitals, frequently exceeding patient expectations by 2 to 3x. (National Health Systems Resource Centre, India)



68% of patients cite waiting time as a primary driver of dissatisfaction with outpatient hospital visits, ranking above clinical outcome concerns in several Indian patient experience surveys.

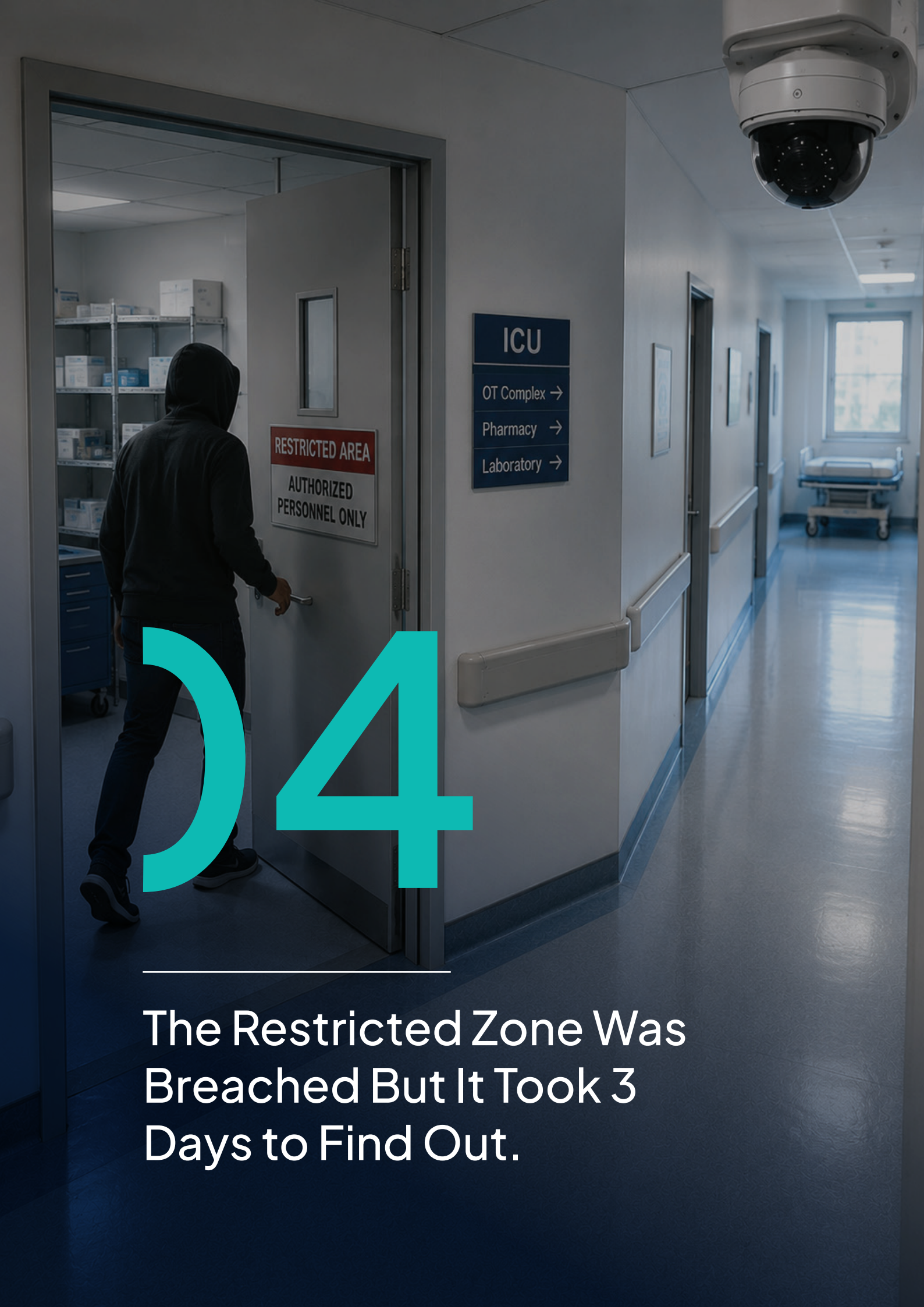


23% of patients who experience an OPD wait beyond their expectation report being less likely to return to the same facility for future care, even when clinical care was rated positively.



JARVIS IN ACTION

JARVIS front desk and OPD monitoring tracks staff presence, patient queues, and service efficiency in real time across hospital networks, giving administrative teams visibility into exactly where patient time is being lost at registration, in the waiting area, or in consultation delays, rather than relying on aggregate complaint data or anecdotal feedback from front-desk staff.

A person wearing a dark hoodie and pants is seen from behind, opening a white door in a hospital hallway. The door has a sign that reads "RESTRICTED AREA" in red and "AUTHORIZED PERSONNEL ONLY" in black. To the right of the door, a blue sign lists "ICU", "OT Complex →", "Pharmacy →", and "Laboratory →". A security camera is mounted on the ceiling. In the background, a hospital bed is visible near a window. A large cyan number "4" is overlaid on the image.

4

The Restricted Zone Was Breached But It Took 3 Days to Find Out.

Hospitals are among the most security-sensitive environments in any sector, pharmacy stores with controlled substances, blood banks, neonatal and ICU wards, medical records rooms, and operation theatres all require strict access control. They are also, structurally, some of the most porous environments, open to patients, families, visitors, vendors, and the general public, often around the clock.

Most Indian hospitals manage this tension through access cards, visitor passes, and security personnel at key checkpoints. What very few hospitals have is continuous, automated monitoring of whether those restricted zones are actually being accessed only by authorised personnel.

"A hospital's most sensitive zones, the pharmacy, the blood bank, the NICU are protected by a policy. They are rarely protected by a system that tells you, in real time, when the policy has been violated."



3–7% of pharmacy and controlled substance stock discrepancies in Indian hospitals are never fully attributed to a specific cause, absorbed as inventory variance. (Hospital pharmacy audit benchmarks)



< 15% of restricted zone access violations in hospitals without continuous monitoring are detected in real time, the rest are discovered through periodic audit or after an incident. (ASSOCHAM Healthcare Security)



72 hrs average time to detect an unauthorised access pattern in a restricted hospital zone under card-log-only monitoring, vs. real-time detection with AI video analytics.



JARVIS IN ACTION

JARVIS suspicious activity detection is designed to create a smarter and safer hospital environment by identifying unauthorized access, loitering, and unusual activity patterns in real time, strengthening healthcare security without requiring hospitals to add additional security personnel to monitor every sensitive zone manually.

5

Doctor Rounds Are
Logged on Paper But Only
The Camera Knows What
Actually Happened



Doctor compliance with ward rounds, consultation schedules, and protocol adherence is one of the most operationally significant and most opaquely measured, aspects of hospital governance. Most hospitals track doctor activity through manual logs, appointment systems, and self-reported attendance.

These systems capture intent. They do not reliably capture what actually happened on the floor.

The Doctor Compliance Visibility Gap

30% average variance found between scheduled doctor consultation hours and actual logged presence time in OPD settings, when measured against camera-based attendance data vs. self-reported logs. (JARVIS healthcare deployment data)

2× the likelihood of a ward round being completed within protocol-defined time when doctor presence is measured continuously vs. through end-of-shift self-reporting.

What Doctor Compliance Monitoring Covers

JARVIS doctor compliance monitoring is not designed as a surveillance or punitive tool. It is designed to give hospital administration an accurate, objective picture of clinical staff presence and activity patterns, data that supports better scheduling, fairer workload distribution, and stronger patient care continuity.

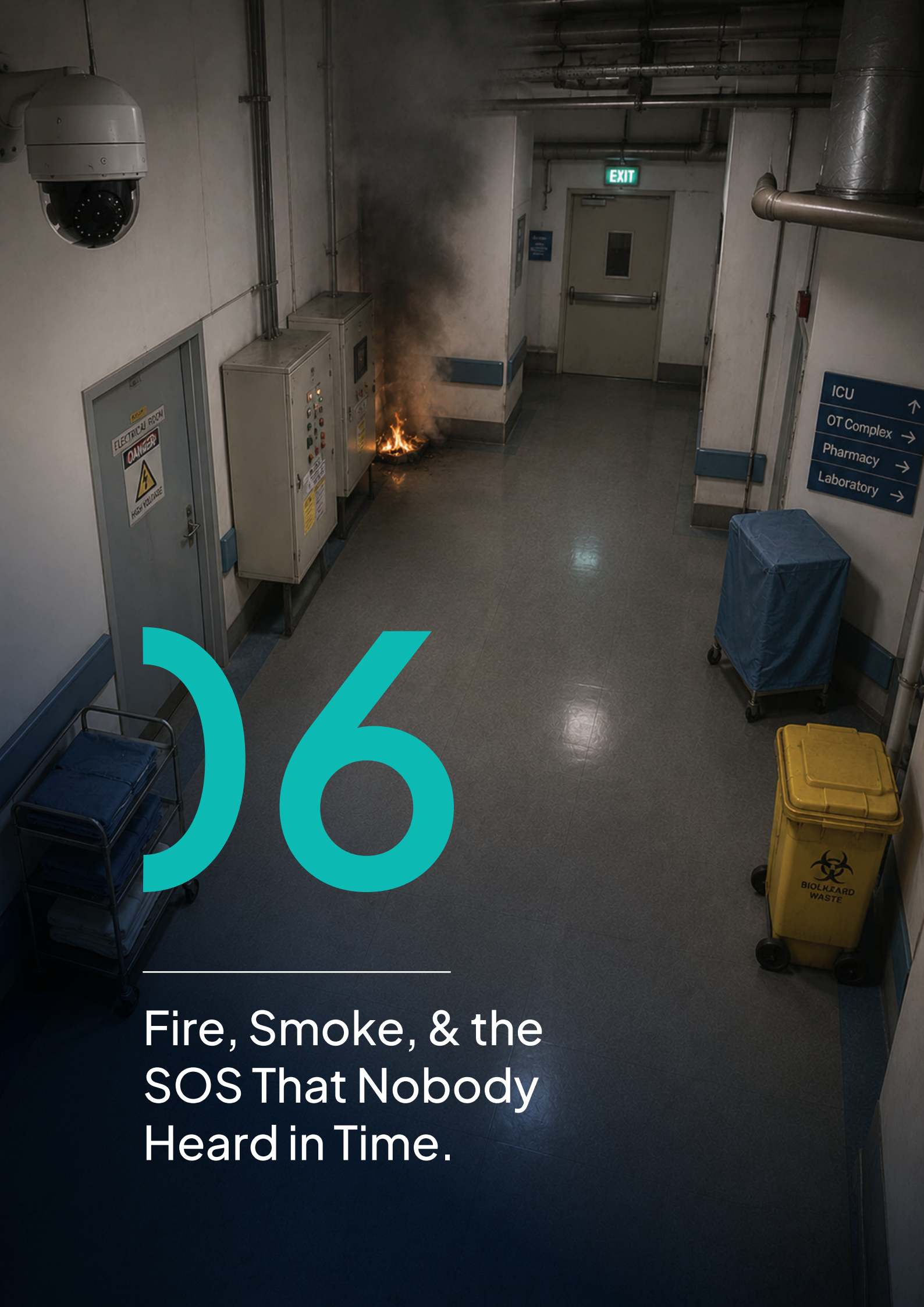


JARVIS IN ACTION

JARVIS doctor compliance monitoring tracks doctor presence, activity, and adherence to hospital protocols to support the highest standards of patient care, safety, and operational transparency, giving hospital leadership the data foundation to make scheduling and resourcing decisions based on actual operational patterns rather than self-reported summaries.

YOUR MOVE THIS WEEK:

Ask your nursing leadership: which ward rounds most frequently run behind protocol-defined timing? If the answer is anecdotal rather than data-driven, that is the gap continuous monitoring closes.



Fire, Smoke, & the
SOS That Nobody
Heard in Time.

Fire safety in a hospital carries a different weight than in almost any other facility type. Patients in ICU, post-operative recovery, and critical care cannot self-evacuate. The standard fire response protocol, evacuate the building is often clinically impossible to execute quickly for a significant proportion of hospital occupants.

This makes early detection, not just alarm response, the single most important variable in hospital fire safety. The earlier a fire or smoke event is detected, the more options a hospital has controlled area evacuation, fire suppression, patient relocation within the building rather than an emergency full evacuation under time pressure.

Why Early Detection Matters More in Hospitals Than Anywhere Else



8–12 min earlier detection of fire and smoke events using visual AI analysis vs. traditional heat and smoke sensors, the same lead time advantage demonstrated across JARVIS deployments in other high-risk environments.



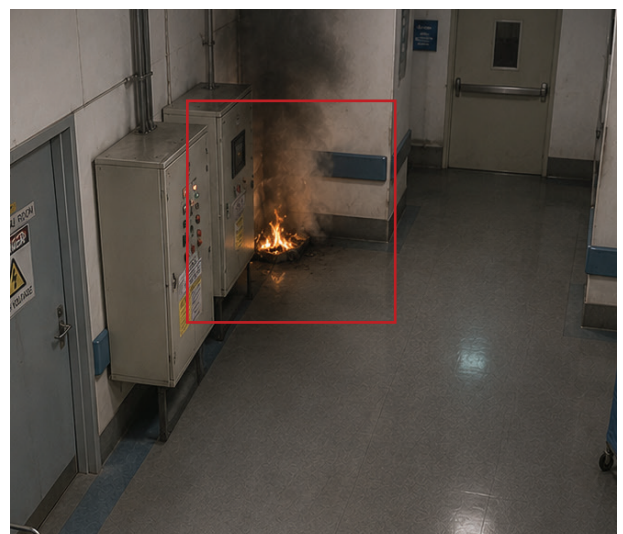
60%+ of hospital patients in ICU, post-op, and critical care settings cannot self-evacuate without staff assistance during an emergency, making early detection and controlled response the priority over rapid full evacuation.



₹15–80 Cr estimated cost range of a major hospital fire incident in India, accounting for facility damage, regulatory consequences, and reputational impact. (Insurance industry estimates for healthcare facilities)

How JARVIS Fire and Smoke Detection Works in a Hospital Context

JARVIS fire detection uses the camera feeds already installed across hospital corridors, utility rooms, kitchens, and storage areas to identify the visual signature of smoke or flame before it reaches the threshold that triggers a traditional heat or smoke sensor. In a hospital, this lead time can be the difference between a contained, controlled response and a full emergency evacuation involving non-ambulatory patients.





57

They Didn't Hire More
Staff But They Just Finally
Made the Cameras
Watch With Intent

Everything in this book has been, until this chapter, a diagnosis. The fall that took 14 minutes to discover. The hand hygiene compliance that nobody had measured continuously. The OPD wait time that nobody could explain. The restricted zone that took 3 days to flag. The doctor rounds logged on paper that did not match reality. The fire risk zones with no early detection.

This chapter is the prescription. A precise, sequenced account of what a real hospital network did, ward by ward, department by department, when they finally decided to make their existing cameras intelligent.

Multi-specialty hospital network. 3 facilities. 450 beds combined. 210 cameras already installed. The only thing that changed was intelligence.

The 12-Month Impact Picture

82% reduction in average fall response time across the network's highest-risk wards.

28 min average OPD wait time reduction, translating to measurably improved patient experience scores across all 3 facilities.

Zero unflagged restricted zone access incidents in the 12 months following deployment, vs. an estimated 30–40 undetected events in the prior 12-month period.



38

What the
Playbook Means
for Your Hospital

Healthcare is the one sector where the gap between recorded data and acted-upon intelligence carries the highest possible cost. A retail business that misses a heat map insight loses revenue. A hospital that misses a fall detection signal can lose far more.

The 82% reduction in fall response time, the OPD wait time cut by 28 minutes, the elimination of unflagged restricted zone access, none of this required new construction, additional headcount, or a change in clinical protocol. It required one decision: to start reading what the hospital's own cameras had been recording the entire time.

Every hospital has its own version of the fall response gap, the hygiene compliance that drops overnight, the OPD bottleneck nobody has correctly diagnosed, and the restricted zone breach that goes undetected for days. The specific numbers differ by facility. The underlying principle does not.

Ask the cameras what they know. Act on what they tell you. Measure the result. Repeat.

Get In Touch

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