HosPortal
CONNECTED HEALTHCARE SOLUTIONS

Emergency Department Rostering in Practice

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Executive Summary

Emergency department rostering is one of the most complex workforce challenges in modern hospitals. This Maitland Hospital Emergency Department case study explores how AI-supported hospital rostering software helped manage workforce complexity, improve fairness and reduce administrative burden.

Maitland Hospital Emergency Department (ED), a level 4 district hospital within Hunter New England Local Health District in regional New South Wales, provides a practical example of how these pressures play out in a real-world setting. Serving a rapidly growing regional population and managing approximately 56,000 emergency presentations each year, the department must roster a diverse medical workforce across multiple models of care, while maintaining safe skill mix, fatigue management, fairness, and training requirements.

Historically, Maitland Hospital ED relied on manually built Excel spreadsheets to manage rostering. While workable in the past, this approach became increasingly labour-intensive and difficult to maintain as the department evolved. Challenges included version control, equitable shift distribution, and ensuring that training and supervision requirements were consistently met.

In 2024, Maitland Hospital ED began transitioning to an AI-supported, emergency-department-specific rostering software system. Importantly, this was not a rapid technology switch. The department adopted a staged approach, beginning with transcription of existing rosters and gradually introducing automation as confidence and familiarity grew.

This case study explores:

- why emergency department rostering presents unique challenges
- the limitations of spreadsheets and generic workforce systems in modern ED settings
- how Maitland Hospital ED approached solution selection, co-design, deployment, training and support

- what changed in practice following implementation
- and what other emergency departments can learn from this experience

It is intended as an educational reference for ED Directors and hospital leaders considering how to manage rostering complexity in emergency care departments sustainably.

Setting the scene: Maitland Hospital Emergency Department

Maitland Hospital Emergency Department is a level 4 district emergency department located within Hunter New England Local Health District in regional New South Wales. The region has experienced rapid population growth in recent years, placing increasing demand on the hospital's services.

In 2024–25, Maitland Hospital ED managed approximately 56,000 emergency presentations. The department provides care across multiple models, including acute beds, fast-track, paediatrics, early treatment zones, and a short-stay unit. Each of these areas operates with different clinical rhythms, staffing needs and acuity profiles.

The medical workforce at Maitland Hospital ED is large and diverse. It includes interns, resident medical officers, senior resident medical officers, ACEM trainees, career medical officers, GP trainees, nurse practitioners and ACEM consultants. Doctors are rostered to 10-hour shifts, with nine to day shifts, 10 to evening shifts, and four to night shifts each day.

Beyond clinical coverage, the department must also account for non-clinical responsibilities. Training, supervision, education, and study leave requirements—particularly for ACEM trainees—need to be carefully integrated into rostering decisions to ensure both service delivery and training standards are maintained.

As Dr Brendan Sullohern from Hunter New England LHD explains:

"Our rostering is complex because we have multiple models of care running at once, and different groups of doctors with very specific training and non-clinical requirements that all need to be factored in."

This combination of scale, diversity, and competing requirements creates a rostering environment in which small changes can have significant downstream effects.

Why emergency department rostering is uniquely complex

Rostering in emergency departments differs fundamentally from many other hospital care settings.

Emergency departments operate continuously, with fluctuating demand, unpredictable surges, and a constant requirement to maintain safe skill mix across all shifts. Rosters must account not only for who is available, but also for fatigue management, clinical experience, supervision needs and fairness across the workforce.

At Maitland Hospital ED, this complexity is amplified by:

- multiple models of care operating concurrently
- a workforce with varied availability and employment arrangements
- strict requirements around training, supervision and education
- sequencing rules to manage fatigue across day, evening and night shifts
- the need to ensure appropriate senior coverage at all times

These constraints are not optional or administrative in nature. They are integral to patient safety, clinician wellbeing and the integrity of training programs.

Historically, much of this complexity has been managed manually by senior clinicians with deep knowledge of their department. While this expertise is invaluable, it also creates reliance on a small number of individuals to continually monitor, adjust and correct rosters as circumstances change.

Over time, as departments grow and pressures increase, this approach becomes increasingly difficult to sustain. What once relied on professional judgement and manual oversight begins to demand systems that can consistently reflect and manage the complexity of modern emergency care.

The limits of spreadsheets and generic workforce systems

For many years, Maitland Hospital's Emergency Department relied on manually-built Excel spreadsheets to manage rostering. Two senior emergency specialists were responsible for developing each 12–13-week roster and distributing it to staff.

This approach was familiar and, for a time, workable. However, as the department grew in size and complexity, the limitations of spreadsheets became increasingly apparent.

"Manually writing the roster was labour-intensive," says Dr Brendan Sullohern. "It was challenging to ensure that all users were receiving an equitable distribution of shifts, and that we were consistently meeting ACEM training requirements, particularly around education, supervision and study leave."

Version control also became a recurring issue. Once rosters were emailed out, changes such as shift swaps, unplanned leave or last-minute adjustments were not always reflected in the version visible to all staff. This led to confusion and, at times, miscommunication.

Generic workforce systems can present similar challenges in emergency department settings. While they may support basic rostering functions, they are often not designed to manage the interactions among multiple models of care, complex training requirements, fatigue rules, and fairness considerations simultaneously.

In practice, this means that much of the work still relies on manual oversight. Senior clinicians and roster leads spend significant time checking, correcting and reconciling rosters to ensure they reflect clinical reality. Over time, this creates a growing administrative and cognitive burden, concentrated on a small number of staff.

It became increasingly apparent at Maitland Hospital ED that there was a mismatch between its manual roster tools and the complexity of the environment they were required to support.

Considering a different approach to rostering

As rostering demands increased, the Maitland Hospital ED leadership team began to consider whether a different approach could better support the department's needs.

The team wanted to:

- reduce the time and effort required to build rosters
- improve fairness and transparency in shift allocation
- ensure training and supervision requirements were consistently met
- maintain a single, accurate, up-to-date roster visible to all users
- reduce confusion associated with last-minute changes

Crucially, any new approach needed to respect the risk-critical nature of emergency medicine. Rostering decisions have direct implications for patient care, staff wellbeing and service delivery.

Rather than seeking a "plug-and-play" solution, Maitland Hospital ED was looking for a system that could be tailored to its specific context and implemented in a way that allowed staff to build confidence over time.

Selecting a partner with emergency department experience

As the limitations of manual rostering became clearer, Maitland Emergency Department began exploring software solutions that could better support the realities of emergency care.

The aim was not to adopt technology for its own sake, but to identify a solution that could accommodate the department's complexity while being implemented safely in a risk-critical environment. Any new approach needed to respect clinical governance, workforce constraints and the need for staff confidence and trust.

Following this process, Maitland Hospital ED engaged HosPortal, an Australian hospital rostering software provider with experience supporting complex clinical environments, including emergency departments. HosPortal was founded by a practising senior anaesthetist, with its approach shaped by firsthand understanding of clinical workflows, fatigue management and the operational pressures faced by hospital teams.

Importantly, the engagement was framed as a supported implementation rather than a simple software deployment. From the outset, HosPortal worked alongside Maitland ED to understand the department's needs before any automation was deployed, tested and introduced.

From discovery to design: translating ED reality into a working system

Before deployment, a structured discovery phase was undertaken to understand how Maitland Hospital ED functioned in practice.

This work was led by a dedicated healthcare solutions manager, who worked closely with ED leadership to map clinical models of care, rostering constraints and operational priorities. The

focus was on identifying what mattered most to the department, where existing pain points sat, and how rostering decisions were made in their real-world day-to-day conditions.

This discovery process included:

- understanding how multiple models of care operated concurrently
- mapping fatigue rules and sequencing requirements
- incorporating training, supervision and non-clinical requirements
- identifying areas where manual oversight created risk or inefficiency

Once these requirements were clearly defined, software engineering expertise was brought in to translate them into a system configuration that reflected Maitland Hospital ED's workplace and operating environment. Rather than applying a standard template, rostering rules, patterns, and structures were iteratively built and refined, tailored to Maitland ED's needs.

This process involved testing assumptions, reviewing early configurations, and making adjustments based on departmental feedback. ED leadership retained oversight throughout ensuring that the system supported clinical decision-making.

By the time the system was ready for deployment, it reflected the department's existing rostering logic rather than imposing a new one.

Deployment, training and support in a risk-critical environment

Introducing a new rostering system in an emergency department is a critical undertaking. At Maitland Hospital ED, careful planning was undertaken to ensure that staff confidence, safety and continuity of care were prioritised throughout deployment.

Rather than moving directly to full automation, the department adopted a staged approach. Maitland ED went live with HosPortal's AI-supported rostering software in March 2024, with an existing manually built roster first transcribed onto the platform. This allowed staff to become familiar with the system without changing how rosters were constructed.

Subsequent rosters were then built directly within the platform, with automation features introduced progressively as the team's confidence grew. Patterns, templates and, later, AI-assisted autobuild functionality were adopted over time, rather than all at once.

Training and support played a central role in this process. Roster administrators received orientation and guidance, and support was readily available as questions arose. Ongoing assistance allowed the department to refine configurations and workflows as they became more familiar with the system.

Dr Brendan Sullohern describes the transition as deliberately paced:

"We gradually began to use more of the automated functions as we became more familiar with HosPortal. Initially, we transcribed a manually written roster onto the platform. Over time, we introduced patterns, templates and then the AI-assisted autobuild function."

This incremental approach helped ensure a smooth, uneventful transition, without disrupting day-to-day operations or increasing risk during busy clinical periods.

What changed in practice

Since going live, Maitland Hospital ED has seen tangible changes in how its rostering is managed.

The time required to build rosters has reduced, easing the administrative burden on senior clinicians. The system provides a single, accurate, up-to-date roster that can be adjusted in real time, reducing confusion associated with shift swaps or unplanned leave.

Transparency has also improved. Doctors can request leave through the system; administrators can review and promptly approve requests; and staff can see how rostering decisions are made. This has supported fairness in shift distribution and made it easier for clinicians to pick up additional shifts when needed.

From the department's perspective, the most significant change has been the increase in predictability. Rather than relying on constant manual oversight, the rostering process is now supported by a system designed to reflect the department's complexity while remaining flexible as needs evolve.

What other emergency departments can learn from Maitland Hospital ED

Maitland Hospital ED's experience highlights some practical lessons for other emergency departments considering updates to their rostering approach.

Start with reality, not technology
The success of the transition was grounded in a clear understanding of how the department actually operates. Rostering complexity was not simplified to fit the system; instead, the system was shaped to reflect clinical reality.

Deploy incrementally as skills and confidence grow
By approaching deployment cautiously and incrementally, Maitland Hospital ED acknowledged that rostering decisions have direct implications for patient safety, staff wellbeing and service delivery.

Co-design matters
Working with a partner who understood emergency medicine helped ensure that training requirements, fatigue rules and skill mix were embedded from the outset.

Training and support are central to adoption
Staff were given time to learn the system, ask questions and adapt workflows gradually, avoiding disruption and building trust.

Automation works best when introduced progressively
AI-supported features were introduced only once confidence had been established, allowing the department to maintain control while improving efficiency.

About HosPortal

HosPortal is an Australian hospital rostering and workforce planning software provider, founded by a practising senior anaesthetist who understands the clinical, operational, and human complexity of hospital rostering.

HosPortal works with hospitals to support complex rostering environments, including emergency departments, where fatigue management, skill mix, training requirements, and fairness must be carefully balanced. Rather than offering a one-size-fits-all product, HosPortal focuses on working with clinical and operational leaders to configure systems that reflect how departments function in practice.

For emergency departments, this means:

- rostering systems that accommodate multiple models of care
- rules and patterns aligned with fatigue, training and supervision requirements
- staged deployment that prioritises safety and staff confidence
- ongoing support as departments evolve

Please contact the HosPortal team to learn more about AI-supported, emergency-department-specific software rostering.