



CASE STUDY

Efficiencies

Clinical Audit Awareness Week 2025 (#CAAW25)
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Project: Optimisation of resident doctor rotas in critical care Critical Care unit, Epsom and St Helier University Hospitals NHS Trust

Lead Project Manager:

- John Dixon

Audience

- Resident doctors and rota designers

Background

- Epsom and St Helier NHS Trust runs two critical care units.
 - **St Helier Intensive Care Unit (ICU)** - treats mainly emergency patients and provides invasive ventilation.
 - **Epsom High Dependency Unit (HDU)** - cares for elective surgical and non-ventilated emergency patients. Patients needing ventilation or emergency surgery are transferred to ICU.

Only ICU was recognised for training by the Faculty of Intensive Care Medicine (FICM). Trainees could not work in HDU, leading to rota gaps at ICU. These were covered by locally employed doctors on a cross-site rota: HDU by day, ICU by night.

ICU had **42 hours/week** with only two doctors rostered (instead of the required three)¹. Bank staff covered **16 weekend hours**, but 26 hours/week remained inadequately staffed. Cross-site doctors reported poor education and lack of continuity, with high attrition rates, increasing gaps further.

In the pre-intervention year, **£199,000** was spent on bank shifts. Despite this, **116 rostered shifts** still had unfilled gaps.

The impact on patient safety was previously unknown.

Aims

- Achieve FICM accreditation for Epsom HDU
- Introduce a unified rota across both sites, targeting:
 - 3 doctors at all times in ICU and 1 in HDU during daytimes;
 - 90% reduction in rota gaps.
- Reduce patient safety incidents by 5%
- Improve resident doctor satisfaction by 20%
- Save at least £150,000 in staffing costs.

"This rota is excellent for patient care because more doctors are available."

-Senior Clinical Fellow.

What happened?

FICM accreditation was achieved for HDU, enabling rota changes to go ahead.

Using Allocate E-Rota™ a new legally compliant rota was designed:

- 14 weeks in ICU, 1 week in HDU, and 1 week for post-nights recovery.
- Resident doctors were involved in each stage of rota design.

Before and after surveys assessed safety perceptions and satisfaction. A novel junior doctor rota satisfaction conceptual framework (JDRSCF) was developed using regression analysis.

What changes to processes occurred?

All rostered under-staffing periods were eliminated. Recovery time following night shifts was protected. Annual leave booking was simplified. A resident doctor forum was introduced, enabling doctors to raise concerns about rota concerns and wellbeing. Psychological safety posters and wellbeing resources were shared in ICU.

Evidence of improvement

The 12-months post-intervention evaluation showed:

- **Staffing:** 100% of previously unsafe shifts were eliminated. Rota gaps reduced by 94.4%.
- **Satisfaction** improved from 71.3% to 92.5%, with improvements seen in all parameters (see Radar chart and sentiment analysis graphs).
- **Patient safety incidents** reduced from 36.4±6.8 to 29.0±7.7 per month, representing a 24.5% reduction (P=0.0005). See graph.
- **Finances:** £8785 was saved via reduced hours; £219,000 in bank fees was saved; and new weekend costs of £3294 were incurred. Net savings were £224,492. Return on Investment (ROI): 6816% (every £1 spent saved £68.16). Payback period was 5 days.

Insights

This project demonstrates that adequate staffing directly improves patient safety. Intelligent rota design with workforce engagement enables both patient safety and cost-efficiency. The keys to success were co-designing rotas with resident doctors, protection of education, and psychological safety.

Other outcomes

The JDRSCF found that 76% of satisfaction in resident doctor rotas was attributable to access to education opportunities (50% weight), staffing and workload (25%), work-life balance (15%), and opportunity to communicate and feedback about rota concerns (10%).

References

1. Guidelines for the provision of intensive care services (version 2.1).
2. The Working Time Regulations Act (1998).

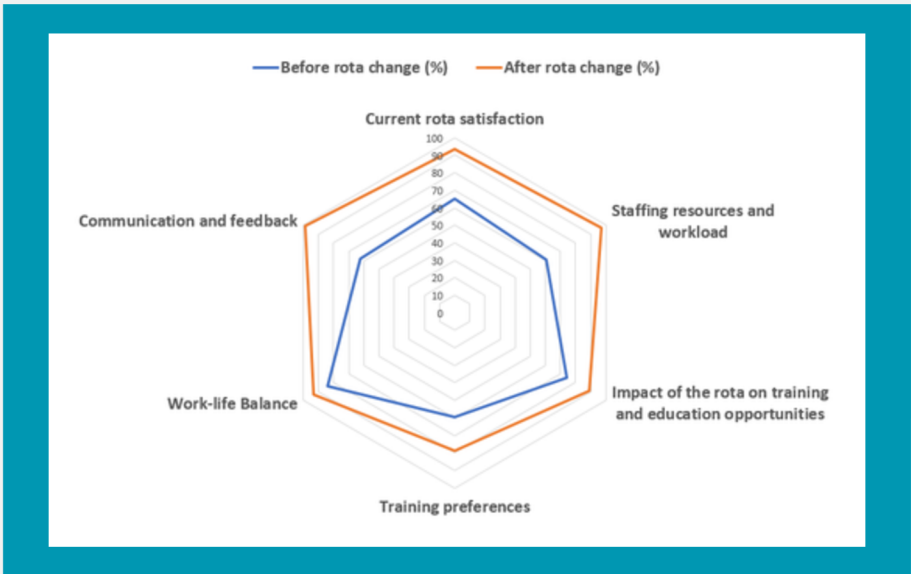


"This rota is much fairer than the previous rota. I feel so much more part of the team."

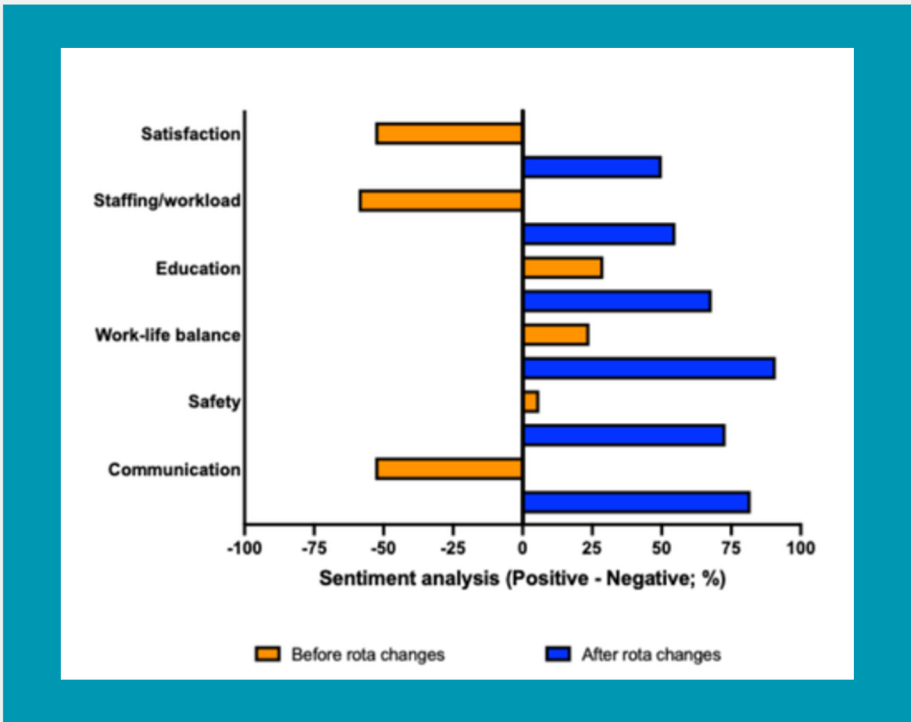
-Junior Clinical Fellow.

Infographics

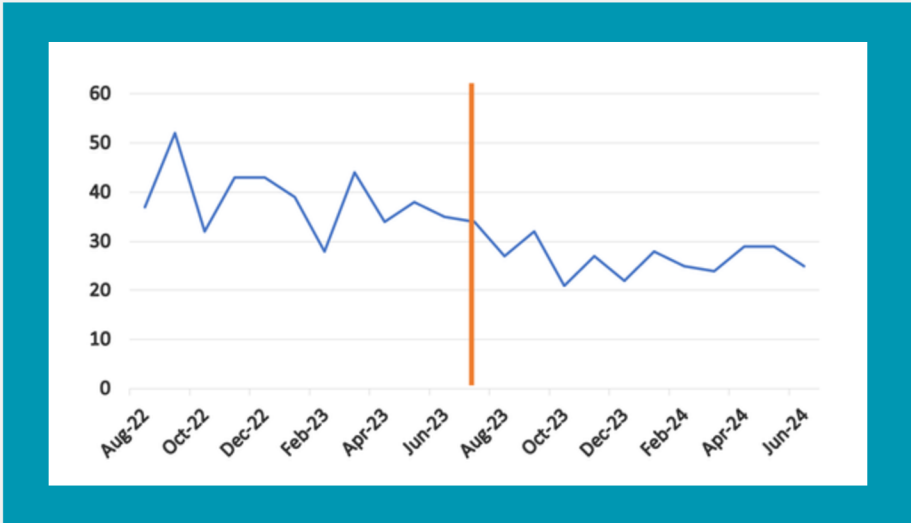
1. Radar chart of survey results.
2. Sentiment analysis of survey responses.
3. Graph of patient safety incident reduction.



Survey results: This radar chart shows improvement in each parameter of satisfaction.



Survey results: Sentiment analysis. All written comments during the survey were expressed as positive, neutral or negative. This sentiment analysis shows improvement in all assessed areas of satisfaction and in perceptions of patient safety



Patient safety incidents. This graph shows the number of reported patient safety incidents in the 12 months before the rota change reduced from 38.4 ± 6.8 /month to 29.0 ± 7.7 /month ($P=0.0005$) in the 12 months after. The orange line depicts when the rota changed.