

Optimalisation of ICU capacity in an era of trained ICU nurse shortages

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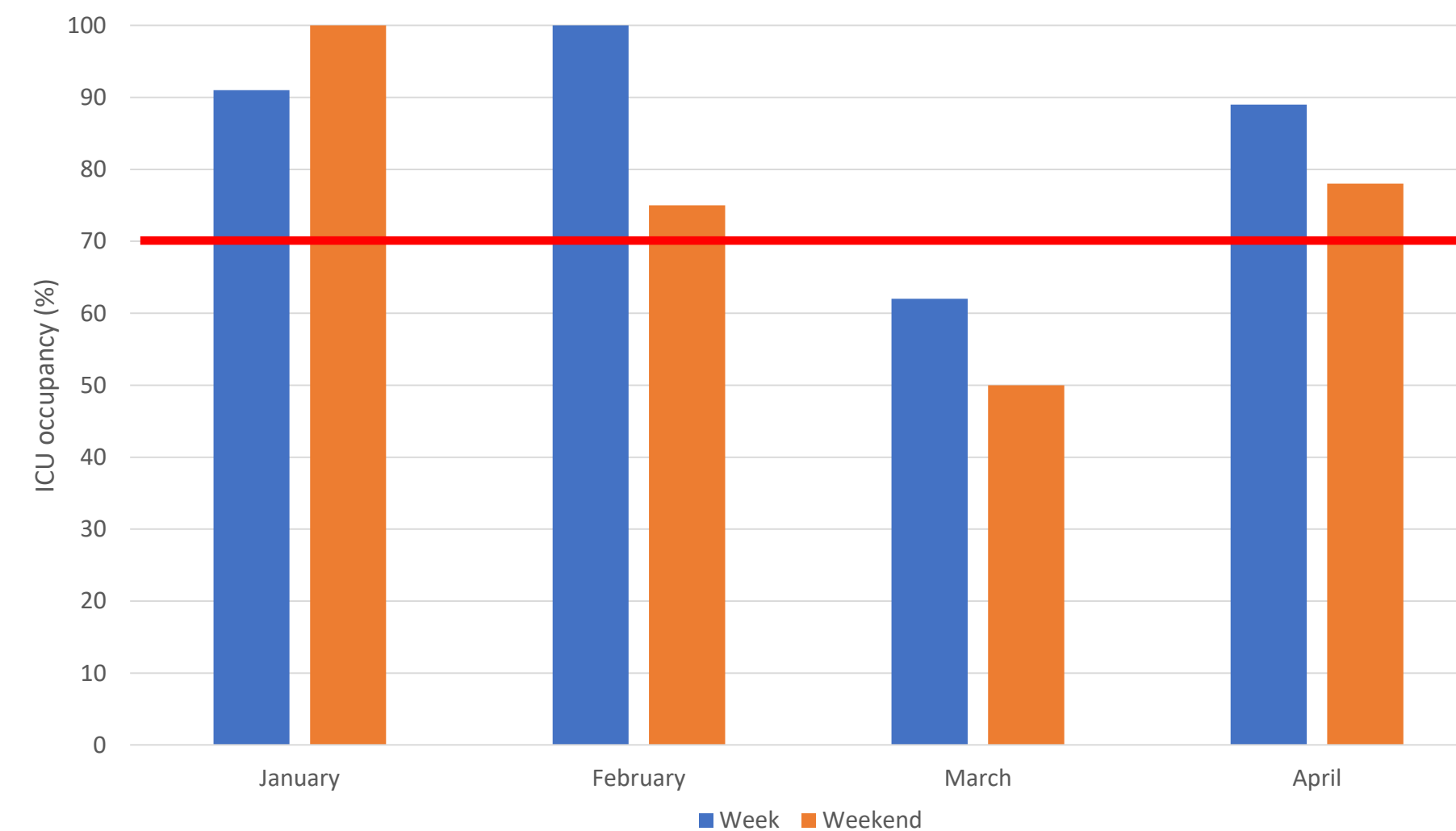
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Background

An ICU occupancy rate of 70% is considered optimal because it allows for smooth integration of all planned and unplanned ICU admissions. Higher occupancy rates of more than 70% are associated with delayed admissions from both the OR, disrupting OR schedules, as from the ED and the in-hospital wards, where delayed ICU admissions for patients urgently requiring ICU-related care are also associated with a worse clinical outcome. A shortage of ICU nurses already reduced ICU capacity from 42 to 34 beds in Jessa in the aftermath of the COVID-19 pandemic. Additionally, there was a proposal to temporarily close ICU beds during weekends to balance ICU capacity with the influx of patients.

Objective

To evaluate the occupancy rates with a reduced ICU capacity.



Conclusion

A reduction in ICU capacity to 34 beds implicated a larger proportion of time with 'above ideal' ICU occupancy rates and affected a smooth flow of patients towards our ICU.

Methods

From 01/01/2024 to 30/04/2024, in the Jessa Hospital, Hasselt, a pilot project on the temporal closure of 4 ICU beds during weekends (from Saturday noon to Monday noon), reducing capacity from 34 to 30 beds was introduced from the first weekend of January.

Results

We separately evaluated ICU occupancy during weekdays and weekends (Table 1). Both on weekdays and during weekends, the optimal ICU occupancy of 70% was exceeded more than 75% of the time with an exception for March. Moreover, an ICU occupancy $\geq 90\%$ was observed on 28/83 weekdays (34% of the time) and on 9/35 days during the weekend (26% of the time) and was associated with delayed admissions from the OR and ER. Moreover, referrals of patients for an upgrade of care from satellite hospitals to our tertiary center were refused because of a shortage of ICU capacity.