

The Night in the ICU

The Night Falls in the ICU: Changing Realities for Patients, Relatives and the Interdisciplinary Team
C. Similowski, V. Souppart, N. Kentish-Barnes, E. Azoulay

The Night in the ICU, *A. Meli, S. Coppola, D. Chiumello*

Nine Nurse-Recommended Design Strategies to Improve Alarm Management in the ICU: A Qualitative Study, *E. Özcan, D. Gommers*

Making Decisions During ICU Night Shifts: Challenges and Considerations, *R. Roepke, O. Ranzani*

Sleep Deprivation and Fatigue Management in the Intensive Care Unit, *J. Darbyshire, P. Greig*

Night Service in the Intensive Care Unit of a University

Hospital, *K. Schoknecht, I. Meyenburg-Altward*

Shadowing the Nightwatch: Nocturnal Activity in the ICU, *J. Poole*

Engaging the Night Shift Nurse With Activities & Educational Opportunities, *T. Sanchez-Sedekum, T. Khairallah*

Is the Severe COVID-19 Over in Europe? *JL Vincent*

Keeping Best Practices in Critical Care During COVID-19, *F. Zampieri*

Is COVID-19 the Black Swan? *A. Ezzat, F. Rubulotta*

Human Factors in Critical Care Medicine, *F. Nacul, V. Della Torre*





Roberta M. L. Roepke
Trauma and Acute Care Surgery
ICU
Department of Surgery
Hospital das Clínicas HCFMUSP
Faculdade de Medicina
Universidade de São Paulo
São Paulo, Brazil.
ICU
AC Camargo Cancer Center
São Paulo, Brazil

robertaroepke@hotmail.com



Otavio T. Ranzani
Pulmonary Division
Heart Institute (InCor)
Hospital das Clínicas HCFMUSP
Faculdade de Medicina
Universidade de São Paulo
São Paulo, Brazil.
Barcelona Institute for Global
Health
ISGlobal
Barcelona, Spain

otavioranzani@yahoo.com.br

[@otavio_ranzani](https://twitter.com/otavio_ranzani)

Making Decisions During ICU Night Shifts: Challenges and Considerations

We review the decision-making processes during night shifts focusing on the perspective of residents and fellows. We explore nighttime decisions about extubations, ICU discharge, withholding/withdrawing and night shift cross-coverage.

Taking a night shift in the ICU can be challenging, particularly from a resident/fellow perspective. Across the globe, it is observed that night shifts are characterised by the following specific scenario: less resources, less in-house specialist consultants and few and often less experienced staff. There is frequently less supervision from seniors and consultants. Besides that, chronic and acute sleep deprivation affects our cognitive and motor performance (Maltese et al. 2016; Rubulotta et al. 2016). You fear the patients will decompensate and require urgent interventions that you may not feel comfortable performing (or have not yet performed) on your own. A great number of unplanned ICU admissions happen at night and important early treatment decisions will need to be made before you can handoff your shift.

Nighttime Extubation

Night shifts can create a circumstance of decreased surveillance that potentially impacts patient safety. There is evidence that nighttime procedures and decisions

are associated with undesirable patient-centred outcomes. Thus, in the bedside round at 22:00, your team agreed patient “A” could be extubated, because they passed a spontaneous breathing trial and you should decide to perform it now or the next morning. Earlier extubation has several theoretical advantages, such as a decreased need of sedatives, less delirium and weakness, prevention of ventilator-associated complications, decreased ICU and hospital length of stay. However, overnight extubation might be riskier for some patients. A large retrospective multicentre cohort showed that nighttime extubations are associated with higher ICU and hospital mortality, and patients who received >12 hours of mechanical ventilation also had higher reintubation rates when extubated at night (Gershengorn et al. 2016). Limitations of that study include incomplete information on patients’ status about decisions to withhold/withdrawn care and unplanned extubations, which is more likely to occur at night.

Their findings contrast with previous results, where nighttime extubations did

not show higher reintubation rates, length of stay or hospital mortality compared to those extubated at daytime, although most of the nighttime extubations were cardiac surgical patients (82%), a population that benefits from fast-track extubation protocols (Tischenkel et al. 2016). Current evidence suggests that decision to extubate at night may depend on specific patient characteristics, staff availability and expertise and might not be advisable in all patients. While elective surgical patients probably benefit from extubation as soon as possible, more complex medical patients or those on mechanical ventilation for more than 12 hours could experience harm from overnight extubation.

Nighttime Discharge

Nighttime ICU discharge has been associated with worse outcomes, possibly leading to higher readmission rates and excess hospital mortality (Vollam et al. 2018). The reasons implicated involve premature decision discharge, poor surveillance at wards and inadequate handover affecting continuity of care. Returning to your night

shift: after the bedside round, you receive a call from the emergency and there is some pressure for an ICU bed because a trauma patient is arriving and there is a patient with sepsis in the emergency room. You have only one ICU bed available. Should you consider to discharge patient “B,” fully recovered from a septic shock but with clear borderline dependency on care and frail? Organisational factors are also important. Elevated ICU occupancy and pressure for ICU beds could influence decision to discharge and have been associated to readmission (Chrusch 2009). The quality of post-ICU care must also be considered before discharging a complex patient to the ward at nighttime. Medical and nursing staff availability and presence of rapid-response teams, that could detect early deterioration and need for intervention, are important factors in decision making. Additionally, the possibility to discharge to step-down units instead of general wards is another alternative to increase safety during this process.

Decision to discharge is complex, based on clinical judgement and organisational and logistic factors. It's likely not the timing alone, but the patient status when leaving the ICU and where is the proposed destination, that determines outcomes. Consideration of all these factors together with a shared decision among the healthcare workers on both places (inside/outside ICU) is especially important when discharging at night.

Nighttime Withholding and Withdrawing Decisions

Another important decision, to withhold medical support, can be a reason for concern in the nightshift, especially for a resident or less experienced physician dealing with a patient whose condition is rapidly deteriorating overnight. Discussions of goals of care with patient or their surrogates and decision on limitations of medical treatment are usually done by attending physicians, but they can

unexpectedly (and not rarely) arrive at nighttime.

End-of-life decisions and palliative practice are influenced by country and cultural characteristics, religious beliefs, local legal aspects and professional individual experience (Sprung et al. 2008; Sprung et al. 2019). Surveys have demonstrated that years since graduation, seniority and background (intensivists vs. non-intensivists) affect physicians' preferences on life-support decision making (Cook et al. 1995; Spronk et al. 2009).

nighttime extubations are associated with higher ICU and hospital mortality

Although end-of-life practice is improving, with limitations of life-prolonging therapies occurring more frequently and fewer deaths without limitations of medical support (Sprung et al. 2019), there is still poor documentation of these decisions on medical charts despite its importance for legal purposes. Information on decisions to withhold or withdraw specific therapies, those who participated in the discussion and if the patient was involved in the decision are inconsistently reported in medical records (Spronk et al. 2009). We believe adequate documentation should be available for all team-members to ensure continuity of care, thereby better informing nightshifts. It is common that the traditional handover does not cover all the information needed or already taken about end-of-life decisions and you might face the anxiety of taking this decision overnight. Or, maybe worse, making decisions that do not match previous settled goals according to patient's preferences. In our opinion, end-of-life care decisions during nightshifts is a place for further research.

Night Shift in Cross-Coverage

Nightshift can demand even more when a physician that is not involved in daytime care is taking over for the nighttime, providing cross-coverage, which is common in residency training. Longitudinal follow up is essential not only to know important details of a patient history, but to understand patient's personal values and to develop trusting relationships with patients and families. Thus, longitudinal follow up supports, in theory, better treatment decisions that match patient and family preferences. By disrupting continuity of care, cross-coverage has been associated with increased risk in medical errors and adverse events, presumably leading to worse outcomes (Petersen et al. 1994). In contrast, longitudinal follow up might be responsible to reinforce certain personal cognitive biases and create blind spots during the routine daily care. In an interesting study to evaluate this hypothesis, Amaral and coworkers reported an association between greater nighttime cross-coverage with decreased ICU mortality (Kajdacsy-Balla 2014). The potential reasons were greater number of nighttime decisions when fellows were in cross-coverage compared to fellows that participated in the morning rounds. Fellows during cross-coverage at night ordered more diagnostic CT scans, initiated antibiotics and modified ventilation and extubation plans, as compared with the plan-of-care defined by the daytime team. The hypothesis is that different providers can offer a new perspective on the case and balance physicians' anchoring bias in decision-making process. It is not completely clear, though, how cross coverage could influence patient's outcomes, but a balanced “second look” may actually benefit patients.

Conclusion

Independent of your decision on extubating patient “A” or discharging patient “B,” we believe night shifts are an important part

of the daily life of the majority of intensivists, particularly residents and fellows. Night shifts are also an opportunity to learn and develop autonomy during the training period. There is no easy solution and likely correct answer to these nighttime decisions, but being aware of the caveats and challenges involved and knowing the standard operating procedures in place in the unit you are working on, are a good start to improve decisions, share responsibilities and decrease the personal concerns during nightshifts.

Conflict of Interest

None to declare. ■

Key Points

- A night shift in the ICU can be challenging, particularly from a resident/fellow perspective.
- Night shifts usually have less resources, less in-house specialist consultants, few and often less experienced staff, and frequently less supervision from seniors and consultants.
- Decision to extubate at night may depend on specific patient characteristics, staff availability and expertise and might not be advisable in all patients.
- Nighttime ICU discharge has been associated with worse outcomes, possibly leading to higher readmission rates and excess hospital mortality.
- End-of-life care decisions during nightshifts is a place for further research.
- Night shifts are an important part of the daily life of the majority of intensivists, residents and fellows and provide an opportunity to learn and develop autonomy during the training period.

References

- Cook DJ, Guyatt GH, Jaeschke R, Reeve J, Spanier A, King D et al. (1995) Determinants in Canadian health care workers of the decision to withdraw life support from the critically ill. Canadian Critical Care Trials Group. *JAMA*, 273(9):703-8.
- Chrusch CA, Olafson KP, McMillan PM, Roberts DE, Gray PR (2009) High occupancy increases the risk of early death or readmission after transfer from intensive care. *Crit Care Med*, 37(10):2753-8.
- Gershengorn HB, Scales DC, Kramer A, Wunsch H (2016) Association Between Overnight Extubations and Outcomes in the Intensive Care Unit. *JAMA Intern Med*, 176(11):1651-60.
- Kajdacsy-Balla Amaral AC, Barros BS, Barros CC, Innes C, Pinto R, Rubinfeld GD (2014) Nighttime cross-coverage is associated with decreased intensive care unit mortality. A single-center study. *Am J Respir Crit Care Med*, 189(11):1395-401.
- Maltese F, Adda M, Bablon A, Hraeich S, Guervilly C, Lehingue S et al. (2016) Night shift decreases cognitive performance of ICU physicians. *Intensive Care Med*, 42(3):393-400.
- For full references, please email editorial@icu-management.org or visit <https://iii.hm/128m>



WORLD SEPSIS DAY – SEPTEMBER 13TH

BE PART OF THE GLOBAL MOVEMENT – JOIN AT WORLDSEPSISDAY.ORG