

Prolonged mechanical ventilation in Swedish intensive care units

Prevalence, patient characteristics, weaning and challenges in care

Akademisk avhandling

Som för avläggande av filosofie doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i hörsal Arvid Carlsson, Academicum, Medicinaregatan 3, Göteborg, den 21 maj, klockan 13.00

av Carl-Johan Cederwall

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Avhandlingen baseras på följande delarbeten

- I. Cederwall, C. J., Naredi, S., Olausson, S., Rose, L., & Ringdal, M. (2021). Prevalence and Intensive Care Bed Use in Subjects on Prolonged Mechanical Ventilation in Swedish ICUs. *Respiratory Care*, 66(2), 300–306. <https://doi.org/10.4187/respcare.08117>
- II. Cederwall, C. J., Rose, L., Naredi, S., Olausson, S., & Ringdal, M. Care practices and protocols for patients requiring mechanical ventilation more than seven days in Swedish ICUs: a national survey. *In manuscript*.
- III. Cederwall, C. J., Plos, K., Rose, L., Dubeck, A., & Ringdal, M. (2014). Critical care nurses management of prolonged weaning: an interview study. *Nursing in Critical Care*, 19(5), 236–242. <https://doi.org/10.1111/nicc.12092>
- IV. Cederwall, C. J., Olausson, S., Rose, L., Naredi, S., & Ringdal, M. (2018). Person-centred care during prolonged weaning from mechanical ventilation, nurses' views: an interview study. *Intensive and Critical Care Nursing*, 46, 32–37. <https://doi.org/10.1016/j.iccn.2017.11.004>

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Abstract

The overall aim of this thesis was to explore the care of adult patients on prolonged mechanical ventilation (PMV) in Swedish intensive care units (ICUs). Secondary aims were to identify the prevalence, characteristics and outcome in patients with PMV and the presence of person-centred care (PCC) during prolonged weaning in Swedish ICUs.

Study I. Registry study identifying adult admissions to Swedish ICUs requiring mechanical ventilation ≥ 7 days. Admissions on PMV > 21 days constituted a small proportion of all admissions but occupied a significant part of ICU capacity. Use of ICU bed days and ICU mortality was lower compared to international studies.

Study II. Survey of adult Swedish ICUs ($n = 77$) identifying care practices and protocols for adult patients undergoing mechanical ventilation > 7 days. Results showed low levels of weaning and mobilisation protocols, individualised approaches were preferred and interprofessional decisions were common. Few ICUs promoted primary nursing models or PCC approaches.

Study III. Qualitative interview study exploring critical care nurses' approach for management of patients during prolonged weaning from mechanical ventilation. Results showed that critical care nurses played a key role in prioritising, initiating and driving the weaning process.

Study IV. Secondary analysis of qualitative interviews identifying the presence of PCC during prolonged weaning from mechanical ventilation. Results showed evidence of PCC undertaken during prolonged weaning, but also barriers such as a lack of team collaboration and staff resources.

In conclusion, patients on PMV in Swedish ICUs comprised a relatively small proportion of ICU admissions but consumed a significant part of ICU capacity. Individualised approaches were preferred, and interprofessional collaboration was common. ICUs showed low level of care practices based on PCC, but PCC was present during prolonged weaning. Critical care nurses in the ICU played a key role in individualising care and increasing patient participation during prolonged weaning.

Keywords: Intensive care; mechanical ventilation; prolonged mechanical ventilation; ventilator weaning; nursing; person-centred care.