

DESIGNING TOMORROW'S CRITICAL CARE: A HOLISTIC FRAMEWORK FOR ADAPTIVE INTENSIVE CARE UNIT ENVIRONMENTS

Vininder K Bains RN MSN CNCC(C)
Clinical Nurse Specialist – Critical Care
Email: vbains@providencehealth.bc.ca

Lena Farina RRT MN CVAA(C), VA-BC™
Senior Manager – Critical Care
Email: lfarina@providencehealth.bc.ca

Presented at the Canadian Critical Care Nursing Conference
in Regina SK on Sept. 23-25, 2024

References

- Accreditation Canada. (2019). Qmentum Standards: Critical Care Services for Surveys Starting After January 1, 2019. In *Critical Care Services: Accreditation Canada*.
- Bartos, D. C. (2015). *Caution: Line-of-Sight in ICU Design* (Publication Number Paper 64) University of San Francisco]. San Francisco.
<http://repository.usfca.edu/cgi/viewcontent.cgi?article=1075&context=dnp>
- Cadenhead, C. D. (2017, Aug 23, 2017). *Critical Care Design - Design Competition Winners and Future Trends*. Salus Global. <https://www.salus.global/article-show/critical-care-design-design-competition-winners-and-future-trends>
- de Matos, L. B. N., Fumis, R. R. L., Nassar Junior, A. P., Lacerda, F. H., & Caruso, P. (2020). Single-bed or multibed room designs influence icu staff stress and family satisfaction, but do not influence icu staff burnout. *Herd*, 13(2), 234-242. <https://doi.org/10.1177/1937586719878445>
- Esper, A. M., Arabi, Y. M., Cecconi, M., Du, B., Giamarellou-Bourboulis, E. J., Juffermans, N., Machado, F., Peake, S., Phua, J., Rowan, K., Suh, G. Y., & Martin, G. S. (2022). Systematized and efficient: organization of critical care in the future. *Crit Care*, 26(1), 366. <https://doi.org/10.1186/s13054-022-04244-1>
- Fay, L., Carll-White, A., Schadler, A., Isaacs, K. B., & Real, K. (2017). Shifting Landscapes: The Impact of Centralized and Decentralized Nursing Station Models on the Efficiency of Care. *Herd*, 10(5), 80-94. <https://doi.org/10.1177/1937586717698812>
- Gharaveis, A., Hamilton, D. K., & Pati, D. (2018). The Impact of Environmental Design on Teamwork and Communication in Healthcare Facilities: A Systematic Literature Review. *Herd*, 11(1), 119-137. <https://doi.org/10.1177/1937586717730333>
- Halpern, N. A., & Anderson, D. C. (2020). Keeping a 2009 Design Award-Winning Intensive Care Unit Current: A 13-Year Case Study. *Herd*, 13(4), 190-209. <https://doi.org/10.1177/1937586720918225>

- Halpern, N. A., Scruth, E., Rausen, M., & Anderson, D. (2023). Four Decades of Intensive Care Unit Design Evolution and Thoughts for the Future. *Crit Care Clin*, 39(3), 577-602. <https://doi.org/10.1016/j.ccc.2023.01.008>
- Hofmaenner, D. A., Herling, A., Klinzing, S., Wegner, S., Lohmeyer, Q., Schuepbach, R. A., & Buehler, P. K. (2021). Use of eye tracking in analyzing distribution of visual attention among critical care nurses in daily professional life: an observational study. *J Clin Monit Comput*, 35(6), 1511-1518. <https://doi.org/10.1007/s10877-020-00628-2>
- Kim, C. M., der Heide, E. M. v., van Rompay, T. J. L., & Ludden, G. D. S. (2024). Reimagine the ICU: Healthcare Professionals' Perspectives on How Environments (Can) Promote Patient Well-Being. *HERD: Health Environments Research & Design Journal*, 17(2), 97-114. <https://doi.org/10.1177/19375867231219029>
- Lamb, M. D. (2021). Health Inequity by Design: Waiting Rooms and Patient Stress [Original Research]. *Frontiers in Communication*, 6. <https://doi.org/10.3389/fcomm.2021.667381>
- Loveday, C., Lord, H., Ellwood, L., Bonnici, K., Decker, V., & Fernandez, R. (2021). Teamwork and social cohesion are key: Nurses' perceptions and experiences of working in a new decentralised intensive care unit. *Aust Crit Care*, 34(3), 263-268. <https://doi.org/10.1016/j.aucc.2020.07.009>
- Ma, J. (2024, Aug. 28, 2024). 'Topped Out' - New St. Paul's Hospital Marks Major Milestone. *The Daily Scan*. <https://thedailyscan.providencehealthcare.org/2024/08/topped-out-new-st-pauls-hospital-marks-major-milestone/>
- Obeidat, B., Younis, M. B., Al-Shloul, E., & Alzouby, A. (2022). A Study of Workspace Design Characteristics Exemplified by Nurses' Satisfaction Within Three Intensive Care Units in a University Hospital. *Herd*, 15(2), 63-78. <https://doi.org/10.1177/19375867211055731>
- Providence Healthcare. (2024). *New St. Paul's Hospital*. <https://www.providencehealthcare.org/en/future-sites-projects/new-st-pauls-hospital>
- Society for Critical Care Medicine. (2019). *Award Winning ICU Design 2019*. Society for Critical Care Medicine.
- Spies, C., Piazena, H., Deja, M., Wernecke, K. D., Willemeit, T., & Luetz, A. (2024). Modification in ICU Design May Affect Delirium and Circadian Melatonin: A Proof of Concept Pilot Study. *Crit Care Med*, 52(4), e182-e192. <https://doi.org/10.1097/ccm.0000000000006152>
- Thompson, D. R., Hamilton, D. K., Cadenhead, C. D., Swoboda, S. M., Schwindel, S. M., Anderson, D. C., Schmitz, E. V., St. Andre, A. C., Axon, D. C., Harrell, J. W., Harvey, M. A., Howard, A., Kaufman, D. C., & Petersen, C. (2012). Guidelines for intensive care unit design*. *Critical Care Medicine*, 40(5). <https://doi.org/10.1097/ccm.0b013e3182413bb2>
- Tronstad, O., Flaws, D., Patterson, S., Holdsworth, R., & Fraser, J. F. (2023). Creating the ICU of the future: patient-centred design to optimise recovery. *Critical Care*, 27(1), 402-415. <https://doi.org/10.1186/s13054-023-04685-2>
- van Heel, L., Pretelt, M., Herweijer, M., & van Oel, C. (2024). Perspectives on Assessing the Flexibility of Hospitals for Crisis Mode Operations: Lessons From the COVID-19 Pandemic in the Netherlands. *HERD: Health Environments Research & Design Journal*, 17(1), 34-48. <https://doi.org/10.1177/19375867231201633>
- Verderber, S., Gray, S., Suresh-Kumar, S., Kercz, D., & Parshuram, C. (2021). Intensive Care Unit Built Environments: A Comprehensive Literature Review (2005–2020). *HERD: Health Environments Research & Design Journal*, 14(4), 368-415. <https://doi.org/10.1177/19375867211009273>