



RESEARCH IN A SNAP

OVERVIEW

We're keeping you updated on citations added to The Center's Knowledge Repository.

The Knowledge Repository is a collaborative effort between The Center for Health Design and our partners

Academy of
Architecture for Health
an AIA Knowledge Community



Additional key point summaries provided by



RESEARCH DESIGN
CONNECTIONS

Knowledge Repository News

Among the 39 new entries in the Knowledge Repository, several papers focus on infection control and prevention, and specifically, ventilation strategies. A review of the literature by Inkster and colleagues looks at the history of ventilation in ICUs and explores problems related to transmission of infection. A study by Alghamdi and colleagues and a study by Alkhalaf and colleagues both compare the impact of different ventilation settings on air quality. And a modeling study by Tan and colleagues looks at how ventilation strategies in an isolation ward may reduce infection. See the citations listed in the "Infection Prevention/Control" category below.

(Papers published ahead of print "in press" will be updated as volume and page information becomes available.)

January - February 2023

Experience

Perceived Quality of Care (Noise, Communication, Waiting, etc.)

1. Dalirnaghadeh, D., & Yilmazer, S. (2023). The effect of loudness on spatial knowledge acquisition in a virtual outpatient polyclinic. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, 265(1), 6128–6137. https://doi.org/10.3397/IN_2022_0913
2. Deng, Z., Xie, H., & Kang, J. (2023). The acoustic environment in typical hospital wards in China. *Applied Acoustics*, 203. <https://doi.org/10.1016/j.apacoust.2022.109202>
3. Devlin, A. S., Hetzel, C., & Rathgeber, M. (2023). Does perceived control matter in the outpatient waiting room? *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221143104>
4. Miller, E. M., Porter, J. E., & Barbagallo, M. S. (2023). Patient and family members' experiences with language and environment when receiving bad news: A qualitative exploratory study. *Palliative and Supportive Care*, in press. <https://doi.org/10.1017/S1478951522001845>
5. Quan, X. (2023). Improving ambulatory surgery environments: The effects on patient preoperative anxiety, perception, and noise. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221149990>
6. Rasmussen, B., Carrascal, T., & Secchi, S. (2023). A comparative study of acoustic regulations for hospital bedrooms in selected countries in Europe. *Buildings*, 13(3), 578. <https://doi.org/10.3390/buildings13030578>



7. Ruetters, N., Naef, A. C., Rossier, M., Knobel, S. E. J., Jeitziner, M.-M., Holtforth, M. G., Zante, B., Schefold, J. C., Nef, T., & Gerber, S. M. (2022). Perceived sounds and their reported level of disturbance in intensive care units: A multinational survey among healthcare professionals. *PLOS ONE*, *17*(12).
<https://doi.org/10.1371/journal.pone.0279603>

Supportive Design (Social Support, Distractions, Nature, etc.)

8. Bosch, S. J., Valipoor, S., Alakshendra, A., De Portu, G., Mohammadigorji, S., Rittenbacher, D., Black, K., & Calienes, E. (2023). Coping and caregiving: Leveraging environmental design to moderate stress among healthcare workers in the emergency department setting. *HERD: Health Environments Research & Design Journal*. <https://doi.org/10.1177/19375867231151243>
9. Richards, K., & McLaughlan, R. (2023). Beyond homeliness: A photo-elicitation study of the 'homely' design paradigm in care settings. *Health & Place*, *79*, 102973. <https://doi.org/10.1016/j.healthplace.2023.102973>
10. Rossi, A., Heyman, N. B., Rossi, M. O., Wolf, S., & White, T. (2023). Exploring the association between the healthcare design elements and physician well-being: A scoping review. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867231151687>
11. Sabir, B. M., & Mustafa, F. A. (2023). Performance-based building design: Impact of emergency department layout on its functional performance efficiency - the case of Erbil hospitals. *Open House International*, in press. <https://doi.org/10.1108/OHI-10-2022-0269>

Safety

Infection Prevention/Control

12. Aillón-García, P., Parga-Landa, B., & Guillén-Grima, F. (2023). Effectiveness of copper as a preventive tool in healthcare facilities. A systematic review. *American Journal of Infection Control*, in press. <https://doi.org/10.1016/j.ajic.2023.02.010>
13. Alghamdi, W., Neamatallah, A. A., Alshamrani, M. M., Mehmadi, F. A., & El-Saed, A. (2023). Distribution and the trend of airborne particles and bio-aerosol concentration in pediatric intensive care units with different ventilation setting at two hospitals in Riyadh, Saudi Arabia. *Journal of Infection and Public Health*, *16*(4), 588–595. <https://doi.org/10.1016/j.jiph.2023.02.015>
14. Alkhalaf, M., Ilinca, A., & Hayyani, M. Y. (2023). CFD investigation of ventilation strategies to remove contaminants from a hospital room. *Designs*, *7*(1), 5. <https://doi.org/10.3390/designs7010005>
15. Inkster, T., Weinbren, M., & Walker, J. (2023). Factors to consider in the safe design of intensive care units – Part 1: Historical aspects and ventilation systems. *Journal of Infection Prevention*, in press. <https://doi.org/10.1177/17571774231152724>
16. Jansen, S. J., Müller, B. J., Cramer, S. J. E., te Pas, A. B., Lopriore, E., & Bekker, V. (2023). Developing a design-based concept to improve hand hygiene in the neonatal intensive care unit. *Pediatric Research*, in press. <https://doi.org/10.1038/s41390-023-02482-9>



17. Núñez, A., & García, A. M. (2023). The aerobiome in a hospital environment: Characterization, seasonal tendencies and the effect of window opening ventilation. *Building and Environment*, 230, 110024. <https://doi.org/10.1016/j.buildenv.2023.110024>
18. Sal Moslehian, A., Roös, P. B., Gaekwad, J. S., & Van Galen, L. (2023). Potential risks and beneficial impacts of using indoor plants in the biophilic design of healthcare facilities: A scoping review. *Building and Environment*, 233. <https://doi.org/10.1016/j.buildenv.2023.110057>
19. Tan, H., Wong, K. Y., Othman, M. H. D., Kek, H. Y., Nyakuma, B. B., Ho, W. S., Hashim, H., Wahab, R. A., Sheng, D. D. C., Wahab, N. H. A., & Yatim, A. S. (2023). Why do ventilation strategies matter in controlling infectious airborne particles? A comprehensive numerical analysis in isolation ward. *Building and Environment*, 231, 110048. <https://doi.org/10.1016/j.buildenv.2023.110048>
20. van der Schoor, A. S., Severin, J. A., Klaassen, C. H. W., Gommers, D., Bruno, M. J., Hendriks, J. M., Voor in 't holt, A. F., & Vos, M. C. (2023). Environmental contamination with highly resistant microorganisms after relocating to a new hospital building with 100% single-occupancy rooms: A prospective observational before-and-after study with a three-year follow-up. *International Journal of Hygiene and Environmental Health*, 248. <https://doi.org/10.1016/j.ijheh.2022.114106>
21. Walker, J., Inkster, T., & Weinbren, M. (2023). Aspects and problems associated with the water services to be considered in intensive care units. *Journal of Infection Prevention*, in press. <https://doi.org/10.1177/17571774231152716>
22. Weinbren, M., Inkster, T., & Walker, J. (2023). Implementing changes to reduce infections in ICU patients. Water services and waste systems. *Journal of Infection Prevention*, 24(2), 65–70. <https://doi.org/10.1177/17571774231152715>

COVID-19 Response

23. Bae, S. (2023). A qualitative study of hospital interior environments during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 20(4), Article 4. <https://doi.org/10.3390/ijerph20043271>
24. Cai, H., Garcia, A., Polivka, B., Spreckelmeyer, K., & Yang, F. M. (2023). Visibility and accessibility of hand hygiene stations and fatigue among nurses working in long-term care (LTC) during the COVID-19 pandemic. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221149126>
25. Scanlon, M., Taylor, E., & Waltz, K. (2023). Evaluating efficacy of a COVID-19 alternative care site preparedness assessment tool for catastrophic healthcare surge capacity during pandemic response. *Healthcare*, 11(3), 324. <https://doi.org/10.3390/healthcare11030324>
26. Ziabari, S. M. Z., Andalib, E., Faghani, M., Roodsari, N. N., Arzhanghi, N., Khesht-Masjedi, M. F., & Leyli, E. K. (2023). Evidence-based design in the hospital environment: A staff's burnout study in the COVID-19 era. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221148168>



Care across the Lifespan

Pediatric

27. Gripko, M., Joseph, A., & MohammadiGorji, S. (2023). Effects of the physical environment on children and families in hospital-based emergency departments: A systematic literature review. *Journal of Environmental Psychology, 86*, 101970. <https://doi.org/10.1016/j.jenvp.2023.101970>

Labor & Delivery

28. Bellini, E., Macchi, A., Setola, N., & Lindahl, G. (2023). Sensory design in the birth environment: Learning from existing case studies. *Buildings, 13*(3), 604. <https://doi.org/10.3390/buildings13030604>

Elders/Aging

29. Fleetwood-Smith, R., Tischler, V., & Robson, D. (2022). Aesthetics and dementia: Exploring the role of everyday aesthetics in dementia care settings. *Design for Health, 6*(1), 91–113. <https://doi.org/10.1080/24735132.2022.2074207>
30. Xie, M., & Deng, Z. (2023). Sound environment of bedrooms in typical long-term care facilities in China. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings, 265*(6), 1554–1561. https://doi.org/10.3397/IN_2022_0214

Cognitive Impairment & Dementia

31. Prince, D. M., Fogarty, K. J., VanGeest, J. B., & Eberth, S. D. (2022). Using an accessible room multisensory stimulation environment to reduce dementia associated behaviors. *Journal of Long-Term Care, 289*–297. <https://doi.org/10.31389/jltc.151>

Building Systems & Technology

32. Psillaki, M., Apostolopoulos, N., Makris, I., Liargovas, P., Apostolopoulos, S., Dimitrakopoulos, P., & Sklias, G. (2023). Hospitals' energy efficiency in the perspective of saving resources and providing quality services through technological options: A systematic literature review. *Energies, 16*(2), Article 2. <https://doi.org/10.3390/en16020755>

Design & Evaluation (e.g., Process, Methods, Simulation Modeling)

33. Jia, Z., Nourian, P., Luscuere, P., & Wagenaar, C. (2023). Spatial decision support systems for hospital layout design: A review. *Journal of Building Engineering, 67*, 106042. <https://doi.org/10.1016/j.jobe.2023.106042>
34. Memari, S., Kocaturk, T., Lozanovska, M., Andrews, F., & Tucker, R. (2023). Future proofing for hospital building design: From research to practice. *Architectural Engineering and Design Management*. <https://doi.org/10.1080/17452007.2022.2162842>



35. Rad, P. N., Behzadi, F., Yazdanfar, S. A., Ghamari, H., Zabehe, E., & Lashgari, R. (2023). Exploring methodological approaches of experimental studies in the field of neuroarchitecture: A systematic review. *HERD: Health Environments Research & Design Journal*, in press.
<https://doi.org/10.1177/19375867221133135>
36. Rebecchi, A., Brambilla, A., Botta, M., Casino, A., Basta, S., & Capolongo, S. (2023). Therapeutic architecture. Assessment tools and design strategies for healing gardens implementation. In S. Capolongo, M. Botta, & A. Rebecchi (Eds.), *Therapeutic Landscape Design: Methods, Design Strategies and New Scientific Approaches* (pp. 47–56). Springer International Publishing.
https://doi.org/10.1007/978-3-031-09439-2_5
37. Teran-Somohano, A., & Smith, A. E. (2018). A Space Syntax Analysis of the Relationship between Function and Form in Facility Layout. *15th IMHRC Proceedings*, 8.
38. Timothy, I. O., Uwajeh, P. C., & Bamisaye, A. (2022). The Nigerian healthcare facilities: Need for adopting evidence-based design as an innovative approach for improved health and wellbeing. In A. D. Mambo, A. Gueye, & G. Bassioni (Eds.), *Innovations and Interdisciplinary Solutions for Underserved Areas* (pp. 49–65). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-23116-2_4
39. Yilmazer, S., & Uğurlu, Z. (2023). A qualitative approach to explore audio-visual interaction in a hospital environment. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, 265(6), 1451–1458.
https://doi.org/10.3397/IN_2022_0199