



# 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 36 new entries in the Knowledge Repository, several papers focus on design and evaluation. From simulation methods to process-led approaches like lean and human factors, researchers are exploring creative ways to better understand both how to design for health, and how design affects health outcomes. A paper by Chbaly and Brunet outlines the development of a framework providing a process for using Lean during the early stages of hospital design. Fuselli and colleagues bring together a human factors approach with simulation technology in order to conduct commissioning of new clinical spaces while focusing on safety and risk assessment. Vatsa and colleagues, including our own Vice President for Research, Ellen Taylor, used virtual reality to explore the impact of elements in a patient room on safe patient ambulation. See these citations and more evaluation methods listed in the Design & Evaluation category below.

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

## January - February 2022

### COVID-19

1. Campos, A. T., dos Santos, C. H., Gabriel, G. T., & Montevechi, J. A. B. (2022). Safety assessment for temporary hospitals during the COVID-19 pandemic: A simulation approach. *Safety Science*, 147. <https://doi.org/10.1016/j.ssci.2021.105642>
2. McCulloch, H., Campbell-Yeo, M., Richardson, B., Dol, J., Hundert, A., Dorling, J., Whitehead, L., MacRae, G., Bishop, T., Afifi, J., Earle, R., Rose, A. E., Foye, S., Inglis, D., Kim, T., Leighton, C., Melanson, A., Simpson, D. C., & Smit, M. (2021). The impact of restrictive family presence policies in response to COVID-19 on family integrated care in the NICU: A qualitative study. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211065178>
3. Łukasik, M., & Porębska, A. (2022). Responsiveness and adaptability of healthcare facilities in emergency scenarios: COVID-19 experience. *International Journal of Environmental Research and Public Health*, 19(2), 675. <https://doi.org/10.3390/ijerph19020675>



## Experience

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

4. Dawson, D., Barham, R., Hamilton, M., & Philips, B. (2022). Sound in Time: An observational study to identify the sources of sound and their relative contribution to the sound environment of an intensive care unit. *Applied Acoustics*, 188. <https://doi.org/10.1016/j.apacoust.2021.108485>
5. Lai, J. C.-Y., & Amaladoss, N. (2021). Music in waiting rooms: A literature review. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211067542>
6. Penry Williams, C., Elliott, K., Gall, J., & Woodward-Kron, R. (2019). Patient and clinician engagement with health information in the primary care waiting room: A mixed methods case study. *Journal of Public Health Research*, 8(1), 1476. <https://doi.org/10.4081/jphr.2019.1476>
7. Sanders, R., & Lehmann, J. (2018). An exploratory study of clients' experiences and preferences for counselling room space and design. *Counselling and Psychotherapy Research*, 19, 57–65. <https://doi.org/10.1002/capr.12202>
8. Stigall-Weikle, N., Evans, K. D., & Patterson, E. S. (2022). Cognitive distractions during sonographic procedures: Reducing noise-based and light-based interruptions in hospital rooms. *Journal of Diagnostic Medical Sonography*, 38(2), 184–191. <https://doi.org/10.1177/87564793211064890>

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

9. Amato, C., McCanne, L., Yang, C., Ostler, D., Ratib, O., Wilhelm, D., & Bernhard, L. (2021). The hospital of the future: Rethinking architectural design to enable new patient-centered treatment concepts. *International Journal of Computer Assisted Radiology and Surgery*. <https://doi.org/10.1007/s11548-021-02540-9>
10. Bingham, E., Whitaker, D., Farnsworth, C., & Smith, J. (2022). Evidence-based design in hospital renovation projects: Design implementation for patient privacy and comfort. *Journal of Architectural Engineering*, 28(2). [https://doi.org/10.1061/\(ASCE\)AE.1943-5568.0000530](https://doi.org/10.1061/(ASCE)AE.1943-5568.0000530)
11. Du, Z., Lin, B., & Chen, Z. (2022). Psychological impact of the hospital indoor public spaces on patients' health, assessment, and analysis. *Scientific Programming*. <https://doi.org/10.1155/2022/4010643>
12. Jiang, S., Allison, D., & Duchowski, A. T. (2022). Hospital greenspaces and the impacts on wayfinding and spatial experience: An explorative experiment through immersive virtual environment (IVE) techniques. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211067539>
13. Lakhani, A., Waters, D., & Dema, S. (2022). Evaluating an inpatient created art installation on perceptions of the physical environment, health status, and rehabilitation motivation. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211069297>



14. McLaughlan, R., Richards, K., Lipson-Smith, R., Collins, A., & Philip, J. (2022). Designing palliative care facilities to better support patient and family care: A staff perspective. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211059078>
15. Obeidat, B., Younis, M. B., & Al-Shloul, E. (2022). Investigations into the impact of nursing unit layout on critical care nurses. *Heliyon*, 8(2). <https://doi.org/10.1016/j.heliyon.2022.e08929>
16. Simonsen, T., Sturge, J., & Duff, C. (2022). Healing architecture in healthcare: A scoping review. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211072513>
17. Willems, S., Saelens, D., & Heylighen, A. (2021). Patient well-being, adaptation of and to indoor conditions, and hospital room design: Two mixed methods case studies. *Building Research & Information*, in press. <https://doi.org/10.1080/09613218.2021.2004386>

## Safety

### Infection Prevention/Control

18. Fonseca, A., Abreu, I., Guerreiro, M. J., & Barros, N. (2022). Indoor air quality in healthcare Units—A systematic literature review focusing recent research. *Sustainability*, 14(2), 967. <https://doi.org/10.3390/su14020967>
19. Rostami, N., Alidadi, H., Zarrinfar, H., Ketabi, D., & Tabesh, H. (2021). Interventional effect of nanosilver paint on fungal load of indoor air in a hospital ward. *Canadian Journal of Infectious Diseases and Medical Microbiology*. <https://doi.org/10.1155/2021/8658600>

### Falls

## Care across the Lifespan

### Therapeutic Environments: Behavioral/Mental Health

20. Kim, A. K., Vakkalanka, J. P., Van Heukelom, P., Tate, J., & Lee, S. (2022). Emergency psychiatric assessment, treatment, and healing (EmPATH) unit decreases hospital admission for patients presenting with suicidal ideation in rural America. *Academic Emergency Medicine*, in press. <https://doi.org/10.1111/acem.14374>
21. Stogiannos, N., Carlier, S., Harvey-Lloyd, J. M., Brammer, A., Nugent, B., Cleaver, K., McNulty, J. P., dos Reis, C. S., & Malamateniou, C. (2021). A systematic review of person-centred adjustments to facilitate magnetic resonance imaging for autistic patients without the use of sedation or anaesthesia. *Autism*. <https://doi.org/10.1177/13623613211065542>

### Pediatric

22. da Rosa, V. M., Brust-Renck, P. G., & Tonetto, L. M. (2021). Designing hospital environments to improve the psychological wellbeing of pediatric patients. *Children, Youth and Environments*, 31(3), 98–115. <https://doi.org/10.7721/chilyoutenvi.31.3.0098>



### Labor & Delivery

23. Blair, A., Cao, J., Wilson, A., & Homer, C. (2022). Access to, and experiences of, maternity care for women with physical disabilities: A scoping review. *Midwifery*, *107*. <https://doi.org/10.1016/j.midw.2022.103273>

### Elders/Aging

24. Chun, S., & Nam, K. (2022). Analyzation and prioritization of healthcare environment criteria for designing geriatric long-term care private hospitals in South Korea using an analytic hierarchy process. *Architectural Engineering and Design Management*, in press. <https://doi.org/10.1080/17452007.2021.2016364>

25. Longstaff, W., Filkowski, J., & Severn, M. (2022). The small house model to support older adults in long-term care. *Canadian Journal of Health Technologies*, *2*(1), 1–22. <https://doi.org/10.51731/cjht.2022.245>

### Cognitive Impairment & Dementia

26. Brennan, S., & Doan, T. (2022). Small-scale living environments' impact on positive behaviors and quality of life for residents with dementia. *Journal of Aging and Environment*, 1–21. <https://doi.org/10.1080/26892618.2022.2030845>
27. Motealleh, P., Moyle, W., Jones, C., & Dupre, K. (2021). The impact of a dementia-friendly garden design on people with dementia in a residential aged care facility: A case study. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211063489>

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

28. Chbaly, H., & Brunet, M. (2022). Enhancing healthcare project definition with lean-led design. *Sustainability*, *14*(3). <https://doi.org/10.3390/su14031588>
29. Cubukcuoglu, C., Nourian, P., Sariyildiz, I. S., & Tasgetiren, M. F. (2022). Optimal design of new hospitals: A computational workflow for stacking, zoning, and routing. *Automation in Construction*, *134*. <https://doi.org/10.1016/j.autcon.2021.104102>
30. Dalirnaghadeh, D., & Yilmazer, S. (2022). The effect of sound environment on spatial knowledge acquisition in a virtual outpatient polyclinic. *Applied Ergonomics*, *100*. <https://doi.org/10.1016/j.apergo.2021.103672>
31. Fuselli, T., Raven, A., Milloy, S., Barnes, S., Dubé, M., & Kaba, A. (2021). Commissioning clinical spaces during a pandemic: Merging methodologies of human factors and simulation. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211066933>
32. Jausovec, M., Korpnik, N., Gabrovec, B., & Klemencic, V. S. (2021). Siting of healthcare care facilities based on the purpose of their operation, demographic changes, environmental characteristics, and the impact on public health. *Applied Sciences*, *12*(1), 379. <https://doi.org/10.3390/app12010379>



33. Naji Al Smadi, A., Ariff, T. M., & Abugabah, A. (2022). Development of a new job satisfaction scale for healthcare staff in emergency departments. *British Journal of Healthcare Management*, 28(2), 1–8.  
<https://doi.org/10.12968/bjhc.2020.0147>
34. Stamy, C., Shane, D. M., Kannedy, L., Van Heukelom, P., Mohr, N. M., Tate, J., Montross, K., & Lee, S. (2021). Economic evaluation of the emergency department after implementation of an emergency psychiatric assessment, treatment, and healing unit. *Academic Emergency Medicine*, 28(1), 82–91.  
<https://doi.org/10.1111/acem.14118>
35. Vatsa, S., Taylor, D., Chaeibakhsh, S., Butter, D., Novin, R. S., Taylor, E., Foreman, K. B., Wong, B., & Merryweather, A. (2021). Using virtual reality to inform fall risk prevention in patient rooms. *Proceedings of the 33rd Annual International Occupational Ergonomics and Safety Conference*, 98–103.  
[https://doi.org/10.47461/isoes.2021\\_098](https://doi.org/10.47461/isoes.2021_098)

### Other

36. Memari, S., Kocaturk, T., Lozanovska, M., Andrews, F., & Tucker, R. (2022). The interdisciplinary conceptualization of future proofing in the context of hospital buildings. *Building Research & Information*, in press.  
<https://doi.org/10.1080/09613218.2021.2011704>