



# 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 45 new entries in the Knowledge Repository, several papers focus on pediatric environments. A paper by Cardoso and colleagues looks at how Florence Nightingale's Environmental Theory applies to a Pediatric ICU, and the important balance between patient-centered design objectives and infection control design strategies. An article by Przesmycka and Stronjny provides an overview of architectural design across ten European pediatric hospitals, providing general insight around common features that may support the needs of pediatric patients. In a study by Rubio and colleagues, researchers asked children to design their ideal hospital using Lego! The children chose to include several elements shown in previous literature to be therapeutic or positive distractions, such as gardens, good views, and TVs. You can find these citations listed in the "Care Across the Lifespan: Pediatric" and "Design & Evaluation" categories below.

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

July - August 2021

### COVID-19

1. França, A. J. G. L., & Ornstein, S. W. (2021). The role of the built environment in updating design requirements in the post-pandemic scenario: A case study of selected diagnostic facilities in Brazil. *Architectural Engineering and Design Management*, in press. <https://doi.org/10.1080/17452007.2021.1965949>
2. Gavalda-Mestre, L., Ramirez-Tarruella, D., Gutiérrez-Milla, C., Guillamet-Roig, F., Orriols-Ramos, R., Tisner, S. R., & Parraga-Niño, N. (2021). Nondetection of SARS-CoV-2 on high-touch surfaces of public areas next to COVID-19 hospitalization units. *American Journal of Infection Control*, 49(6), 840-842. <https://doi.org/10.1016/j.ajic.2021.01.007>
3. Giwangkencana, G., Rahmi, A., Indriasari, & Hidayat, N.-N. (2021). Managing surgical patients with a COVID-19 infection in the operating room: An experience from Indonesia. *Perioperative Care and Operating Room Management*, 24. <https://doi.org/10.1016/j.pcorm.2021.100198>
4. Horve, P. F., Dietz, L. G., Fretz, M., Constant, D. A., Wilkes, A., Townes, J. M., Martindale, R. G., Messer, W. B., & Wymelenberg, K. G. V. D. (2021). Identification of SARS-CoV-2 RNA in healthcare heating, ventilation, and air conditioning units. *Indoor Air*, in press. <https://doi.org/10.1111/ina.12898>



5. Nissen, K., Krambrich, J., Akaberi, D., Hoffman, T., Ling, J., Lundkvist, Å., Svensson, L., & Salaneck, E. (2020). Long-distance airborne dispersal of SARS-CoV-2 in COVID-19 wards. *Scientific Reports*, 10(1). <https://doi.org/10.1038/s41598-020-76442-2>
6. Oberst, M., Klar, T., & Heinrich, A. (2021). The effect of mobile indoor air cleaners on the risk of infection with SARS-CoV-2 in surgical examination and treatment rooms with limited ventilation options. *Austin Journal of Public Health and Epidemiology*, 8(1). <https://doi.org/10.26420/austinpublichealthepidemiol.2021.1094>
7. Olmsted, R. N. (2021). Reimagining construction and renovation of health care facilities during emergence from a pandemic. *Infectious Disease Clinics of North America*, 35(3), 697–716. <https://doi.org/10.1016/j.idc.2021.06.001>
8. Park, Y., Chung, H., & Park, S. (2021). Changes of walking activity during the first cycle phases of COVID-19 Pandemic: A case study of Seoul, Korea. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211026571>
9. Ransolin, N., Marczyk, C. E. S., Gering, R. P., Saurin, T. A., Formoso, C. T., & Grøtan, T. O. (2021). Built environment's influence on resilience of healthcare services: Lessons learnt from the Covid-19 pandemic. *Proc. 29th Annual Conference of the International Group for Lean Construction*, 613–622.
10. Ren, J., Wang, Y., Liu, Q., & Liu, Y. (2021). Numerical study of three ventilation strategies in a prefabricated COVID-19 inpatient ward. *Building and Environment*, 188. <https://doi.org/10.1016/j.buildenv.2020.107467>
11. Rest, K.-D., & Hirsch, P. (2021). Insights and decision support for home health care services in times of disasters. *Central European Journal of Operations Research*, in press. <https://doi.org/10.1007/s10100-021-00770-5>

## Experience

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

12. Bayramzadeh, S., Ahmadpour, S., & Aghaei, P. (2021). The relationship between sensory stimuli and the physical environment in complex healthcare settings: A systematic literature review. *Intensive and Critical Care Nursing*. <https://doi.org/10.1016/j.iccn.2021.103111>
13. Ferrante, T., & Villani, T. (2021). Environmental physical and perceived quality in hospice. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211028160>
14. Hurst, K. (2008). UK ward design: Patient dependency, nursing workload, staffing and quality—An observational study. *International Journal of Nursing Studies*, 45(3), 370–381. <https://doi.org/10.1016/j.ijnurstu.2006.09.007>



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

15. Al-Bqour, N., Rababeh, S., & Al-Rabady, R. (2021). The psychological supportive design features in hospitals: Case of a public Jordanian hospital in Amman. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211029560>
16. Bernhardt, J., Lipson-Smith, R., Davis, A., White, M., Zeeman, H., Pitt, N., Shannon, M., Crotty, M., Churilov, L., & Elf, M. (2021). EXPRESS: Why hospital design matters: A narrative review of built environments research relevant to stroke care. *International Journal of Stroke*, in press. <https://doi.org/10.1177/17474930211042485>
17. Chirumamilla, V., Gerard, J. M., Sweeney, A. E., Tully, K. P., Stuebe, A. M., & Patterson, E. S. (2021). Implications for the physical design of the postnatal care unit from a targeted analysis of issues with accessing the bathroom at night in the acute setting: A secondary analysis. *Proceedings of the International Symposium on Human Factors and Ergonomics in Health Care*, 10(1), 309–312. <https://doi.org/10.1177/2327857921101223>
18. Devlin, A. S., Anderson, A., Carlson, K., DiPalo, M., Hession-Kunz, S., & Zou, A. (2021). The display of medical information: Content, format, and subjective experience. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211028903>
19. Joseph, A., Joshi, R., Mihandoust, S., Goel, S., Hebbar, K., & Colman, N. (2021). Pediatric intensive care unit (PICU) patient room design: Identifying safety risks in mirrored rooms through a graphical systems analysis. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211032921>
20. Lipson-Smith, R., Pflaumer, L., Elf, M., Blaschke, S.-M., Davis, A., White, M., Zeeman, H., & Bernhardt, J. (2021). Built environments for inpatient stroke rehabilitation services and care: A systematic literature review. *BMJ Open*, 11(8). <https://doi.org/10.1136/bmjopen-2021-050247>
21. Miedema, E., Lindahl, G., & Elf, M. (2021). The Swedish Health Promoting Healthcare network and the built environment. *Health Promotion International*, daab101. <https://doi.org/10.1093/heapro/daab101>
22. Miller, E. M., Porter, J. E., & Barbagallo, M. S. (2021). The physical hospital environment and its effects on palliative patients and their families: A qualitative meta-synthesis. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211032931>
23. Pouyan, A. E., Ghanbaran, A., & Shakibamanesh, A. (2021). Impact of circulation complexity on hospital wayfinding behavior (Case study: Milad 1000-bed hospital, Tehran, Iran). *Journal of Building Engineering*, 44. <https://doi.org/10.1016/j.jobbe.2021.102931>

## Safety

24. Taylor, E., & Hignett, S. (2021). DEEP SCOPE: A Framework for Safe Healthcare Design. *International Journal of Environmental Research and Public Health*, 18(15), 7780. <https://doi.org/10.3390/ijerph18157780>



## Infection Prevention/Control

25. Li, H., Zhong, K., & Zhai, Z. (2020). Investigating the influences of ventilation on the fate of particles generated by patient and medical staff in operating room. *Building and Environment*, 180, 107038. <https://doi.org/10.1016/j.buildenv.2020.107038>
26. Liu, Z., Zhang, M., Cao, G., Tang, S., Liu, H., & Wang, L. (2021). Influence of air supply velocity and room temperature conditions on bioaerosols distribution in a class I operating room. *Building and Environment*, 204. <https://doi.org/10.1016/j.buildenv.2021.108116>
27. Wang, F., Chaerasari, C., Rakshit, D., Permana, I., & Kusnandar. (2021). Performance improvement of a negative-pressurized isolation room for infection control. *Healthcare*, 9(8). <https://doi.org/10.3390/healthcare9081081>

## Care across the Lifespan

### Therapeutic Environments: Behavioral/Mental Health

28. Al-Bqour, N., Rababeh, S., & Al-Rabady, R. (2021). The psychological supportive design features in hospitals: Case of a public Jordanian hospital in Amman. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867211029560>
29. Shepley, M. M., Peditto, K., Sachs, N. A., Pham, Y., Barankevich, R., Crouppen, G., & Dresser, K. (2021). Staff and resident perceptions of mental and behavioural health environments. *Building Research & Information*, in press. <https://doi.org/10.1080/09613218.2021.1963653>

### Pediatric

30. Cardoso, S. B., dos Santos Oliveira, I. C., de Souza, T. V., & do Carmo, S. A. (2021). Pediatric intensive care unit: Reflection in the light of Florence Nightingale's environmental theory. *Revista Brasileira de Enfermagem*, 74(5). <https://doi.org/10.1590/0034-7167-2020-1267>
31. Lamiani, G., Bonazza, F., Del Negro, S., & Meyer, E. C. (2021). The impact of visiting the Intensive Care Unit on children's and adolescents' psychological well-being: A systematic review. *Intensive and Critical Care Nursing*, 65. <https://doi.org/10.1016/j.iccn.2021.103036>
32. Przesmycka, N., & Strojny, R. (2021). Architectural solutions of contemporary pediatric hospitals – a study of selected projects. *Builder*, 284(3), 88–91. <https://doi.org/10.5604/01.3001.0014.7444>

### Elders/Aging

33. Magnussen, I.-L., Alteren, J., & Bondas, T. (2021). "Human Flourishing with Dignity": A meta-ethnography of the meaning of gardens for elderly in nursing homes and residential care settings. *Global Qualitative Nursing Research*, 8. <https://doi.org/10.1177/23333936211035743>



### *Aging in Place/Healthcare at Home*

34. Carnemolla, P., Debono, D., Hourihan, F., Hor, S., Robertson, H., & Travaglia, J. (2021). The influence of the built environment in enacting a household model of residential aged care for people living with a mental health condition: A qualitative post-occupancy evaluation. *Health & Place, 71*. <https://doi.org/10.1016/j.healthplace.2021.102624>
35. Ferrante, T., & Cellucci, C. (2021). Impact of aging: The new frontier of healthcare at home. In J. Kalra, N. J. Lightner, & R. Taiar (Eds.), *Advances in Human Factors and Ergonomics in Healthcare and Medical Devices* (pp. 485–492). Springer International Publishing. [https://doi.org/10.1007/978-3-030-80744-3\\_60](https://doi.org/10.1007/978-3-030-80744-3_60)
36. Ismail, A. S., Razak, F., & Faisal, W. N. M. (2021). Appraising a sense of community in designing senior housing for elderly quality of life. *Journal of Architecture, 11*(1), 24.

### **Building Systems & Technology**

37. Li, T., & Lu, Y. (2021). A review of hybrid mode of inpatient care and homecare design based on IoMT technology. *Prometheus, 5*, 1–4.

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

38. Alotaibi, B. S., Codinhoto, R., Albadra, D., & Lo, S. (2021). Combined multi-attribute inpatient thermal comfort requirements in hospitals: A designer's assessment method. *Journal of Building Engineering, 42*. <https://doi.org/10.1016/j.jobee.2021.103039>
39. Arnold, J. L., Bosch, S. J., & Valipoor, S. (2021). Exploring new hospital patient care spaces using simulation. In E. S. Deutsch, S. J. Perry, & H. G. Gurnaney (Eds.), *Comprehensive Healthcare Simulation: Improving Healthcare Systems* (pp. 107–115). Springer International Publishing. [https://doi.org/10.1007/978-3-030-72973-8\\_15](https://doi.org/10.1007/978-3-030-72973-8_15)
40. Baldauf, J. P., Formoso, C. T., & Tzortzopoulos, P. (2021). Method for managing requirements in healthcare projects using building information modelling. *Engineering, Construction and Architectural Management*, in press. <https://doi.org/10.1108/ECAM-12-2020-1040>
41. Fallah-Aliabadi, S., Ostadtaghizadeh, A., Fatemi, F., Ardalan, A., Rezaei, E., Raadabadi, M., & Heydari, A. (2021). Hospital disaster resilience: Development of an assessment tool using expert panel and fuzzy analytical network process. *International Journal of Disaster Resilience in the Built Environment*, in press. <https://doi.org/10.1108/IJDRBE-11-2020-0119>
42. Kryszajtyś, D. T., Rudzinski, K., Chan Carusone, S., Guta, A., King, K., & Strike, C. (2021). Do mock-ups, presentations of evidence, and Q&As help participants voice their opinions during focus groups and interviews about supervised injection services? *International Journal of Qualitative Methods, 20*, in press. <https://doi.org/10.1177/16094069211033439>



43. Nikabadi, S., Zabihi, H., & Shahcheraghi, A. (2021). Evaluating the effective factors of hospital rooms on patients' recovery using the data mining method. *HERD: Health Environments Research & Design Journal*, in press.  
<https://doi.org/10.1177/19375867211031305>
44. Piatkowski, M., Taylor, E., Wong, B., Taylor, D., Foreman, K. B., & Merryweather, A. (2021). Designing a patient room as a fall protection strategy: The perspectives of healthcare design experts. *International Journal of Environmental Research and Public Health*, 18(16), Article 16.  
<https://doi.org/10.3390/ijerph18168769>
45. Rubio, N. (2021). The Children's Council as a mean of participation in a hospital. *American Journal of Nursing Studies*, 2.