



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

AIA Knowledge Community



Additional key point summaries provided by



Knowledge Repository News

Among the nearly 50 new entries in the Knowledge Repository, several papers focus on therapeutic and restorative environments for both patients and healthcare workers. A study by Lorusso and colleagues focuses on staff break areas, and while the researchers were interested in the concept of restoration, they discovered how nurses are actually using their break time. A study by Hauge and colleagues focused on therapy for child and adolescent patients and examines the restorative effect of an outdoor care retreat situated next to a Norwegian hospital. Wilson and colleagues examine the link between the mental health environment and a sense of physical, procedural, and relational security focused on both patients and staff. See below the citations listed in the “Supportive Design” and “Therapeutic Environments” categories.

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

March - April 2023

Experience

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

1. Bail, K., Barratt, M., Davidson, A., Isbel, S., Kaye, T., Kellett, J., Preston, E., Stanton, R., & Scarvell, J. (2023). A 4-Bed Close-Observation Pod model of multidisciplinary care in hospital: A mixed methods study. *Collegian*, in press. <https://doi.org/10.1016/j.colegn.2022.12.007>
2. Brooks, K., Landeg, O., Kovats, S., Sewell, M., & OConnell, E. (2023). Heatwaves, hospitals and health system resilience in England: A qualitative assessment of frontline perspectives from the hot summer of 2019. *BMJ Open*, *13*(3), e068298. <https://doi.org/10.1136/bmjopen-2022-068298>
3. Divers, E. (2023). Theory to practice: Pleasure-Arousal-Dominance (PAD) theory for architectural color design. *Color Research & Application*, in press. <https://doi.org/10.1002/col.22847>
4. Kabo, F. W., Stucky, C. H., & De Jong, M. J. (2023). Associations of surgical team communication with the layout of physical space: A network analysis of the operating room in a military medical center. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867231159130>
5. Lora-Martín, A., Sequí-Sabater, J. M., del Rey-Tormos, R., Alba-Fernández, J., & Sequí-Canet, J. M. (2023). Vibroacoustic pollution in the neonatal ward. *Encyclopedia*, *3*(2), 449–457. <https://doi.org/10.3390/encyclopedia3020030>



6. Toodekharman, H., Abravesh, M., & Heidari, S. (2023). Visual comfort assessment of hospital patient rooms with climate responsive facades. *Journal of Daylighting*, 10(1), 17–30. <https://doi.org/10.15627/jd.2023.2>
7. Yeoh, J. P. S., & Spence, C. (2023). Background music's impact on patients waiting in surgery and radiology clinics. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867231161094>

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

8. Asli, A. A., Moshfeghifar, S., Mousighichi, P., & Samimi, P. M. (2023). Adults' visual cue preferences and wayfinding abilities in healthcare centers. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867231153122>
9. Ballice, G., Çetin, Ç., Paykoç Özçelik, E., & Tuna Ultav, Z. (2023). Control in healthcare interiors: The staff's perspective. *Architectural Science Review*, in press. <https://doi.org/10.1080/00038628.2023.2182269>
10. Halpern, N. A., Scruth, E., Rausen, M., & Anderson, D. (2023). Four decades of intensive care unit design evolution and thoughts for the future. *Critical Care Clinics*, in press. <https://doi.org/10.1016/j.ccc.2023.01.008>
11. Kotfis, K., van Diem-Zaa, I., Roberson, S., Sietnicki, M., van den Boogaard, M., Shehabi, Y., & Ely, E. W. (2022). The future of intensive care: Delirium should no longer be an issue. *Critical Care*, 26(1), 1–200. <https://doi.org/10.1186/s13054-022-04077-y>
12. Lindahl, J., Thulesius, H., Wijk, H., Edvardsson, D., & Elmqvist, C. (2023). The perceived support from light and color before and after an evidence-based design intervention in an emergency department environment: A quasi-experimental study. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221150215>
13. Lorusso, L., Ossmann, M., Orozco, T., & Lawson, L. (2023). On the restorative break: Understanding the role of break room design on nurse engagement and satisfaction. *Workplace Health & Safety*, in press. <https://doi.org/10.1177/21650799231157087>
14. Martin, D., & Roe, J. (2022). Enabling care: Maggie's centres and the affordance of hope. *Health & Place*, 78, 102758. <https://doi.org/10.1016/j.healthplace.2022.102758>
15. Vreman, J., Lemson, J., Lanting, C., van der Hoeven, J., & van den Boogaard, M. (2023). The effectiveness of the interventions to reduce sound levels in the ICU: A systematic review. *Critical Care Explorations*, 5(4), e0885. <https://doi.org/10.1097/CCE.0000000000000885>
16. Wong, K., McLaughlan, R., Collins, A., & Philip, J. (2023). Designing the physical environment for inpatient palliative care: A narrative review. *BMJ Supportive & Palliative Care*, 13(1), 45–51. <https://doi.org/10.1136/bmjspcare-2021-003087>



Safety

Infection Prevention/Control

17. Ismail, Y. A., Eldosoky, M. A. A., Rashed, M. R., & Soliman, A. M. (2023). Numerical investigation of indoor air quality in health care facilities: A case study of an intensive care unit. *Journal of Building Engineering*, 68, 106143. <https://doi.org/10.1016/j.jobe.2023.106143>
18. Martin, D., Buse, C., Brown, N., Nettleton, S., Lewis, A., & Chapman, L. (2022). Assembling atmospheres, encountering care: Risk, affect, and safety in the cystic fibrosis clinic. *Wellbeing, Space and Society*, 3, 100077. <https://doi.org/10.1016/j.wss.2022.100077>

COVID-19 Response

19. Alansari, A., & Quan, X. (2022). Designing high-performance emergency care facilities against COVID-19. *The International Journal of Design in Society*, 16(2), 91–113. <https://doi.org/10.18848/2325-1328/CGP/v16i02/91-113>
20. Annemans, M., Jellema, P., & Heylighen, A. (2023). Separating Covid from non-Covid: Spatial adaptations in existing hospital buildings. Connectivity and Creativity in Times of Conflict - Cumulus Antwerp 2023, Location: Antwerp. <https://lirias.kuleuven.be/4070106>
21. Brambilla, A., Brusamolin, E., Johnson, A. A., Scullica, F., & Capolongo, S. (2023). Lessons from the first wave of COVID-19 in Italy: A collection of design strategies to face pandemic situations in healthcare facilities. *Journal of Emergency Management*, 21(7), 167–184. <https://doi.org/10.5055/jem.0746>
22. Fontes, B., Scavone, D., Bridges, W., Landgraf, T., & Fortgang, N. (2023). Biorisk management features of a temporary COVID-19 hospital. *Applied Biosafety*, 28(1), 32–42. <https://doi.org/10.1089/apb.2022.0018>
23. Leal, J., O'Grady, H. M., Armstrong, L., Dixit, D., Khawaja, Z., Snedeker, K., Ellison, J., Erebor, J., Jamieson, P., Weiss, A., Salcedo, D., Roberts, K., Wiens, K., Croxen, M. A., Berenger, B. M., Pabbaraju, K., Lin, Y.-C., Evans, D., & Conly, J.-M. (2023). Patient and ward related risk factors in a multi-ward nosocomial outbreak of COVID-19: Outbreak investigation and matched case-control study. *Antimicrobial Resistance & Infection Control*, 12(1), 21. <https://doi.org/10.1186/s13756-023-01215-1>
24. Prugsiganont, S., & Waroonkun, T. (2022). Identifying built environment solutions, in Thai community hospital outpatient clinics, to prevent the spread of COVID-19. *IOP Conference Series: Earth and Environmental Science*, 1101, 062035. <https://doi.org/10.1088/1755-1315/1101/6/062035>
25. Şener, M., Öztürk, M., & Kuzu, O. (2023). An adaptable and instructive architectural design proposal for the fight against COVID-19 pandemic in existing hospitals. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867231153143>



Care across the Lifespan

Therapeutic Environments: Behavioral/Mental Health

26. Anderson, K., Goldsmith, L. P., Lomani, J., Ali, Z., Clarke, G., Crowe, C., Jarman, H., Johnson, S., McDaid, D., Pariza, P., Park, A.-L., Smith, J. A., Stovold, E., Turner, K., & Gillard, S. (2022). Short-stay crisis units for mental health patients on crisis care pathways: Systematic review and meta-analysis. *BJPsych Open*, 8(4), e144. <https://doi.org/10.1192/bjo.2022.534>
27. Banasiak, M., Wilkerson, A., & Safranek, S. (2023). Evaluating occupant light exposure and usage patterns in an inpatient behavioral health unit. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221150226>
28. Hauge, Å. L., Lindheim, M. Ø., Røtting, K., & Johnsen, S. Å. K. (2023). The meaning of the physical environment in child and adolescent therapy: A qualitative study of the outdoor care retreat. *Ecopsychology*, in press. <https://doi.org/10.1089/eco.2022.0087>
29. Ivanova, D. (2020). Post-place care: Disrupting place-care ontologies. *Sociology of Health & Illness*, 42(6), 1296–1311. <https://doi.org/10.1111/1467-9566.13100>
30. Jenkin, G., McIntosh, J., Marques, B., Peterson, D., Chrysiou, E., & Every-Palmer, S. (2022). Contemporary issues in acute mental health facility design: Insights from the Aotearoa-New Zealand experience. *Kōtuitui: New Zealand Journal of Social Sciences Online*, in press. <https://doi.org/10.1080/1177083X.2022.2093229>
31. Wilson, R. L., Hutton, A., & Foureur, M. (2023). Promoting mental health recovery by design: Physical, procedural, and relational security in the context of the mental health built environment. *International Journal of Mental Health Nursing*, 32(1), 147–161. <https://doi.org/10.1111/inm.13070>

Elders/Aging

32. Chen, Z., Yao, Q., & An, N. (2022). The evolution, hotspots, and trends in research on facilities of combined medical and nursing care for the elderly. *Buildings*, 12(12), Article 12. <https://doi.org/10.3390/buildings12122132>
33. Gurung, S., & Chaudhury, H. (2023). Exploring the role of the built environment in person-centered care during mealtimes in an ethno-specific long-term care home. In F. Ferdous & E. Roberts (Eds.), *(Re)designing the Continuum of Care for Older Adults: The Future of Long-Term Care Settings* (pp. 145–160). Springer International Publishing. https://doi.org/10.1007/978-3-031-20970-3_8
34. Nicholas, C., Casto, M. A., Smith, A., & Francisco, K. (2022). No place like home? Producing and consuming eldercare design. *Journal of Consumer Culture*, 22(4), 969–991. <https://doi.org/10.1177/14695405211033662>
35. Stuck, A. K., Born, S., Stuck, A. E., & Kompis, M. (2023). Potentially inadequate real-life speech levels by healthcare professionals during communication with older inpatients. *International Journal of Environmental Research and Public Health*, 20(5), 4543. <https://doi.org/10.3390/ijerph20054543>



Cognitive Impairment & Dementia

36. Boedeker, S., Driessen, M., Schulz, P., Beblo, T., Kreisel, S., & Toepper, M. (2023). Give me a sign: Concrete symbols facilitate orientation in Alzheimer's disease dementia. *The Journals of Gerontology: Series B*, in press. <https://doi.org/10.1093/geronb/gbad041>
37. Koch, J., Amos, J. G., Beattie, E., Lautenschlager, N. T., Doyle, C., Anstey, K. J., & Mortby, M. E. (2022). Non-pharmacological interventions for neuropsychiatric symptoms of dementia in residential aged care settings: An umbrella review. *International Journal of Nursing Studies*, *128*, 104187. <https://doi.org/10.1016/j.ijnurstu.2022.104187>
38. Talebzadeh, A., Decoutere, I., Vander Mynsbrugge, T., Botteldooren, D., Devos, P., Aletta, F., Van de Velde, D., & De Vriendt, P. (2023). The influence of everyday acoustic environments on the challenging behavior in dementia: A participatory observation study in nursing homes. *International Journal of Environmental Research and Public Health*, *20*(5), 4191. <https://doi.org/10.3390/ijerph20054191>
39. Treadaway, C., Seckam, A., Fennell, J., & Taylor, A. (2023). HUG: A compassionate approach to designing for wellbeing in dementia care. *International Journal of Environmental Research and Public Health*, *20*(5), 4410. <https://doi.org/10.3390/ijerph20054410>

Building Systems & Technology

40. Chengoden, R., Victor, N., Huynh-The, T., Yenduri, G., Jhaveri, R. H., Alazab, M., Bhattacharya, S., Hegde, P., Maddikunta, P., & Gadekallu, T. R. (2023). Metaverse for healthcare: A survey on potential applications, challenges and future directions. *IEEE Access*, *11*, 12765–12795. <https://doi.org/10.1109/ACCESS.2023.3241628>
41. Sadrizadeh, S., Aganovic, A., Bogdan, A., Wang, C., Afshari, A., Hartmann, A., Croitoru, C., Khan, A., Kriegel, M., Lind, M., Liu, Z., Melikov, A., Mo, J., Rotheudt, H., Yao, R., Zhang, Y., Abouali, O., Langvatn, H., Sköldenber, O., & Cao, G. (2021). A systematic review of operating room ventilation. *Journal of Building Engineering*, *40*, 102693. <https://doi.org/10.1016/j.jobe.2021.102693>

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

42. Alhajj, A., Jamoussi, B., & Abu-Rizaiza, A. (2023). The development of a life-cycle-based sustainability index that incorporates patient-centredness for assessing and reporting the sustainability of healthcare buildings in Saudi Arabia. *Sustainability*, *15*(7), 5784. <https://doi.org/10.3390/su15075784>
43. Deng, L., Romainoor, N. H., & Zhang, B. (2023). Evaluation of the usage requirements of hospital signage systems based on the kano model. *Sustainability*, *15*(6), Article 6. <https://doi.org/10.3390/su15064972>



44. Golgolnia, T., Kevdzija, M., & Marquardt, G. (2023). Proposing a systematic assessment tool for evaluating the architectural variables of dementia-friendly design in nursing homes. In J. Goodman-Deane, H. Dong, A. Heylighen, J. Lazar, & J. Clarkson (Eds.), *Design for Sustainable Inclusion* (pp. 59–69). *Springer International Publishing*. https://doi.org/10.1007/978-3-031-28528-8_7
45. Juliá Nehme, B., Torres Iribarra, D., Cumsille, P., & Yoon, S.-Y. (2021). Waiting room physical environment and outpatient experience: The spatial user experience model as analytical tool. *Journal of Interior Design*, *46*(4), 27–48. <https://doi.org/10.1111/joid.12205>
46. Mead, M., Nanda, U., & Ibrahim, A. M. (2023). The variable impact of clinical risk-adjustment models to evaluate hospital design. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867231154250>
47. MohammadiGorji, S., Nubani, L., Bosch, S. J., Valipoor, S., & McElhinney, S. (2023). Using space syntax analysis to measure patient aggression risk. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867231151225>
48. Ugalde, A., Haynes, K., White, V., Russell, L., & Livingston, P. M. (2019). “An Ambition to Make People Feel at Home” or “The Emperor’s New Clothes”? Professional stakeholder views of wellness centres in cancer care. *European Journal of Cancer Care*, *28*(4), 1–6. <https://doi.org/10.1111/ecc.13096>
49. Van der Linden, V., Annemans, M., & Heylighen, A. (2016). Architects’ approaches to healing environment in designing a Maggie’s Cancer Caring Centre. *The Design Journal*, *19*(3), 511–533. <https://doi.org/10.1080/14606925.2016.1149358>