



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
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RESEARCH-DESIGN
CONNECTIONS

Knowledge Repository News

Among the 98 new entries in the Knowledge Repository, several papers focus on infection prevention and control, and specifically, the current knowledge around the healthcare environment and airborne infections like COVID-19. Studies by Sadeghian and colleagues and Tan and colleagues focus on reducing airborne infections in the surgical environment. Other studies by Dao and colleagues and Wang and colleagues focus on ventilation in the isolation room. See the citations listed in the "COVID-19" and "Safety: Infection Prevention/Control" categories below.

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

Mid-June - August 2022

COVID-19

1. Benbow, W. (2022). COVID-19 in long-term care: The built environment impact on infection control. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221101897>
2. Cadnum, J. L., Jencson, A. L., Alhmid, H., Zabarsky, T. R., & Donskey, C. J. (2022). Airflow patterns in double occupancy patient rooms may contribute to roommate-to-roommate transmission of severe acute respiratory syndrome coronavirus 2. *Clinical Infectious Diseases*, ciac334. <https://doi.org/10.1093/cid/ciac334>
3. Chaudhary, M. J., Howell, E., Ficke, J. R., Loffredo, A., Wortman, L., Benton, G. M., Deol, G. S., & Kantsiper, M. E. (2021). Caring for patients at a COVID-19 field hospital. *Journal of Hospital Medicine*, 16(2), 117-119. <https://doi.org/10.12788/jhm.3551>
4. Dao, H. T., & Kim, K.-S. (2022). Behavior of cough droplets emitted from Covid-19 patient in hospital isolation room with different ventilation configurations. *Building and Environment*, 209. <https://doi.org/10.1016/j.buildenv.2021.108649>
5. Devlin, A. S. (2022). Seating in doctors' waiting rooms: Has COVID-19 changed our choices? *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221104248>
6. Ede, J., Garry, D., Barker, G., Gustafson, O., King, E., Routley, H., Biggs, C., Lumley, C., Bennett, L., Payne, S., Ellis, A., Green, C., Smith, N., Vincent, L., Holdaway, M., & Watkinson, P. (2022). Building a Covid-19 secure intensive care unit: A human-centred design approach. *Journal of the Intensive Care Society*, in press. <https://doi.org/10.1177/17511437221092685>



7. El-Haroun, A. F., Kaseb, S. A., Fouad, M. A., & Kayed, H. O. (2022). Numerical investigation of COVID-19 infection spread expelled from cough in an isolation ward under different air distribution strategies. *Journal of Advanced Research in Fluid Mechanics and Thermal Sciences*, 95(1), 17–35. <https://doi.org/10.37934/arfmts.95.1.1735>
8. Goldman, C., Czaja, C., Moses, X. J. E., & Van Dyke, M. (2022). Nursing home adoption of CDC and ASHRAE COVID-19 built environment recommendations: A characterization study of Colorado nursing home facilities. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221111478>
9. Gonçalves, J., da Silva, P. G., Reis, L., Nascimento, M. S. J., Koritnik, T., Paragi, M., & Mesquita, J. R. (2021). Surface contamination with SARS-CoV-2: A systematic review. *Science of the Total Environment*, 798, 149231. <https://doi.org/10.1016/j.scitotenv.2021.149231>
10. Kilmartin-Lynch, S., Roychand, R., Saberian, M., Li, J., Zhang, G., & Setunge, S. (2022). A sustainable approach on the utilisation of COVID-19 plastic based isolation gowns in structural concrete. *Case Studies in Construction Materials*, 17, e01408. <https://doi.org/10.1016/j.cscm.2022.e01408>
11. Kropf, E., & Zeitz, K. (2022). Hospital design features that optimise pandemic response. *Australian Health Review*, 46(3), 264–268. <https://doi.org/10.1071/AH21153>
12. Moon, K. J., Shon, S., Cho, H., Sung, M., Kang, J. Y., & Choi, Y. (2022). Operationalization of an expanded anteroom in a COVID-19–dedicated hospital in South Korea. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 59, 1–8. <https://doi.org/10.1177/00469580221092818>
13. Pilosof, N. P., Barrett, M., Oborn, E., Barkai, G., Pessach, I. M., & Zimlichman, E. (2021). Inpatient telemedicine and new models of care during COVID-19: Hospital design strategies to enhance patient and staff safety. *International Journal of Environmental Research and Public Health*, 18(16), 8391. <https://doi.org/10.3390/ijerph18168391>
14. Sadeghian, P., Bi, Y., Cao, G., & Sadrizadeh, S. (2022). Reducing the risk of viral contamination during the coronavirus pandemic by using a protective curtain in the operating room. *Patient Safety in Surgery*, 16(1), 26. <https://doi.org/10.1186/s13037-022-00332-x>
15. Tadavarthy, S. N., Finnegan, K., Bernatowicz, G., Lowe, E., Coffin, S. E., & Manning, M. (2021). Developing and implementing an infection prevention and control program for a COVID-19 alternative care site in Philadelphia, PA. *American Journal of Infection Control*, 49(1), 77–81. <https://doi.org/10.1016/j.ajic.2020.07.006>
16. Thompson, C. N., Mugford, C., Merriman, J. R., Chen, M. A., Hutter, J. D., Maruna, T. J., Bacon, W. R., Childs, R. W., Pati, R., Clifton, G. T., & Pazdan, R. M. (2022). Healthcare worker safety program in a COVID-19 alternate care site: The Javits New York Medical Station experience. *Infection Control and Hospital Epidemiology*, 1–24. <https://doi.org/10.1017/ice.2022.80>



17. Wang, C. Y., Palma, M. L., Haley, C., Watts, J., & Hinami, K. (2021). Rapid creation of a multiagency alternate care site for COVID-19-positive individuals experiencing homelessness. *American Journal of Public Health, 111*(7), 1227–1230. <https://doi.org/10.2105/AJPH.2021.306286>
18. Wang, F., Permana, I., Chaerasari, C., Lee, K., Chang, T., & Rakshit, D. (2022). Ventilation performance evaluation of a negative-pressure isolated room for emergency departments. *Healthcare, 10*(2), 193. <https://doi.org/10.3390/healthcare10020193>
19. Wei, Y., Dong, Z., Fan, W., Xu, K., Tang, S., Wang, Y., & Wu, F. (2022). A narrative review on the role of temperature and humidity in COVID-19: Transmission, persistence, and epidemiological evidence. *Eco-Environment & Health*, in press. <https://doi.org/10.1016/j.eehl.2022.04.006>

Experience

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

20. Agom, D. A., Sixsmith, J., Ominyi, J., Onyeka, T. C., & Agom, J. C. (2022). Placing care: The impact of the physical environment on experiences of providing and utilizing palliative care. *Journal of Nursing Research*, in press. <https://doi.org/10.1097/jnr.0000000000000508>
21. Anåker, A., Morichetto, H., & Elf, M. (2022). The physical environment is essential, but what does the design and structure of stroke units look like? A descriptive survey of inpatient stroke units in Sweden. *Scandinavian Journal of Caring Sciences*, in press. <https://doi.org/10.1111/scs.13112>
22. Eriksson, T., Lindahl, B., & Bergbom, I. (2010). Visits in an intensive care unit—An observational hermeneutic study. *Intensive and Critical Care Nursing, 26*(1), 51–57. <https://doi.org/10.1016/j.iccn.2009.09.005>
23. Khowaja, S., Ariff, S., Ladak, L., Manan, Z., & Ali, T. (2022). Measurement of sound levels in a neonatal intensive care unit of a tertiary care hospital, Karachi, Pakistan. *Pediatrics & Neonatology*, in press. <https://doi.org/10.1016/j.pedneo.2022.04.010>

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

24. Anåker, A., von Koch, L., Eriksson, G., Sjöstrand, C., & Elf, M. (2022). The physical environment and multi-professional teamwork in three newly built stroke units. *Disability and Rehabilitation, 44*(7), 1098–1106. <https://doi.org/10.1080/09638288.2020.1793008>
25. Arnon, S., Epstein, S., Ghetti, C., Bauer-Rusek, S., Taitelbaum-Swead, R., & Yakobson, D. (2022). Music therapy intervention in an open bay neonatal intensive care unit room is associated with less noise and higher signal to noise ratios: A case-control study. *Children, 9*(8), 1187. <https://doi.org/10.3390/children9081187>
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27. Bayramzadeh, S., & Chiu, L. Y. T. (2022). The impact of design on workflow: A comparative case study of level I trauma rooms. *Facilities*, 40(7/8), 475–494. <https://doi.org/10.1108/F-11-2021-0113>
28. Bishop, E., Miller, C., Miller, S., & McKellar, C. (2022). How staying in a single room affects the experiences of haematology inpatients in an Australian cancer hospital. *British Journal of Nursing*, 31(5), S22–S29. <https://doi.org/10.12968/bjon.2022.31.5.S22>
29. Black, M. H., McGarry, S., Churchill, L., D'Arcy, E., Dalgleish, J., Nash, I., Jones, A., Tse, T. Y., Gibson, J., Bölte, S., & Girdler, S. (2022). Considerations of the built environment for autistic individuals: A review of the literature. *Autism*, in press. <https://doi.org/10.1177/13623613221102753>
30. Fakhry, M., & Mohammed, W. E. (2022). Impact of family presence on healthcare outcomes and patients' wards design. *Alexandria Engineering Journal*, 61(12), 10713–10726. <https://doi.org/10.1016/j.aej.2022.04.027>
31. Fay, L., Real, K., & Haynes, S. (2022). The healthcare workspace: Understanding the role of decentralized nursing stations, corridors, and huddle spaces as locations for teamwork in a neonatal intensive care unit. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221106503>
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33. Irish, J. E. N. (2022). An exploratory study testing environmental wayfinding aids as an intervention for children with autism. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221111467>
34. Lim, L., Kanfer, R., Stroebel, R. J., & Zimring, C. M. (2022). Beyond co-location: Visual connections of staff workstations and staff communication in primary care clinics. *Environment and Behavior*, 54(1), 3–35. <https://doi.org/10.1177/0013916520950270>
35. Matsunaga, S., & Nute, K. (2022). First, do no harm: Wind-induced movement of foliage as a means of reducing stress in healthcare spaces. *International Journal of Health, Wellness & Society*, 12(1), 107–116. <https://doi.org/10.18848/2156-8960/CGP/v12i01/107-116>
36. Naef, A. C., Erne, K., Exl, M. T., Nef, T., & Jeitziner, M.-M. (2022). Visual and auditory stimulation for patients in the intensive care unit: A mixed-method study. *Intensive and Critical Care Nursing*. <https://doi.org/10.1016/j.iccn.2022.103306>
37. O'Rourke, T., Nash, D., Haynes, M., Burgess, M., & Memmott, P. (2022). Cross-cultural design and healthcare waiting rooms for indigenous people in regional Australia. *Environment and Behavior*, 54(1), 89–115. <https://doi.org/10.1177/0013916520952443>
38. Pamuk, K., & Turan, N. (2022). The effect of light on sleep quality and physiological parameters in patients in the intensive care unit. *Applied Nursing Research*, 66. <https://doi.org/10.1016/j.apnr.2022.151607>



39. Qi, F., Lu, Z., & Chen, Y. (2022). Investigating the influences of healthcare facility features on wayfinding performance and associated stress using virtual reality. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221108505>
40. Tekin, B. H., Corcoran, R., & Gutiérrez, R. U. (2022). The impact of biophilic design in Maggie's Centres: A meta-synthesis analysis. *Frontiers of Architectural Research*, in press. <https://doi.org/10.1016/j.foar.2022.06.013>
41. Yang, J., & Shen, X. (2022). The application of color psychology in community health environment design. *Journal of Environmental and Public Health*, 2022, e7259595. <https://doi.org/10.1155/2022/7259595>
42. Zhao, J., & Wang, M. (2022). Effects of landscape types and complexity along path on mental restoration. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221104251>

Safety

43. Barten, D. G., Fijten, M. H. M., Gaakeer, M. I., Klokman, V. W., Mortelmans, L. J., van Osch, F., Peters, N. A. L. R., Wijnands, J. J. J., Tan, E. C. T. H., & Boin, A. (2022). Three decades of hospital evacuations in the Netherlands: A scoping review. *International Journal of Disaster Risk Reduction*, 81. <https://doi.org/10.1016/j.ijdrr.2022.103252>

Infection Prevention/Control

44. Abuljadail, S., Akkaya, M., Sangaletti, R., Sandiford, N., Gehrke, T., & Citak, M. (2022). Is the risk of periprosthetic joint infection in patients undergoing total hip and knee joint arthroplasty in the multi-unit operating room higher than in the classical single-unit operating room? *International Orthopaedics*, 46(7), 1465–1471. <https://doi.org/10.1007/s00264-022-05391-4>
45. Andalib, E., Faghani, M., Zia Ziabari, S. M., Shenagari, M., Salehiniya, H., Keivanlou, M. H., & Rafat, Z. (2022). The effectiveness of the anteroom (vestibule) area on hospital infection control and health staff safety: A systematic review. *Frontiers in Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.828845>
46. Erdogan, A. A., & Yilmazoglu, M. Z. (2022). Comparison of ventilation strategies in intensive care units for airborne infection control. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 44(3), 5829–5851. <https://doi.org/10.1080/15567036.2022.2088900>
47. Goedken, C. C., McKinley, L., Balkenende, E., Sherlock, S. H., Knobloch, M. J., Perencevich, E. N., Safdar, N., & Reisinger, H. S. (2022). “Our job is to break that chain of infection”: Challenges environmental management services (EMS) staff face in accomplishing their critical role in infection prevention. *Antimicrobial Stewardship & Healthcare Epidemiology*, 2(1), e129. <https://doi.org/10.1017/ash.2022.261>
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52. Jelacic, S., & Bowdle, A. (2022). Contamination in the operating room environment: Patients, providers, surfaces, and air. In G. Bearman, D. J. Morgan, R. K. Murthy, & S. Hota (Eds.), *Infection Prevention: New Perspectives and Controversies* (pp. 31–45). Springer International Publishing. https://doi.org/10.1007/978-3-030-98427-4_5
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54. Tan, H., Wong, K. Y., Dzarfan Othman, M. H., Kek, H. Y., Tey, W. Y., Nyakuma, B. B., Mong, G. R., Kuan, G., Ho, W. S., Kang, H. S., Chin Vui Sheng, D., & Wahab, R. A. (2022). Controlling infectious airborne particle dispersion during surgical procedures: Why mobile air supply units matter? *Building and Environment*, *223*, 109489. <https://doi.org/10.1016/j.buildenv.2022.109489>
55. van der Hoeven, A., Bekker, V., Jansen, S. J., Saccoccia, B., Berkhout, R. J. M., Lopriore, E., Veldkamp, K. E., & van der Beek, M. T. (2022). Impact of transition from open bay to single room design neonatal intensive care unit on multidrug-resistant organism colonization rates. *Journal of Hospital Infection*, *120*, 90–97. <https://doi.org/10.1016/j.jhin.2021.12.006>
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Falls

57. Drahota, A., Felix, L. M., Raftery, J., Keenan, B., Lachance, C. C., Mackey, D. C., Markham, C., Laing, A. C., Farrell-Savage, K., & Okunribido, O. (2022). Shock-absorbing flooring for fall-related injury prevention in older adults and staff in hospitals and care homes: The SAFEST systematic review. *Health Technology Assessment*, *25*(5), 1–228. <https://doi.org/10.3310/ZOWL2323>



58. Keenan, B. E., Hallas, K., Drahota, A. K., & Evans, S. L. (2020). A comparison of floor surfaces for injury prevention in care settings: Impact forces and horizontal pulling force required to move wheeled equipment. *Osteoporosis International*, *31*(12), 2383–2394. <https://doi.org/10.1007/s00198-020-05520-y>

Care across the Lifespan

Therapeutic Environments: Behavioral/Mental Health

59. Jenkin, G., Quigg, S., Paap, H., Cooney, E., Peterson, D., & Every-Palmer, S. (2022). Places of safety? Fear and violence in acute mental health facilities: A large qualitative study of staff and service user perspectives. *PLOS ONE*, *17*(5), e0266935. <https://doi.org/10.1371/journal.pone.0266935>
60. Jin, H.-Y., Gold, C., Cho, J., Marzban, F., & Lim, L. (2022). The role of healthcare facility design on the mental health of healthcare professionals: A literature review. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221118685>
61. Lawson Jr., A. E., & Alfaro, S. A. (2022). The healthcare chapel: Improving well-being. *International Journal of Religion & Spirituality in Society*, *12*(1), 93–113. <https://doi.org/10.18848/2154-8633/CGP/v12i01/93-113>

Psychiatric Facilities

62. Vahidi, M., Namdar Areshtanab, H., Ebrahimi, H., & Asghari Jafarabadi, M. (2022). Development of “The Safe Psychiatric Ward Battery.” *Clinical Nursing Research*, in press. <https://doi.org/10.1177/10547738221085614>

Pediatric

63. Jansen, S., Berkhout, R. J. M., Pas, A. B., Steggerda, S. J., Vries, L. S., Schalijs-Delfos, N., Hoeven, A., Lopriore, E., & Bekker, V. (2022). Comparison of neonatal morbidity and mortality between single-room and open-bay care: A retrospective cohort study. *Archives of Disease in Childhood - Fetal and Neonatal Edition*, in press. <https://doi.org/10.1136/archdischild-2021-323310>
64. Jones, C. W., Moya, F., Lynch, N., & Forsythe, P. L. (2022). Unintended consequences of the neonatal intensive care unit environment: Integrative review of single-family room unit design. *Advances in Neonatal Care*, in press. <https://doi.org/10.1097/ANC.0000000000001023>
65. Lu, Y., Bishop, N. B., & Zadeh, R. (2022). Lean design of the pediatric intensive care unit patient room for efficient and safe care delivery. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221113066>
66. Neri, E., Genova, F., Stella, M., Provera, A., Biasini, A., & Agostini, F. (2022). Parental distress and affective perception of hospital environment after a pictorial intervention in a neonatal intensive care unit. *International Journal of Environmental Research and Public Health*, *19*(15), 8893. <https://doi.org/10.3390/ijerph19158893>



67. Więckowska, B., Byszek, K., & Malenda, M. (2022). The children's hospital of the future: A vision that meets all needs. *HERD: Health Environments Research & Design Journal*, 15(2), 301–314.
<https://doi.org/10.1177/19375867211058851>

Labor & Delivery

68. Hansen, M. L., Lorentzen, I. P., Andersen, C. S., Jensen, H. S., Fogsgaard, A., Foureur, M., Jepsen, I., & Nohr, E. A. (2022). The effect on the birth experience of women and partners of giving birth in a “birth environment room”: A secondary analysis of a randomised controlled trial. *Midwifery*, 112, 103424.
<https://doi.org/10.1016/j.midw.2022.103424>
69. Nicoletta, S., Eletta, N., Cardinali, P., & Migliorini, L. (2022). A broad study to develop maternity units design knowledge combining spatial analysis and mothers' and midwives' perception of the birth environment. *HERD: Health Environments Research & Design Journal*, in press.
<https://doi.org/10.1177/19375867221098987>
70. Sandman, H., Meguid, T., & Levänen, J. (2022). Unboxing empathy: Reflecting on architectural design for maternal health. *CoDesign*, 18(2), 260–278.
<https://doi.org/10.1080/15710882.2020.1833935>

Elders/Aging

71. Chaudhury, H., & Xu, M. (2022). The role of the built environment on the quality of life for residents in long-term care facilities in Asia: A scoping review. *Innovation in Aging*. <https://doi.org/10.1093/geroni/igac045>
72. Delcampo-Carda, A., Torres-Barchino, A., & Serra-Lluch, J. (2019). Chromatic interior environments for the elderly: A literature review. *Color Research & Application*, 44(3), 381–395. <https://doi.org/10.1002/col.22358>
73. Guerry, E., Caumon, C., Bécheras, E., & Zissis, G. (2021). Influence of chromatic and lighting on the visual environment of the elderly: A critical literature review. *Color Research & Application*, 46(1), 117–124.
<https://doi.org/10.1002/col.22562>
74. Lu, X., Luo, Y., & Hu, B. (2022). Exploring older adults' nighttime trips to the bathroom under different lighting conditions: An exploratory field study. *HERD: Health Environments Research & Design Journal*, in press.
<https://doi.org/10.1177/19375867221113067>
75. Westerling, U., Hellgren, M., Hermansson, L., & Strid, E. N. (2022). In safe hands: A qualitative study on older adults' experiences of a tailored primary health care unit. *Scandinavian Journal of Primary Health Care*, 40(2), 271–280.
<https://doi.org/10.1080/02813432.2022.2097611>

Cognitive Impairment & Dementia

76. Kevdzija, M. (2022). “Everything looks the same”: Wayfinding behaviour and experiences of stroke inpatients in rehabilitation clinics. *International Journal of Qualitative Studies on Health and Well-Being*, 17(1).
<https://doi.org/10.1080/17482631.2022.2087273>



77. Kevdzija, M., Bozovic-Stamenovic, R., & Marquardt, G. (2022). Stroke patients' free-time activities and spatial preferences during inpatient recovery in rehabilitation centers. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221113054>
78. Shabha, G., Edwards, D. J., Gaines, K., & Laycok, P. (2022). Toward an integrated context-based design approach for dementia residential care homes: A review of key operational design problems. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/19375867221100210>

Building Systems & Technology

79. Amleh, D., Halawani, A., & Haj Hussein, M. (2022). Simulation-based study for healing environment in intensive care units: Enhancing daylight and access to view, optimizing an ICU room in temperate climate, the case study of Palestine. *Ain Shams Engineering Journal*, in press. <https://doi.org/10.1016/j.asej.2022.101868>
80. Eisazadeh, N., De Troyer, F., & Allacker, K. (2022). Integrated energy, daylighting, comfort and environmental performance analysis of window systems in patient rooms. *Architectural Science Review*, 1-19. <https://doi.org/10.1080/00038628.2022.2099806>
81. Liu, A., Ma, Y., Miller, W., Xia, B., Zedan, S., & Bonney, B. (2022). Energy analysis and forecast of a major modern hospital. *Buildings*, 12(8), 1116. <https://doi.org/10.3390/buildings12081116>

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

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