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

The American Institute of Architects

ASHE
Optimizing health care facilities

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Additional key point summaries provided by

NIHD Nursing Institute for Healthcare Design
INSPIRING AND EDUCATING NURSES

RESEARCH DESIGN connections

Knowledge Repository News

This edition of The Snap has 88 new entries in the Knowledge Repository which includes the latest publications in the industry from the past four months. Below you will find several papers focusing on healthcare design that supports women. Healthcare spaces must support the needs of all genders, but some spaces must prioritize the needs of women. For instance, two studies out of Sweden (by Skogström and colleagues and Goldkuhl and colleagues) look at women's needs in birthing room design. And a study by Mehta explores how design can support infection prevention in obstetrics. We also see gender-specific design in a study by Butler and colleagues, where researchers examine the link between art and mental health in a women's psychiatric intensive care unit.

See the citations listed in the "Care Across the Lifespan" and "Safety" categories below.

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

March – June 2022

COVID-19

1. Aghaei, P., Bayramzadeh, S., & Ahmadpour, S. (2022). Drive-through urgent care centers: Could they be the future of healthcare facilities? *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221087360
2. Amran, M., Makul, N., Fediuk, R., Borovkov, A., Ali, M., & Zeyad, A. M. (2022). A review on building design as a biomedical system for preventing COVID-19 pandemic. *Buildings, 12*(5), 582. https://doi.org/10.3390/buildings12050582
3. Eadie, E., Hiwar, W., Fletcher, L., Tidswell, E., O'Mahoney, P., Buonanno, M., Welch, D., Adamson, C. S., Brenner, D. J., Noakes, C., & Wood, K. (2022). Far-UVC (222 nm) efficiently inactivates an airborne pathogen in a room-sized chamber. *Scientific Reports, 12*(1), Article 1. https://doi.org/10.1038/s41598-022-08462-z
4. El-Menshawi, W., Raslan, R., & Fathy, A. (2022). Reshaping patient approach to health facilities throughout and beyond pandemics: Redesigning entrances and waiting areas. *Engineering Research Journal, 174*, 38–51. https://doi.org/10.21608/erj.2022.241984
5. Li, H., & Mahyuddin, N. (2022). The impact of physical environment on health-care workers' well-being in Chinese hospitals during COVID-19 pandemic. *Facilities*, in press. https://doi.org/10.1108/F-10-2021-0102

6. Lim, L., Zimring, C. M., DuBose, J. R., Fischer, G. M., & Stroebel, R. (2022). Clinic design for safety during the pandemic: Safety or teamwork, can we only pick one? *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221091310
7. Machry, H., Matić, Z., Oh, Y., DuBose, J. R., Morgan, J. S., Love, K. L., Jacob, J. T., & Zimring, C. M. (2022). Healthcare design to improve safe doffing of personal protective equipment for care of patients with COVID-19. *Infection Control & Hospital Epidemiology*, 1–10. https://doi.org/10.1017/ice.2021.526
8. Mustafa, F. A., & Ahmed, S. S. (2022). The role of waiting area typology in limiting the spread of COVID-19: Outpatient clinics of Erbil hospitals as a case study. *Indoor and Built Environment*, in press. https://doi.org/10.1177/1420326X221079616
9. Singh, S., Ambooken, G. C., Setlur, R., Paul, S. K., Kanitkar, M., Singh Bhatia, S., & Singh Kanwar, R. (2021). Challenges faced in establishing a dedicated 250 bed COVID-19 intensive care unit in a temporary structure. *Trends in Anaesthesia & Critical Care, 36*, 9–16. https://doi.org/10.1016/j.tacc.2020.10.006
10. Sturge, J., & Starrenburg, F. (2022). The reorganization of a psychiatric unit during COVID-19: A reflection for psychiatric hospital design. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221098982
11. Thylefors, J., Thuresson, S., Alsved, M., Widell, A., Fraenkel, C.-J., Löndahl, J., Medstrand, P., & Senneby, E. (2022). Detection of SARS-CoV-2 RNA on surfaces in a COVID-19 hospital ward indicates airborne viral spread. *Journal of Hospital Infection*, in press. https://doi.org/10.1016/j.jhin.2022.02.025
12. Upadhyay, A. K., Patnaik, S. K., Chandrasekhara, T., Tilak, T. V. S. V. G. K., Kushagra, P., & Singh Bhatia, S. (2022). Lessons learnt from a greenfield hangar-based 1,000-bedded temporary hospital in India. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221079942
13. Wang, K., Ho, K.-F., Leung, L. Y.-T., Chow, K.-M., Cheung, Y.-Y., Tsang, D., Lai, R. W.-M., Xu, R. H., Yeoh, E.-K., & Hung, C.-T. (2022). Risk of air and surface contamination of SARS-CoV-2 in isolation wards and its relationship with patient and environmental characteristics. *Ecotoxicology and Environmental Safety, 241*. https://doi.org/10.1016/j.ecoenv.2022.113740
14. Wang, Y., Liu, Z., Liu, H., Wu, M., He, J., & Cao, G. (2022). Droplet aerosols transportation and deposition for three respiratory behaviors in a typical negative pressure isolation ward. *Building and Environment, 219*. https://doi.org/10.1016/j.buildenv.2022.109247
15. Yang, H., Rigsby, M., Zhu, X., Lee, C., & Ory, M. (2022). COVID-19 in long-term care facilities: A rapid review of infection correlates and impacts on mental health and behaviors. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221092149

Experience

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

16. Alkazemi, M. F., Bayramzadeh, S., Alkhubaizi, N. B., & Alayoub, A. (2019). The physical environment and patient satisfaction ratings on social media: An exploratory study. *Facilities, 38*(1/2), 86–97. https://doi.org/10.1108/F-11-2018-0138
17. Masclee, G. M. C., Masclee, A. A. M., Kruimel, J. W., Conchillo, J. M., van Vliet, J., & Keszthelyi, D. (2022). Using a patient hotel: Perceptions of the quality of care by patients undergoing analysis for gastrointestinal motility disorders in the Netherlands. *Journal of Patient Experience, 9*. https://doi.org/10.1177/23743735221089453
18. Meriläinen, M., Kyngäs, H., & Ala-Kokko, T. (2010). 24-Hour intensive care: An observational study of an environment and events. *Intensive and Critical Care Nursing, 26*(5), 246–253. https://doi.org/10.1016/j.iccn.2010.06.003

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

19. Chou, Y.-C., Dang, V. T., Yen, H.-Y., & Hsu, P.-S. (2018). Developing a measurement scale of gender-friendly hospital environments: An exploratory study of customer perceptions in Taiwan. *International Journal of Environmental Research and Public Health, 15*(10), 2227. https://doi.org/10.3390/ijerph15102227
20. Cui, W., Li, Z., Xuan, X., Lu, C., Tang, Q., Zhou, S., & Li, Q. (2022). Influence of hospital outdoor space on physiological electroencephalography (EEG) feedback of staff. *HERD: Health Environments Research & Design Journal, 15*(1), 239–255. https://doi.org/10.1177/19375867211030701
21. Eng, M. S.-B., Fierro, K., Abdouche, S., Yu, D., & Schreyer, K. E. (2019). Perceived vs. actual distractions in the emergency department. *The American Journal of Emergency Medicine, 37*(10), 1896–1903. https://doi.org/10.1016/j.ajem.2019.01.005
22. Figueroa, N. I. (2016). Culture, gender, and medical waiting rooms: A Kuwaiti case study. *Journal of Interior Design, 41*(3), 33–46. https://doi.org/10.1111/joid.12073
23. Floss, M., Hoedebecke, K., & Vidal-Alaball, J. (2020). Where is the patient's chair? Differences in general practitioner consultation room layouts - an exploratory questionnaire. *F1000Research, 8*, 1439. https://doi.org/10.12688/f1000research.19565.2
24. Hjorhöy, L. G., Thomsen, T. G., & Beck, M. (2022). Physical environment as a tool in caring for the hospitalized patient: A qualitative study of nurses' experiences in hospitals. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221092150
25. Lu, D., Ergan, S., Mann, D., & Lawrence, K. (2022). The need for responsive environments: Bringing flexibility to clinic spaces. *Construction Research Congress 2022*, 812–821. https://doi.org/10.1061/9780784483961.085

26. McDonald, C. E., Granger, C. L., Said, C. M., & Remedios, L. J. (2022). Seeking choice to fulfill health literacy needs: Health literacy opportunities for consumers in hospital waiting areas. *Qualitative Health Research, 32*(2), 345–359. https://doi.org/10.1177/10497323211051672
27. McDonald, C. E., Remedios, L. J., Cameron, K. L., Said, C. M., & Granger, C. L. (2022). Barriers, enablers, and consumer design ideas for health literacy responsive hospital waiting areas: A framework method analysis. *HERD: Health Environments Research & Design Journal, 15*(1), 207–221. https://doi.org/10.1177/19375867211032926
28. Mclaughlan, R., & George, B. (2022). Unburdening expectation and operating between: Architecture in support of palliative care. *Medical Humanities*, in press. https://doi.org/10.1136/medhum-2021-012340
29. Ransolin, N., Saurin, T. A., Zani, C. M., Rapport, F., Formoso, C. T., & Clay-Williams, R. (2022). The built environment influence on resilient healthcare: A systematic literature review of design knowledge. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221077469
30. Rose, S. J., Waggener, L., Kiely, S. C., & Hedge, A. (2022). Postoccupancy evaluation of a neighborhood concept redesign of an acute care nursing unit in a Planetree hospital. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221091318
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34. Tsai, M. (2022). Vernacular healing landscapes in Australian aged-care gardens. *Landscape Research*, in press. https://doi.org/10.1080/01426397.2022.2039602
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36. Valipoor, S., Hakimjavadi, H., & Nobles, P. M. (2022). Toward building surge capacity: Potentially effective spatial configurations in emergency departments. *HERD: Health Environments Research & Design Journal*. https://doi.org/10.1177/19375867221096639

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Safety

Infection Prevention/Control

38. Kisacky, J. (2022). Consequences of migrating U.S. contagious facilities into general hospitals, 1900–1950. *HERD: Health Environments Research & Design Journal, 15*(1), 75–96. https://doi.org/10.1177/19375867211049818

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41. Scanlon, M. M., Gordon, J. L., Tonozzi, A. A., & Griffin, S. C. (2022). Reducing the risk of healthcare associated infections from Legionella and other waterborne pathogens using a Water Management for Construction (WMC) Infection control Risk Assessment (ICRA) Tool. *Infectious Disease Reports, 14*(3), 341–359. https://doi.org/10.3390/idr14030039

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Falls

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Care across the Lifespan

Therapeutic Environments: Behavioral/Mental Health

47. Cutler, N. A., Halcomb, E., Sim, J., Stephens, M., & Moxham, L. (2021). How does the environment influence consumers' perceptions of safety in acute mental health units? A qualitative study. *Journal of Clinical Nursing, 30*(5–6), 765–772. https://doi.org/10.1111/jocn.15614

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50. Sadatsafavi, H., Vanable, L., DeGuzman, P., & Sochor, M. (2022). Sensory-friendly emergency department visit for patients with autism spectrum disorder—A scoping review. *Review Journal of Autism and Developmental Disorders*, in press. https://doi.org/10.1007/s40489-022-00318-6

51. Shepley, M. M., Peditto, K., Mehrabyan, M., & Sachs, N. A. (2022). The role of salutogenic design in mental and medical health-integrated university clinics. In *Ecological and Salutogenic Design for a Sustainable Healthy Global Society* (p. 23). Cambridge Scholars Publishing.

Psychiatric Facilities

52. Butler, S., Adeduro, R., Davies, R., Nwankwo, O., White, N., Shaw, T. A., Skelton, L., Shannon, G., Smale, E., Corrigan, M., Martin, D., & Sethi, F. (2020). Art and mental health in the women's psychiatric intensive care unit. *Journal of Psychiatric Intensive Care, 16*(1), 15–22. https://doi.org/10.20299/jpi.2019.015

53. Chrysikou, E. (2019). Psychiatric institutions and the physical environment: Combining medical architecture methodologies and architectural morphology to increase our understanding. *Journal of Healthcare Engineering, 2019*. https://doi.org/10.1155/2019/4076259

54. Kaboli, P. J., Augustine, M. R., Haraldsson, B., Mohr, N. M., Howren, M. B., Jones, M. P., & Trivedi, R. (2022). Association between acute psychiatric bed availability in the Veterans Health Administration and veteran suicide risk: A retrospective cohort study. *BMJ Quality & Safety, 31*(6), 442–449. https://doi.org/10.1136/bmjqs-2020-012975

55. Oeljeklaus, L., Schmid, H.-L., Kornfeld, Z., Hornberg, C., Norra, C., Zerbe, S., & McCall, T. (2022). Therapeutic landscapes and psychiatric care facilities: A qualitative meta-analysis. *International Journal of Environmental Research and Public Health, 19*(3), Article 3. https://doi.org/10.3390/ijerph19031490

56. Weber, C., Monero Flores, V., Wheele, T. P., Miedema, E., & White, E. V. (2022). Patients' health & well-being in inpatient mental health-care facilities: A systematic review. *Frontiers in Psychiatry, 12*. https://www.frontiersin.org/article/10.3389/fpsyt.2021.758039

Pediatric

57. Sabetsarvestani, R., Köse, S., Geçkil, E., Tosun, E. E., Tokan Özkılıçaslan, F., Karaarslan, F., & Altunhan, H. (2022). Noise in a neonatal intensive care unit: Exploring its state and solutions. *Advances in Neonatal Care*, in press. https://doi.org/10.1097/ANC.0000000000000985

Labor & Delivery

58. Goldkuhl, L., Dellenborg, L., Berg, M., Wijk, H., & Nilsson, C. (2021). The influence and meaning of the birth environment for nulliparous women at a hospital-based labour ward in Sweden: An ethnographic study. *Women and Birth*, in press. https://doi.org/10.1016/j.wombi.2021.07.005

59. Skogström, L. B., Vithal, E., Wijk, H., Lindahl, G., & Berg, M. (2022). Women's experiences of physical features in a specially designed birthing room: A mixed-methods study in Sweden. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221077097

Elders/Aging

60. Cheung, E. S. L., & Mui, A. C. (2022). Do home and community environments explain self-rated health among older Canadians? Evidence from the 2018 Canadian Housing Survey. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221085603

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62. Rom, Y., Palgi, Y., & Isaacson, M. (2022). Analyzing the layout of long-term care facilities: A psycho-spatial approach. *HERD: Health Environments Research & Design Journal, 15*(2), 22–42. https://doi.org/10.1177/19375867211064538

Cognitive Impairment & Dementia

63. Hayden, L., Passarelli, C., Shepley, S. E., & Tigno, W. (2022). A scoping review: Sensory interventions for older adults living with dementia. *Dementia*, in press. https://doi.org/10.1177/14713012211067027

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Building Systems & Technology

65. Gentile, N., Lee, E. S., Osterhaus, W., Altomonte, S., Naves David Amorim, C., Ciampi, G., Garcia-Hansen, V., Maskarenj, M., Scorpio, M., & Sibilio, S. (2022). Evaluation of integrated daylighting and electric lighting design projects: Lessons learned from international case studies. *Energy and Buildings*. https://doi.org/10.1016/j.enbuild.2022.112191

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

67. Abdulaziz Almarzooq, S., Al-Shaalan, A. M., Farh, H. M. H., & Kandil, T. (2022). Energy conservation measures and value engineering for small microgrid: New hospital as a case study. *Sustainability, 14*(4), 2390. https://doi.org/10.3390/su14042390

68. Ban, Q., Lyu, M., Gao, W., Chen, Y., & Yao, J. (2022). Study on collision detection techniques for the informed design of natural views in healthcare environments. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221084220

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70. Cabrera Jaime, S., Martinez, C., Gonzalo Bachiller, V., Zarza Arnau, N., Martin Maldonado, L., Belén Manrique Palles, A., Artiga Sarrion, I., Tierno Sanchez, N., Julià Torras, J., Sancho, J. M., & Cabrera Jaime, L. (2022). Participatory action research intervention for improving sleep in inpatients with cancer. *Journal of Clinical Nursing*, in press. https://doi.org/10.1111/jocn.16279

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72. Davidson, T. J., Waxenegger, H., Mohamed, I., McConnell, D. S., & Sanderson, P. M. (2022). SPECTRa: An online tool for simulating prehospital patient care. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221090984

73. Joseph, A., Neyens, D., Taaffe, K., Bayramzadeh, S., & Catchpole, K. (2022). Understanding "work as done": Using a structured video-based observational method to understand and model the role of the physical environment in complex clinical work systems. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221089271

74. Karvonen, S., Eskola, M., Haukilahti, A., & Porkkala, T. (2022). Patient-flow analysis for planning a focused hospital layout: Tampere Heart Hospital Case. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221086199

75. Kasali, A. (2022). Generating plan layouts: A case study on visualization of implicit knowledge by "doctor architects." *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221089707

76. Lester, C. A., & Chui, M. A. (2016). Using link analysis to explore the impact of the physical environment on pharmacist tasks. *Research in Social and Administrative Pharmacy, 12*(4), 627–632. https://doi.org/10.1016/j.sapharm.2015.09.011

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81. Michalec, S., Dickinson, J. I., Sullivan, K., Machac, K., & Cline, H. (2018). Cancer treatment facilities: Using design thinking to examine anxiety and the patient experience. *Journal of Interior Design, 43*(4), 3–20. https://doi.org/10.1111/joid.12133

82. Nikabadi, S., Zabihi, H., & Shahcheraghi, A. (2022). Evaluating the effective factors of hospital rooms on patients' recovery using the data mining method. *HERD: Health Environments Research & Design Journal, 15*(1), 97–114. https://doi.org/10.1177/19375867211031305

83. Saelens, S. W. D., Saelens, D., & Heylighen, A. (2021). Understanding and estimating patients' indoor environmental quality assessment: A pilot case study in a hospital ward. *ASHRAE Topical Conference Proceedings*, 1–9. https://www.proquest.com/docview/2630328582/abstract/F559177B4E6427DPQ/1

84. Sailer, K. (2021). Routine action networks: An architectural study of spatial layouts and performativity in outpatient clinics. *Social Networks*. https://doi.org/10.1016/j.socnet.2021.12.004

85. Sal Moslehian, A., Kocaturk, T., Andrews, F., & Tucker, R. (2022). The nature of innovation in hospital building design: A mixed grounded theory study. *Construction Innovation*, in press. https://doi.org/10.1108/CI-12-2021-0236

86. Vahdat, V., Namin, A., Azghandi, R., & Griffin, J. (2019). Improving patient timeliness of care through efficient outpatient clinic layout design using data-driven simulation and optimisation. *Health Systems, 8*(3), 162–183. https://doi.org/10.1080/20476965.2018.1561160

87. Viergutz, H.-K. S., & Apple, M. (2022). A comparison of hospital area measurement in Germany, Canada, Australia, and the United States: Part 1. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/19375867221078838

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