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

AAHF Academy of Architecture for Health Foundation

ASHE
Optimizing health care facilities

FGI

Additional key point summaries provided by

NIHD Nursing Institute for Healthcare Design
INSPIRING AND EDUCATING NURSES

RESEARCH DESIGN connections

Knowledge Repository News

Among the 82 new entries in the Knowledge Repository, there are a number of papers that focus on Labor and Delivery, specifically, the link between birthing room environments and birth outcomes. Check the citations listed in the Care across the Lifespan: Labor & Delivery category.

This edition of the Snap also includes 17 new studies on the built environment in the context of COVID-19. Most of the COVID-19 papers are open-access (free).

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

July - August 2020

COVID-19

1. Azimuddin, A., Thakurdas, S., Hameed, A., Peel, G., & Cheema, F. (2020). Shifting approach to environmentally mediated pathways for mitigating COVID-19: A review of literature on airborne transmission of SARS-CoV-2. *PrePrints.Org*. https://doi.org/10.20944/preprints202007.0194.v1
2. Buonanno, M., Welch, D., Shuryak, I., & Brenner, D. J. (2020). Far-UVC light (222 nm) efficiently and safely inactivates airborne human coronaviruses. *Scientific Reports, 10*(1), 10285. https://doi.org/10.1038/s41598-020-67211-2
3. Capolongo, S., Gola, M., Brambilla, A., Morganti, A., Mosca, E. I., & Barach, P. (2020). COVID-19 and healthcare facilities. A decalogue of design strategies for resilient hospitals. *Acta Bio Medica, 91*(Supplement 9), in press. https://doi.org/10.23750/abm.v91i9-S.10117
4. Chong, C.-F. (2020). Dividing the Emergency Department into Red, Yellow, and Green Zones to Control COVID-19 Infection; a Letter to Editor. *Archives of Academic Emergency Medicine, 8*(1), 1–2. https://doi.org/10.22037/aaem.v8i1.771
5. Dhala, A., Sasangohar, F., Kash, B., Ahmadi, N., & Masud, F. (2020). Rapid implementation and innovative applications of a virtual ICU during the COVID-19 pandemic: A case study (Preprint). *Journal of Medical Internet Research*, Preprint. https://doi.org/10.2196/preprints.20143
6. Hill, C. J., Capra, G. G., McDonald, T. P., Santiago, G. F., & Radabaugh, J. P. (2020). Misconceptions About negative pressure rooms and their impact aboard USNS comfort in New York City. *Otolaryngology–Head and Neck Surgery*, in press. https://doi.org/10.1177/0194599820938016

7. Ian, W. L. E., Sim, X. Y. J., Conceicao, E. P., Aung, M. K., Tan, K. Y., Ko, K. K. K., Wong, H. M., Wijaya, L., Tan, B. H., Venkatachalam, I., & Ling, M. L. (2020). Containing COVID-19 outside the isolation ward: The impact of an infection control bundle on environmental contamination and transmission in a cohorted general ward. *American Journal of Infection Control*, in press. https://doi.org/10.1016/j.ajic.2020.06.188
8. Ierardi, A. M., Wood, B. J., Arrichiello, A., Bottino, N., Bracchi, L., Forzenigo, L., Andrisani, M. C., Vespro, V., Bonelli, C., Amalou, A., Turkbey, E. B., Turkbey, B. I., Granata, G., Pinto, A., Grasselli, G., Stocchetti, N., & Carrafiello, G. (2020). Preparation of a radiology department in an Italian hospital dedicated to COVID-19 patients. *La Radiologia Medica*, in press. https://doi.org/10.1007/s11547-020-01248-1
9. Isha, S. N., Ahmad, A., Kabir, R., & Apu, E. H. (2020). Dental clinic architecture prevents COVID-19-like infectious diseases. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720943992
10. Jin, T., Li, J., Yang, J., Li, J., Hong, F., Long, H., Deng, Q., Qin, Y., Jiang, J., Zhou, X., Song, Q., Pan, C., & Luo, P. (2020). SARS-CoV-2 presented in the air of an intensive care unit (ICU). *Sustainable Cities and Society*, in press. https://doi.org/10.1016/j.scs.2020.102446
11. Kolinski, J. M., & Schneider, T. M. (2020). Superspreading events suggest aerosol transmission of SARS-CoV-2 by accumulation in enclosed spaces. *ArXiv.Org*, e-print arXiv:2007.14807v2
12. Lednicky, J. A., Lauzardo, M., Fan, Z. H., Jutla, A. S., Tilly, T. B., Gangwar, M., Usmani, M., Shankar, S. N., Mohamed, K., Eiguren-Fernandez, A., Stephenson, C. J., Alam, M. M., Elbadry, M. A., Loeb, J. C., Subramaniam, K., Waltzek, T. B., Cherabuddi, K., Morris, J. G., & Wu, C.-Y. (2020). Viable SARS-CoV-2 in the air of a hospital room with COVID-19 patients. *MedRxiv*, preprint. https://doi.org/10.1101/2020.08.03.20167395
13. Morawska, L., & Milton, D. K. (2020). It is time to address airborne transmission of COVID-19. *Clinical Infectious Diseases*, in press. https://doi.org/10.1093/cid/ciaa939
14. Razzini, K., Castrica, M., Menchetti, L., Maggi, L., Negroni, L., Orfeo, N. V., Pizzoccheri, A., Stocco, M., Muttini, S., & Balzaretti, C. M. (2020). SARS-CoV-2 RNA detection in the air and on surfaces in the COVID-19 ward of a hospital in Milan, Italy. *The Science of the Total Environment, 742*, 140540. https://doi.org/10.1016/j.scitotenv.2020.140540
15. Romano-Bertrand, S., Aho-Glele, L.-S., Grandbastien, B., Gehanno, J.-F., & Lepelletier, D. (2020). Sustainability of SARS-CoV-2 in aerosols: Should we worry about airborne transmission? *Journal of Hospital Infection*, in press. https://doi.org/10.1016/j.jhin.2020.06.018
16. Santarpia, J. L., Rivera, D. N., Herrera, V. L., Morwitzer, M. J., Creager, H. M., Santarpia, G. W., Crown, K. K., Brett-Major, D. M., Schnaubelt, E. R., Broadhurst, M. J., Lawler, J. V., Reid, S. P., & Lowe, J. J. (2020). Aerosol and surface contamination of SARS-CoV-2 observed in quarantine and isolation care. *Scientific Reports, 10*(1), 12732. https://doi.org/10.1038/s41598-020-69286-3

17. Smith, S. H., Somsen, G. A., van Rijn, C., Kooij, S., van der Hoek, L., Bem, R. A., & Bonn, D. (2020). Probability of aerosol transmission of SARS-CoV-2. *MedRxiv*, preprint. https://doi.org/10.1101/2020.07.16.20155572

Experience

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

18. Morgan, S., Pullon, S., McKinlay, E., Garrett, S., Kennedy, J., & Watson, B. (2020). Collaborative care in primary care: The influence of practice interior architecture on informal face-to-face communication—an observational study. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720939665

19. Sundberg, F., Fridh, I., Lindahl, B., & Kåreholt, I. (2020). Visitor's Experiences of an Evidence-Based Designed Healthcare Environment in an Intensive Care Unit. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720943471

20. Zhang, S., Zheng, J., & Wu, Y. (2020). Field study of air environment perceptions and influencing factors in waiting spaces of general hospitals in winter cities. *Building and Environment*, in press. https://doi.org/10.1016/j.buildenv.2020.107203

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

21. Aemmi, S. Z., Mohammadi, E., Heidarian-Miri, H., Fereidooni-Moghadam, M., Boostani, H., & Zarea, K. (2020). The effectiveness of bright light exposure in shift-worker nurses: A systematic review and meta-analysis. *Sleep Science, 13*(2), 145–151. https://doi.org/10.5935/1984-0063.20190137

22. Foote, F. O., Benson, H., Berger, A., Berman, B., DeLeo, J., Deuster, P. A., Lary, D. J., Silverman, M. N., & Sternberg, E. M. (2018). Advanced metrics for assessing holistic care: The "Epidaurus 2" Project. *Global Advances in Health and Medicine, 7*, 1–19. https://doi.org/10.1177/2164957X18755981

23. Gao, C., & Zhang, S. (2020). The restorative quality of patient ward environment: Tests of six dominant design characteristics. *Building and Environment*, in press. https://doi.org/10.1016/j.buildenv.2020.107039

24. Griepentrog, J. E., Labiner, H. E., Gunn, S. R., & Rosengart, M. R. (2018). Bright environmental light improves the sleepiness of nightshift ICU nurses. *Critical Care, 22*(1), 295. https://doi.org/10.1186/s13054-018-2233-4

25. Hassanain, M. A., Dehwah, A. H. A., Sanni-Anibire, M. O., & Ahmed, W. (2020). Quality assessment of a campus medical facility: A users' perspective approach. *International Journal of Workplace Health Management*, in press. https://doi.org/10.1108/IJWHM-01-2020-0001

26. Jamshidi, S., & Pati, D. (2020). A narrative review of theories of wayfinding within the interior environment. *HERD: Health Environments Research & Design Journal*. https://doi.org/10.1177/1937586720932276

27. Jiang, S., Staloch, K., & Kaljevic, S. (2018). Opportunities and barriers to using hospital gardens: Comparative post occupancy evaluations of healthcare landscape environments. *Journal of Therapeutic Horticulture, 28*(2), 23–55.

28. Karanikola, P., Andrea, V., Tampakis, S., & Tsolakidou, A. (2020). Indoor and outdoor design in healthcare environments: The employees' views in the General University Hospital of Alexandroupolis, Greece. *Environments, 7*(61), 18. https://doi.org/10.3390/environments7080061

29. Kunduraci, A. C. (2018). User centered design approach to lighting design of healthcare facilities. *International Journal of Housing and Human Settlement Planning, 4*(1), 6.

30. McCunn, L. J., Safranek, S., Wilkerson, A., & Davis, R. G. (2020). Lighting control in patient rooms: Understanding nurses' perceptions of hospital lighting using qualitative methods. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720946669

31. Nasab, S. N., Azeri, A. R. K., & Mirbazel, S. (2020). Effective environmental factors for reducing children's fear in children's hospital. *ICONARP International Journal of Architecture and Planning, 8*(1), 1–19. https://doi.org/10.15320/ICONARP.2020.102

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33. Schmidt, N., Gerber, S. M., Zante, B., Gawliczek, T., Chesham, A., Gutbrod, K., Müri, R. M., Nef, T., Schefold, J. C., & Jeitziner, M.-M. (2020). Effects of intensive care unit ambient sounds on healthcare professionals: Results of an online survey and noise exposure in an experimental setting. *Intensive Care Medicine Experimental, 8*(34), 1–12. https://doi.org/10.1186/s40635-020-00321-3

34. van Oel, C. J., Mlihi, M., & Freeke, A. (2020). Design models for single patient rooms tested for patient preferences. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720937995

Safety

Infection Prevention/Control

35. Horve, P. F., Dietz, L. G., Ishaq, S. L., Kline, J., Fretz, M., & Van Den Wymelenberg, K. G. (2020). Viable bacterial communities on hospital window components in patient rooms. *PeerJ, 8*, e9580. https://doi.org/10.7717/peerj.9580

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Security

40. MohammadiGorji, S., Bosch, S. J., Valipoor, S., & De Portu, G. (2020). Investigating the impact of healthcare environmental design on staff security: A systematic review. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720921407

Care across the Lifespan

Therapeutic Environments: Behavioral/Mental Health

41. Tafahomi, R., & Nadi, R. (2020). Insight into the missing aspects of therapeutic landscape in psychological centres in Kigali, Rwanda. *Cities & Health*, in press. https://doi.org/10.1080/23748834.2020.1774035

Pediatric

42. Best, K., Hughes, I., New, K., & Bogossian, F. (2020). An observational study of sound exposure in a single-room configured neonatal unit (SENSE study). *Journal of Neonatal Nursing*, in press. https://doi.org/10.1016/j.jnn.2020.05.002

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46. Kahraman, A., Gümüş, M., Akar, M., Sipahi, M., Bal Yılmaz, H., & Başbakkal, Z. (2020). The effects of auditory interventions on pain and comfort in premature newborns in the neonatal intensive care unit; a randomised controlled trial. *Intensive and Critical Care Nursing*, in press. https://doi.org/10.1016/j.iccn.2020.102904

Labor & Delivery

47. Ayerle, G. M., Schäfers, R., Mattern, E., Striebich, S., Haastert, B., Vomhof, M., Icks, A., Ronniger, Y., & Seliger, G. (2018). Effects of the birthing room environment on vaginal births and client-centred outcomes for women at term planning a vaginal birth: BE-UP, a multicentre randomised controlled trial. *Trials, 19*(1), 641. https://doi.org/10.1186/s13063-018-2979-7

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51. Niela-Vilen, H., Axelin, A., & Flacking, R. (2020). The golden hour in Finnish birthing units—An ethnographic study. *Midwifery, 89*, in press. https://doi.org/10.1016/j.midw.2020.102793

52. Tavakoli, M., Emami, A., & Mirsaeedie, L. (2020). Environmental factors affecting mother in the maternity ward (Case study: Four hospitals in Golestan Province). *International Journal of Architectural Engineering & Urban Planning, 30*(1), 54–65. https://doi.org/10.22068/ijaup.30.1.54

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54. Williams, L., Jenkinson, B., Lee, N., Gao, Y., Allen, J., Morrow, J., & Kildea, S. (2020). Does introducing a dedicated early labour area improve birth outcomes? A pre-post intervention study. *Women and Birth, 33*(3), 259–264. https://doi.org/10.1016/j.wombi.2019.05.001

Elders/Aging

55. Scheuermaier, K., Münch, M., Ronda, J. M., & Duffy, J. F. (2018). Improved cognitive morning performance in healthy older adults following blue-enriched light exposure on the previous evening. *Behavioural Brain Research, 348*, 267–275. https://doi.org/10.1016/j.bbr.2018.04.021

56. Torres, A., Serra, J., Llopis, J., & Delcampo, A. (2020). Color preference cool versus warm in nursing homes depends on the expected activity for interior spaces. *Frontiers of Architectural Research*, in press. https://doi.org/10.1016/j.foar.2020.06.002

Cognitive Impairment & Dementia

57. Adlbrecht, L., Bartholomeyczik, S., Hildebrandt, C., & Mayer, H. (2020). Social interactions of persons with dementia living in special care units in long-term care: A mixed-methods systematic review. *Dementia*, in press. https://doi.org/10.1177/1471301220919937
58. Brambilla, A., Maino, R., Mangili, S., & Capolongo, S. (2020). Built environment and Alzheimer. Quality evaluation of territorial structures for patients with dementia. In C. Bevilacqua, F. Calabrò, & L. Della Spina (Eds.), *New Metropolitan Perspectives* (pp. 178–186). Springer International Publishing. https://doi.org/10.1007/978-3-030-52869-0_15
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60. Gomes, G. P. R., Rubin, S., Duker, L. I. S., Benton, D., Kratky, A., Chen, S. Y. A., Jordan-Marsh, M., & Gotsis, M. (2020). Healing spaces: Feasibility of a multisensory experience for older adults with advanced dementia and their caregivers. *Proceedings of the 13th ACM International Conference on Pervasive Technologies Related to Assistive Environments*, 1–9. https://doi.org/10.1145/3389189.3392607
61. Janus, S. I. M., Kosters, J., van den Bosch, K. A., Andringa, T. C., Zuidema, S. U., & Luijendijk, H. J. (2020). Sounds in nursing homes and their effect on health in Dementia: A systematic review. *International Psychogeriatrics*, in press. https://doi.org/10.1017/S1041610220000952
62. Lorusso, L., Park, N.-K., Bosch, S., Freytes, I. M., Shorr, R., Conroy, M., & Ahrentzen, S. (2020). Sensory environments for behavioral health in Dementia: Diffusion of an environmental innovation at the Veterans Health Administration. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720922852

Aging in Place/Healthcare at Home

63. Costa, P., Laurìa, A., & Chiesi, L. (2020). Promoting autonomy through home adaptations. Appropriation of domestic spaces in Italy. *Disability & Society*, in press. https://doi.org/10.1080/09687599.2020.1783205
64. Yu, Y., Chen, Z., Bu, J., & Zhang, Q. (2020). Do stairs inhibit seniors who live on upper floors from going out? *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720936588

Building Systems & Technology

65. Mousavi, E., Khademi, A., & Taaffe, K. (2020). Optimal Sensor placement in a hospital operating room. *IISE Transactions on Healthcare Systems Engineering*, in press. https://doi.org/10.1080/24725579.2020.1790698
66. Soltic, S., & Chalmers, A. (2019). Optimization of LED lighting for clinical settings. *Journal of Healthcare Engineering*, 1–8. https://doi.org/10.1155/2019/5016013

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

67. Choi, J., Leite, F., & de Oliveira, D. P. (2020). BIM-based benchmarking for healthcare construction projects. *Automation in Construction, 119*, in press. https://doi.org/10.1016/j.autcon.2020.103347

68. Groeneveld, B., Dekkers, T., Boon, B., & D'Olivo, P. (2018). Challenges for design researchers in healthcare. *Design for Health, 2*(2), 305–326. https://doi.org/10.1080/24735132.2018.1541699

69. Hasegawa, Y., & Ryherd, E. (2020). Clustering acoustical measurement data in pediatric hospital units. *The Journal of the Acoustical Society of America, 148*(1), 265–277. https://doi.org/10.1121/10.0001584

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73. Jouppila, T., & Tiainen, T. (2020). Nurses' participation in the design of an intensive care unit: The use of virtual mock-ups. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720935407

74. Mahmoud, R. M. A., & Youssef, A. M. A. (2020). Design framework for robotic surgery wards at hospitals: Computational implementation. *Frontiers of Architectural Research*, in press. https://doi.org/10.1016/j.foar.2020.05.002

75. Mills, P. D., Soncrant, C., Bender, J., & Gunnar, W. (2020). Impact of over-the-door alarms: Root cause analysis review of suicide attempts and deaths on veterans health administration mental health units. *General Hospital Psychiatry, 64*, 41–45. https://doi.org/10.1016/j.genhosppsych.2020.01.005

76. Mohammed, K., Nolan, M. B., Rajjo, T., Shah, N. D., Prokop, L. J., Varkey, P., & Murad, M. H. (2016). Creating a patient-centered health care delivery system: A systematic review of health care quality from the patient perspective. *American Journal of Medical Quality, 31*(1), 12–21. https://doi.org/10.1177/1062860614545124

77. Nanda, U., & Wingler, D. (2020). Practice-based research methods and tools: Introducing the Design Diagnostic. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720945176

78. Pilosof, N. P. (2020). Building for change: Comparative case study of hospital architecture. *HERD: Health Environments Research & Design Journal*, in press. https://doi.org/10.1177/1937586720927026

79. Sadek, A. H., & Willis, J. (2020). Are we measuring what we ought to measure? A review of tools assessing patient perception of the healthcare built environment and their suitability for oncology spaces. *Journal of Environmental Psychology*, in press. https://doi.org/10.1016/j.jenvp.2020.101486

80. Schönbeck, P., Löfsjögård, M., & Ansell, A. (2020). Framework for change control in healthcare construction projects compared to current practice. *International Journal of Construction Management*, in press. https://doi.org/10.1080/15623599.2020.1795987

81. Veneklaas, W., Leeftink, A. G., van Boekel, P. H. C. M., & Hans, E. W. (2020). On the design, implementation, and feasibility of hospital admission services: The admission lounge case. *Omega*, in press. https://doi.org/10.1016/j.omega.2020.102308

Other

82. Sherman, J. D., Thiel, C., MacNeill, A., Eckelman, M. J., Dubrow, R., Hopf, H., Bialowitz, J., Costello, A., Forbes, M., Stancliffe, R., Anastas, P., Anderko, L., Baratz, M., Barna, S., Bhatnagar, U., Burnham, J., Cai, Y., Cassels-Brown, A., Cimprich, A. F. P., … Bilec, M. M. (2020). The green print: Advancement of environmental sustainability in healthcare. *Resources, Conservation and Recycling, 161*, in press. https://doi.org/10.1016/j.resconrec.2020.104882