



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



Design for Aging

an AIA Knowledge Community



Additional key point summaries provided by



RESEARCH DESIGN
connections

Knowledge Repository News

Among the 81 new entries in the Knowledge Repository, several papers focus on design and evaluation. You will find articles on process-driven methods and evaluation tools including Lean, simulation modeling, user-experience, and other participatory research methods. Check out the citations listed in the Design & Evaluation category below.

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

September - October 2019

Experience

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

1. Beldam, M.-B. (2019). The importance of several room acoustic descriptors in operation rooms. *Proceedings of the 23rd International Congress on Acoustics*, 4646–4653. Retrieved from <http://pub.dega-akustik.de/ICA2019/data/articles/000045.pdf>
2. Larsen, T. M., Jeong, C.-H., Beldam, M.-B., Brunskog, J., & Weitze, C. (2019). An investigation of room functions and acoustic demands in selected departments in three Danish hospitals. *Proceedings of the 23rd International Congress on Acoustics*, 7803–7810. Aachen, Germany.
3. Mody, M. A., Suess, C., & Dogru, T. (2019). Restorative servicescapes in health care: Examining the influence of hotel-like attributes on patient well-being. *Cornell Hospitality Quarterly*, in press. <https://doi.org/10.1177/1938965519879430>
4. Suess, C., & Mody, M. A. (2018a). Hotel-like hospital rooms' impact on patient well-being and willingness to pay: An examination using the theory of supportive design. *International Journal of Contemporary Hospitality Management*, 30(10), 3006–3025. <https://doi.org/10.1108/IJCHM-04-2017-0231>
5. Suess, C., & Mody, M. A. (2018b). The influence of hospitable design and service on patient responses. *The Service Industries Journal*, 38(1–2), 127–147. <https://doi.org/10.1080/02642069.2017.1385773>
6. Tariq, S., Chauhan, M. N., Ahmed, S. E., & Canelo, R. (2018). Patients perspective on multiple vs. Single-occupancy rooms in a busy district hospital. *Journal of Patient Care*, 4(2), 1–4. <https://doi.org/10.4172/2573-4598.1000142>



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

7. Arbel, I., Ye, B., & Mihailidis, A. (2019). Stroke patients' experiences in an adaptive healing room in a stroke rehabilitation unit. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586719879060>
8. Davoodi, A., Johansson, P., & Aries, M. (2019). The use of lighting simulation in the evidence-based design process: A case study approach using visual comfort analysis in offices. *Building Simulation*, in press. <https://doi.org/10.1007/s12273-019-0578-5>
9. de Matos, L. B. N., Fumis, R. R. L., Nassar Junior, A. P., Lacerda, F. H., & Caruso, P. (2019). Single-bed or multibed room designs influence ICU staff stress and family satisfaction, but do not influence ICU staff burnout. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586719878445>
10. Goyal, A., Glanzman, H., Quinn, M., Tur, K., Singh, S., Winter, S., ... Chopra, V. (2019). Do bedside whiteboards enhance communication in hospitals? An exploratory multimethod study of patient and nurse perspectives. *BMJ Quality & Safety*, in press. <https://doi.org/10.1136/bmjqs-2019-010208>
11. Harper, C., Jefferies, S., Crosser, A., Avera, A., Duke, T., & Klisans, D. V. (2019). Exploring hospital wayfinding systems: Touchscreen kiosks, apps and environmental cues. *Proceedings of the International Symposium on Human Factors and Ergonomics in Health Care*, 8(1), 172–175. <https://doi.org/10.1177/2327857919081042>
12. Jamrozik, A., Clements, N., Hasan, S. S., Zhao, J., Zhang, R., Campanella, C., ... Bauer, B. (2019). Access to daylight and view in an office improves cognitive performance and satisfaction and reduces eyestrain: A controlled crossover study. *Building and Environment*, 165, in press. <https://doi.org/10.1016/j.buildenv.2019.106379>
13. Martin, D., Nettleton, S., & Buse, C. (2019). Affecting care: Maggie's Centres and the orchestration of architectural atmospheres. *Social Science & Medicine*. <https://doi.org/10.1016/j.socscimed.2019.112563>
14. Pineda, R., Durant, P., Mathur, A., Inder, T., Wallendorf, M., & Schlaggar, B. L. (2017). Auditory exposure in the Neonatal Intensive Care Unit: Room type and other predictors. *The Journal of Pediatrics*, 183, 56-66.e3. <https://doi.org/10.1016/j.jpeds.2016.12.072>
15. Vasconcelos, M., Melo, S., & Souza, H. A. (2019). Analysis of the perception of users of pre-hospital architecture in light steel frame: A case study in Minas Gerais, Brazil. *Journal of Civil Engineering and Architecture*, 13(4), 251–258. <https://doi.org/10.17265/1934-7359/2019.04.004>
16. Wiggermann, N., Rempel, K., Zerhusen, R. M., Pelo, T., & Mann, N. (2019). Human-centered design process for a hospital bed: Promoting patient safety and ease of use. *Ergonomics in Design*, 27(2), 4–12. <https://doi.org/10.1177/1064804618805570>
17. Wingler, D., & Keys, Y. (2019). Understanding the impact of the physical healthcare environment on nurse fatigue. *Journal of Nursing Management*, in press. <https://doi.org/10.1111/jonm.12862>



Safety

18. Das, P., Pham, T., Fletcher, L., Herriman, M., & Milanaik, R. (2017). Potential structural obstacles to effective implementation of neonatal intensive care unit rapid response teams. *Clinics in Mother and Child Health*, 14(3). <https://doi.org/10.4172/2090-7214.1000269>
19. Hignett, S., Hancox, G., & Otter, M. E. (2019). Chemical, biological, radiological, nuclear and explosive (CBRNe) events. *International Journal of Emergency Services*, in press. <https://doi.org/10.1108/IJES-05-2018-0030>

Infection Prevention/Control

20. Aithinne, K. A. N., Cooper, C. W., Lynch, R. A., & Johnson, D. L. (2019). Toilet plume aerosol generation rate and environmental contamination following bowl water inoculation with *Clostridium difficile* spores. *American Journal of Infection Control*, 47(5), 515–520. <https://doi.org/10.1016/j.ajic.2018.11.009>
21. Bache, S. E., Maclean, M., MacGregor, S. J., Anderson, J. G., Gettinby, G., Coia, J. E., & Taggart, I. (2012). Clinical studies of the high-intensity narrow-spectrum light environmental decontamination system (HINS-light EDS), for continuous disinfection in the burn unit inpatient and outpatient settings. *Burns*, 38(1), 69–76. <https://doi.org/10.1016/j.burns.2011.03.008>
22. Bang, C. S., Lee, K., Yang, Y. J., & Baik, G. H. (2019). Ambient air pollution in gastrointestinal endoscopy unit. *Surgical Endoscopy*, in press. <https://doi.org/10.1007/s00464-019-07144-8>
23. Božić, J., Ilić, P., Ilić, S., Božić, J., Ilić, P., & Ilić, S. (2019). Indoor air quality in the hospital: The influence of heating, ventilating and conditioning systems. *Brazilian Archives of Biology and Technology*, 62. <https://doi.org/10.1590/1678-4324-2019180295>
24. Ilyas, F., Burbridge, B., & Babyn, P. (2019). Health care-associated infections and the radiology department. *Journal of Medical Imaging and Radiation Sciences*, in press. <https://doi.org/10.1016/j.jmir.2019.07.011>
25. Jang, H., Justice, S., & Polgreen, P. M. (2019). *Evaluating architectural changes to alter pathogen dynamics in a dialysis unit*. 1–8. Vancouver, BC, Canada: Association for Computing Machinery.
26. Maclean, M., Booth, M. G., Anderson, J. G., MacGregor, S. I., Woolsey, G. A., Coia, J. E., ... Gettinby, G. (2013). Continuous decontamination of an intensive care isolation room during patient occupancy using 405 nm light technology. *Journal of Infection Prevention*, 14(5), 176–181. <https://doi.org/10.1177/1757177413483646>
27. Maclean, M., MacGregor, S. J., Anderson, J. G., Woolsey, G. A., Coia, J. E., Hamilton, K., ... Gettinby, G. (2010). Environmental decontamination of a hospital isolation room using high-intensity narrow-spectrum light. *Journal of Hospital Infection*, 76(3), 247–251. <https://doi.org/10.1016/j.jhin.2010.07.010>
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30. Troiano, G., Sacco, C., Donato, R., Pini, G., Niccolini, F., & Nante, N. (2019). Demolition activities in a healthcare facility: Results from a fungal surveillance after extraordinary preventive measures. *Public Health*, *175*, 145–147. <https://doi.org/10.1016/j.puhe.2019.07.012>

Falls

31. Hanger, H. C. (2017). Low-impact flooring: Does it reduce fall-related injuries? *Journal of the American Medical Directors Association*, *18*(7), 588–591. <https://doi.org/10.1016/j.jamda.2017.01.012>

Security

32. Colman, N., Stone, K., Arnold, J., Doughty, C., Reid, J., Younker, S., & Hebbbar, K. B. (2019). Prevent safety threats in new construction through integration of simulation and FMEA. *Pediatric Quality & Safety*, *4*(4), e189. <https://doi.org/10.1097/pq9.000000000000189>

Care across the Lifespan

Pediatric

33. Grome, A. (2019). Application of human factors in neonatal intensive care unit redesign. In E. L. Papautsky (Ed.), & J. Greenberg (Trans.), *Structural Approaches to Address Issues in Patient Safety* (pp. 75–97). <https://doi.org/10.1108/S1474-823120190000018004>
34. Hill, C., Knafl, K. A., & Santacroce, S. J. (2018). Family-centered care from the perspective of parents of children cared for in a pediatric intensive care unit: An integrative review. *Journal of Pediatric Nursing*, *41*, 22–33. <https://doi.org/10.1016/j.pedn.2017.11.007>
35. Pineda, R., Raney, M., & Smith, J. (2019). Supporting and enhancing NICU sensory experiences (SENSE): Defining developmentally-appropriate sensory exposures for high-risk infants. *Early Human Development*, *133*, 29–35. <https://doi.org/10.1016/j.earlhumdev.2019.04.012>
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Labor & Delivery

37. Minnick, A. F., Schorn, M. N., Dietrich, M. S., & Donaghey, B. (2019). Providers' reports of environmental conditions and resources at births in the United States. *Western Journal of Nursing Research*, *41*(6), 854–871. <https://doi.org/10.1177/0193945918796629>



38. Terrin, G., Conte, F., Scipione, A., Aleandri, V., Di Chiara, M., Bacchio, E., ... De Curtis, M. (2016). New architectural design of delivery room reduces morbidity in preterm neonates: A prospective cohort study. *BMC Pregnancy and Childbirth*, *16*(1), 63. <https://doi.org/10.1186/s12884-016-0849-4>

Elders/Aging

39. Bevan, V., Edwards, C., Woodhouse, K., & Singh, I. (2016). Dignified care for older people: Mixed methods evaluation of the impact of the hospital environment – single rooms or multi-bedded wards. *Healthy Aging Research*, *5*(1), 1–8. <https://doi.org/10.12715/har.2016.5.4>
40. Palmer, R. M. (2018). The acute care for elders unit model of care. *Geriatrics*, *3*(3), 1–16. <https://doi.org/10.3390/geriatrics3030059>

Cognitive Impairment & Dementia

41. Bracken-Scally, M., Keogh, B., Daly, L., Pittalis, C., Kennelly, B., Hynes, G., ... Brady, A.-M. (2019). Assessing the impact of dementia inclusive environmental adjustment in the emergency department. *Dementia*, in press. <https://doi.org/10.1177/1471301219862942>
42. Ferdous, F. (2019). Positive social interaction by spatial design: A systematic review of empirical literature in memory care facilities for people experiencing dementia. *Journal of Aging and Health*. <https://doi.org/10.1177/0898264319870090>
43. Ludden, G. D. S., van Rompay, T. J. L., Niedderer, K., & Tournier, I. (2019). Environmental design for dementia care—Towards more meaningful experiences through design. *Maturitas*, *128*, 10–16. <https://doi.org/10.1016/j.maturitas.2019.06.011>
44. Mathiasen, N., Kirkeby, I. M., & Sigbrand, L. (2018). A Universal Design perspective on care homes for elderly people with and without dementia. In G. Craddock, C. Doran, L. McNutt, & D. Rice (Eds.), *Transforming our world through design, diversity and education* (pp. 336–344). <https://doi.org/10.3233/978-1-61499-923-2-336>
45. Uwajeh, P. C., Iyendo, T. O., & Polay, M. (2019). Therapeutic gardens as a design approach for optimising the healing environment of patients with Alzheimer's disease and other dementias: A narrative review. *EXPLORE*, in press. <https://doi.org/10.1016/j.explore.2019.05.002>
46. Varshawsky, A. L., & Traynor, V. (2019). Graphic designed bedroom doors to support dementia wandering in residential care homes: Innovative practice. *Dementia*, in press. <https://doi.org/10.1177/1471301219868619>
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Aging in Place/Healthcare at Home

48. Alvariza, A., Mjörnberg, M., & Goliath, I. (2019). Palliative care nurses' strategies when working in private homes – a photo elicitation study. *Journal of Clinical Nursing*. <https://doi.org/10.1111/jocn.15072>



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50. Ludden, G. D. S., & Vallgård, A. (2019). A design perspective on future healthcare services for the home environment. In M. A. Pfannstiel & C. Rasche (Eds.), *Service Design and Service Thinking in Healthcare and Hospital Management: Theory, Concepts, Practice* (pp. 155–167). https://doi.org/10.1007/978-3-030-00749-2_10

Building Systems & Technology

51. Aganovic, A., Cao, G., Stenstad, L.-I., & Skogås, J. G. (2019). An experimental study on the effects of positioning medical equipment on contaminant exposure of a patient in an operating room with unidirectional downflow. *Building and Environment*, 165, in press. <https://doi.org/10.1016/j.buildenv.2019.04.032>
52. Blass, A. P., Gouvea da Costa, S. E., Pinheiro de Lima, E., Tortato, U., & Borges, L. A. (2020). Environmental performance measurement in hospitals: A bibliometric review of literature (1987–2017). In W. Leal Filho, U. Tortato, & F. Frankenberger (Eds.), *Universities and Sustainable Communities: Meeting the Goals of the Agenda 2030* (pp. 133–145). https://doi.org/10.1007/978-3-030-30306-8_8
53. Carretero-Ayuso, M. J., & García-Sanz-Calcedo, J. (2018). Analytical study on design deficiencies in the envelope projects of healthcare buildings in Spain. *Sustainable Cities and Society*, 42, 139–147. <https://doi.org/10.1016/j.scs.2018.07.004>
54. Daruwalla, Z., Thakkar, V., Aggarwal, M., Kiasatdolatabadi, A., Guergachi, A., & Keshavjee, K. (2019). Patient empowerment: The role of technology. In F. Lau, J. A. Bartle-Clar, G. Bliss, E. M. Borycki, & K. L. Courtney (Eds.), *Improving usability, safety and patient outcomes with Health Information Technology* (pp. 70–74). <https://doi.org/10.3233/978-1-61499-951-5-70>
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56. Li, A., & Borycki, E. M. (2019). Smart homes for healthcare. In F. Lau, J. A. Bartle-Clar, G. Bliss, E. M. Borycki, & K. L. Courtney (Eds.), *Improving usability, safety and patient outcomes with Health Information Technology* (pp. 283–287). <https://doi.org/10.3233/978-1-61499-951-5-236>
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58. Sattar, S., Segura, C. L., Johnson, K. J., McAllister, T. P., & McCabe, S. L. (2019). Building Design Considerations to Support Immediate Occupancy Performance Objectives. *12th Canadian Conference on Earthquake Engineering*. Presented at the Canadian Conference on Earthquake Engineering, Quebec City. Retrieved from <https://www.nist.gov/publications/building-design-considerations-support-immediate-occupancy-performance-objectives>



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

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65. Brittin, J., Okland, K., Rogers, J. L., Rich, R. K., Bazuin, D., Harper, K., & Roy, L. (2019). From competition to collaboration: How a multi-firm research coalition is realizing rigorous facility evaluation at Parkland Hospital. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586719879717>
66. Carthey, J. (2019). User group consultation: Design quality and project success. *HERD: Health Environments Research & Design Journal*. <https://doi.org/10.1177/1937586719873143>
67. Colman, N., Doughty, C., Arnold, J., Stone, K., Reid, J., Dalpiaz, A., & Hebbbar, K. B. (2019). Simulation-based clinical systems testing for healthcare spaces: From intake through implementation. *Advances in Simulation*, 4(1), 19. <https://doi.org/10.1186/s41077-019-0108-7>
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73. Landi, D., & Smith, G. (2019). The implications of a new paradigm of care on the built environment. The Humanitas© Deventer model: Innovative practice. *Dementia*, in press. <https://doi.org/10.1177/1471301219845480>
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75. McGee, B., Park, N.-K., Portillo, M., Bosch, S., & Swisher, M. (2019). DIY biophilia: Development of the biophilic interior design matrix as a design tool. *Journal of Interior Design*. <https://doi.org/10.1111/joid.12159>
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Other

80. Dejaco, M. C., Gramigna, M., & Moretti, N. (2019). Plant maintenance in hospitals facilities. *IOP Conference Series: Materials Science*, 296. <https://doi.org/10.1088/1755-1315/296/1/012030>



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<https://doi.org/10.1016/j.ijdr.2019.101350>