



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



Additional key point summaries provided by



RESEARCH DESIGN
CONNECTIONS

Knowledge Repository News

Among the 52 new entries in the Knowledge Repository, we continue to see more additions to the built-environment-research on COVID-19. Two of these focus on the ongoing investigation around the possible role of surface transmission in the spread of coronavirus. A fresh-off-the-press literature review by Marquèz and colleagues – as well as a brand new study using environmental sampling by Wei and colleagues – both conclude that surface transmission is plausible. The review and study both discuss the evidence around fomites and SARS-CoV-2, with some samples showing viable virus detected on surfaces for up to a few days. The jury is still out on the likelihood of becoming infected from viable COVID on these surfaces. One year after the onset of this pandemic, the best course of action against the possibility of contact transmission remains the same as it ever was: hand hygiene and rigorous cleaning protocols. Thankfully, findings seem clear around the success of common chemicals and biocides in deactivating the virus. Both studies are open-access and can be found by clicking on the links below.

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

November - December 2020

COVID-19

1. Anderson, D. C., Grey, T., Kennelly, S., & O'Neill, D. (2020). Nursing home design and COVID-19: Balancing infection control, quality of life, and resilience. *Journal of the American Medical Directors Association*, 21(11), 1519–1524. <https://doi.org/10.1016/j.jamda.2020.09.005>
2. Birgand, G., Peiffer-Smadja, N., Fournier, S., Kerneis, S., Lescure, F.-X., & Lucet, J.-C. (2020). Assessment of air contamination by SARS-CoV-2 in hospital settings. *JAMA Network Open*, 3(12). <https://doi.org/10.1001/jamanetworkopen.2020.33232>
3. Eilouti, B. (2020). Form follows users: A framework for system-based design. *Architectural Engineering and Design Management*, in press. <https://doi.org/10.1080/17452007.2020.1833831>
4. Gordon, D., Ward, J., Yao, C. J., & Lee, J. (2020). Built environment airborne infection control strategies in pandemic alternative care sites. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720979832>



5. Karolina, N., Janina, K., Dario, A., Hoffman, T., Jiabin, L., Åke, L., Lennart, S., & Erik, S. (2020). Long-distance airborne dispersal of SARS-CoV-2 in COVID-19 wards. *Scientific Reports (Nature Publisher Group)*, 10(1). <http://dx.doi.org/10.1038/s41598-020-76442-2>
6. Marquès, M., & Domingo, J. L. (2021). Contamination of inert surfaces by SARS-CoV-2: Persistence, stability and infectivity. A review. *Environmental Research*, 193. <https://doi.org/10.1016/j.envres.2020.110559>
7. Plotas, P., Kagkellaris, K., Konstantopoulou, A., Georgakopoulos, C., & Jelastopulu, E. (2020). The use of acrylic window as protective physical barrier against coronavirus infection in the context of voice disorders. *Speech, Language and Hearing*, in press. <https://doi.org/10.1080/2050571X.2020.1839715>
8. Rocco, A. D., Berger, A., Capra, A., & Oliveira, M. (2020). Design as a positive stimulus in a Brazilian hospital environment. *Strategic Design Research Journal*, 13(3), 632–645. <https://doi.org/10.4013/sdrj.2020.133.26>
9. Wei, L., Huang, W., Lu, X., Wang, Y., Cheng, L., Deng, R., Long, H., & Zong, Z. (2020). Contamination of SARS-CoV-2 in patient surroundings and on personal protective equipment in a non-ICU isolation ward for COVID-19 patients with prolonged PCR positive status. *Antimicrobial Resistance & Infection Control*, 9(1), 167–171. <https://doi.org/10.1186/s13756-020-00839-x>

Experience

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

10. Bliefnick, J., & Ryherd, E. E. (2020). Subjective perception of hospital environments with varying dynamic ranges of noise. *The Journal of the Acoustical Society of America*, 148, 2479–2479. <https://doi.org/10.1121/1.5146868>
11. Finkel, J., Printz, B., Gallagher, L. M., Au, A., Shibuya, K., & Bethoux, F. (2020). Patient perceptions of landscape and abstract art in inpatient cardiac units: A cross-sectional survey. *HERD: Health Environments Research & Design Journal*. <https://doi.org/10.1177/1937586720973581>
12. Haddadzadegan, H., Zomorodian, Z. S., Tahsildoost, M., & Jamy, S. (2020). Evaluation of the effective environmental factors on patient and companion. *Journal of Iranian Architecture & Urbanism*. <https://doi.org/10.30475/isau.2020.219849.1358>
13. Sadeghian, M., & Almasi, M. (2020). The Active Noise Control system design to reduce noise pollution in hospitals. *Proceedings of The 7th International Conference on Innovation in Science and Technology*, 1–8.
14. Zijlstra, E., Hagedoorn, M., Lechner, S. C. M., van der Schans, C. P., & Mobach, M. P. (2020). The experience of patients in an outpatient infusion facility: A qualitative study. *Facilities*, ahead-of-print. <https://doi.org/10.1108/F-03-2020-0022>



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

15. Colley, J., Zeeman, H., & Kendall, E. (2020). How the built environment matters in recovery after neurotrauma: A qualitative examination of first-person experiences across two inpatient settings. *Design for Health*, 4(3), 365–383. <https://doi.org/10.1080/24735132.2020.1848975>
16. Feenstra, F. (2020). Reactivating hospital, active patients through special design. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720966757>
17. Graves, E., Davis, R. G., DuBose, J., Campiglia, G. C., Wilkerson, A., & Zimring, C. (2020). Lighting the patient room of the future: Evaluating different lighting conditions for performing typical nursing tasks. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720972078>
18. Jurewicz, K. A., Neyens, D. M., Catchpole, K., Joseph, A., Reeves, S. T., & Abernathy, J. H. (2020). Observational study of anaesthesia workflow to evaluate physical workspace design and layout. *British Journal of Anaesthesia*, in press. <https://doi.org/10.1016/j.bja.2020.08.063>
19. Hosseini, H. (2020). How to design hospital settings for visually impaired patients. *Hospital Topics*. <https://doi.org/10.1080/00185868.2020.1854063>
20. Rich, R. K., Jimenez, F. E., Puumala, S. E., DePaola, S., Harper, K., Roy, L., & Brittin, J. (2020). From fable to reality at Parkland Hospital: The impact of evidence-based design strategies on patient safety, healing, and satisfaction in an adult inpatient environment. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720970198>

Safety

Infection Prevention/Control

21. Dains, A., Edmond, M., Diekema, D., Holley, S., Abosi, O., Kukla, M., Jenn, K., Kuse, A., Miller, R., Leiden, L., & Salinas, J. (2020). Infection prevention time required for construction and design at a large tertiary-care hospital. *Infection Control & Hospital Epidemiology*, 41(S1), s69–s70. <https://doi.org/10.1017/ice.2020.557>
22. Ejerhed, L., Roshani, L., & Andersson, A. E. (2020). Antimicrobial coating is associated with significantly lower aerobic colony counts in high-touch areas in an orthopedic ward environment. *Annals of Clinical Microbiology and Antimicrobials*, 19(1), 62. <https://doi.org/10.1186/s12941-020-00406-7>
23. Root, E. D., Lindstrom, M., Xie, A., Mangino, J. E., Moffatt-Bruce, S., & Hebert, C. (2020). Investigating the association of room features with healthcare-facility-onset *Clostridioides difficile*: An exploratory study. *Infection Control & Hospital Epidemiology*, in press. <https://doi.org/10.1017/ice.2020.1307>
24. Saran, S., Gurjar, M., Azim, A., & Maurya, I. (2020). Structural risk factors for hospital-acquired infections in Intensive Care Unit. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720978825>



Care across the Lifespan

Therapeutic Environments: Behavioral/Mental Health

25. Aljunaidy, M. M., & Adi, M. N. (2020). Architecture and mental disorders: A systematic study of peer-reviewed literature. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720973767>

Psychiatric Facilities

26. Lundin, S. (2020). Can healing architecture increase safety in the design of psychiatric wards? *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720971814>
27. McLaughlan, R., Lyon, C., & Jaskolska, D. (2020). Architecture as change-agent? Looking for innovation in contemporary forensic psychiatric hospital design. *Medical Humanities*, in press. <https://doi.org/10.1136/medhum-2020-011887>

Pediatric

28. Zaki, M. A., Sharafuddin, S. S., Dewer, H. A., & Abdelhafeez, A. Z. (2020). Therapeutic landscape as a healthcare facility in Egypt: Design and evaluation process. *International Journal of Research in Engineering, Science and Management*, 3(11), 111–120.

Labor & Delivery

29. Joyce, S. (2020). Wait and transfer, curate and prosume: Women's social experiences of birth spaces architecture. *Women and Birth*, in press. <https://doi.org/10.1016/j.wombi.2020.11.003>

Elders/Aging

30. Knox, M. (2020). Locating death anxieties: End-of-life care and the built environment. *Wellbeing, Space and Society*, in press. <https://doi.org/10.1016/j.wss.2020.100012>
31. Nasrallah, E., & Pati, D. (2020). Can physical design help reduce loneliness in the elderly? A theoretical exploration. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720975208>
32. Shi, Y. V., Komiak, S. Y., & Komiak, P. (2020). Enhancing seniors' health-related quality of life: Designing a framework of virtual healthcare information technologies. *International Journal of Research in Business and Social Science*, 9(7). <https://doi.org/10.20525/ijrbs.v9i7.951>
33. Voisin, F., Bidotti, A., & Mourey, F. (2020). Designing soundscapes for Alzheimer's Disease care, with preliminary clinical observations. *Lecture Notes in Computer Sciences*, in press.



Cognitive Impairment & Dementia

34. Devos, P., Aletta, F., Thomas, P., Petrovic, M., Vander Mynsbrugge, T., Van de Velde, D., de vriendt, P., & Botteldooren, D. (2019). Designing supportive soundscapes for nursing home residents with Dementia. *International Journal of Environmental Research and Public Health*, 16(24), 4904. <https://doi.org/10.3390/ijerph16244904>
35. Roberts, E., Kleszynski, K., Shehadeh, A., & Carter, H. C. (2020). Thinking outside of the box: Medical provider perspectives on adaptive reuse of closed mall sites for mixed-use Dementia programs and services. *Journal of Aging and Environment*. <https://doi.org/10.1080/26892618.2020.1856753>
36. Sun, J., & Fleming, R. (2020). The development and reliability of the Singaporean Environmental Assessment Tool (SEAT) for facilities providing high levels of care for people living with Dementia. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720980175>

Building Systems & Technology

37. Balali, A., & Valipour, A. (2020). Prioritization of passive measures for energy optimization designing of sustainable hospitals and health centres. *Journal of Building Engineering*, in press. <https://doi.org/10.1016/j.jobe.2020.101992>
38. Fedorczyk-Cisak, M., Furtak, M., & Surówka, M. (2020). Possibilities of achieving the nZEB building standard (nearly zero energy building) and the passive building standard for newly designed buildings in Poland. *IOP Conference Series: Materials Science and Engineering*, 960. <https://doi.org/10.1088/1757-899X/960/3/032095>
39. García-Sanz-Calcedo, J., de Sousa Neves, N., & Almeida Fernandes, J. P. (2020). Measurement of embodied carbon and energy of HVAC facilities in healthcare centers. *Journal of Cleaner Production*, in press. <https://doi.org/10.1016/j.jclepro.2020.125151>

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

40. Bueno Ferrari Caixeta, M. C., & Fabricio, M. M. (2020). Physical-digital model for co-design in healthcare buildings. *Journal of Building Engineering*, in press. <https://doi.org/10.1016/j.jobe.2020.101900>
41. Eilouti, B. (2020). Form follows users: A framework for system-based design. *Architectural Engineering and Design Management*, in press. <https://doi.org/10.1080/17452007.2020.1833831>
42. Jiménez Mejía, K., Barbero-Barrera, M. d.M., & Rodríguez Pérez, M. (2020). Evaluation of the impact of the envelope system on thermal energy demand in hospital buildings. *Buildings*, 10(12), 250. <https://doi.org/10.3390/buildings10120250>
43. Khalil, A., Mahgoub Bassuoni, M., Elsamadony, M., & Raslan, M. (2020). Assessment of thermal comfort in operating rooms using PMV-PPD model. *Journal of Engineering Research*, 4(12), 51–62. <https://doi.org/10.21608/erjeng.2020.131508>



44. Lindahl, J., Thulesius, H., Rask, M., Wijk, H., Edvardsson, D., & Elmqvist, C. (2020). Assessing the supportiveness of healthcare environments' light and color: Development and validation of the light and color questionnaire (LCQ). *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720975209>
45. Mohamed, S., Abdellah, R. H., Masrom, M. A. N., Chen, G. K., & Manap, N. (2020). A systematic investigation on the potential of net zero energy buildings (NZEBS) design approach implementation in healthcare buildings. *International Journal of Advanced Research in Engineering Innovation*, 2(3), 65–77.
46. Peng, T.-C. (2020). The capitalization of spatial healthcare accessibility into house prices in Taiwan: An application of spatial quantile regression. *International Journal of Housing Markets and Analysis*, ahead-of-print. <https://doi.org/10.1108/IJHMA-06-2020-0076>
47. Rowe, A., Knox, M., & Harvey, G. (2020). Re-thinking health through design: Collaborations in research, education and practice. *Design for Health*, in press. <https://doi.org/10.1080/24735132.2020.1841918>
48. Salaheldin, M. H., Hassanain, M. A., & Ibrahim, A. M. (2020). A systematic conduct of POE for polyclinic facilities in Saudi Arabia. *Archnet-IJAR: International Journal of Architectural Research*, ahead-of-print. <https://doi.org/10.1108/ARCH-08-2020-0156>
49. Sorrou, B., Farouk, A., & Refat, M. (2020). Post-occupancy evaluation of the emergency departments: A holistic approach to promote the healthcare architecture design standards. In S. Kamel, H. Sabry, G. F. Hassan, M. Refat, A. Elshater, A. S. A. Elrahman, D. K. Hassan, & R. Rashed (Eds.), *Architecture and Urbanism: A Smart Outlook* (pp. 215–228). Springer International Publishing. https://doi.org/10.1007/978-3-030-52584-2_16
50. Valipoor, S., Hatami, M., Hakimjavadi, H., Akçali, E., Swan, W. A., & De Portu, G. (2020). Data-driven design strategies to address crowding and boarding in an emergency department: A discrete-event simulation study. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720969933>
51. Waroonkun, T. (2020). A structural format to facilitate user input for the co-design of a cardiac health unit. *Civil Engineering and Architecture*, 8(5), 760–770. <https://doi.org/10.13189/cea.2020.080503>

Other

52. Bayramzadeh, S., & Patel, T. (2020). Research in the healthcare design practice: Design practitioners' perspective. *HERD: Health Environments Research & Design Journal*, in press. <https://doi.org/10.1177/1937586720983009>