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What Should Health Professions Trainees Learn About Built Environment Activism?

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Abstract

This article offers examples of connections between built environments and health outcomes and discusses the current state of regulation of built environments. This article also suggests ethical questions about oversight and how health professions trainees can advocate for healthier built environments.

Regulating Built Environments

Built environments—human-built, inhabited places—are some one of the most regulated features of our daily lives. However, the goal of most regulations is to prevent occasional tragedies, not affirm health-generative, evidence-based design. Despite mounting evidence that built environments influence behaviors and affect important health outcomes,[1] many organizations' policies and recommendations on the built environment seldom extend beyond harm reduction. Building codes, perhaps surprisingly, specify minimum requirements, not best practices. This emphasis is especially problematic when considering how the built environment has been used for decades to maintain discrimination in communities across the United States.[2] If the next generation of health professionals is to address communities' social determinants of health, it must also improve communities' built environments. Trainees are in a unique and authoritative position to advocate for better building codes and more responsible community development because they witness firsthand how built environments influence people's health. By promoting civic discussions of the impact of built space on health—along with architects, policy makers, health professionals, bioethicists, and public health experts—health professions trainees can begin to rebuild trust with economically and socially disadvantaged community members by advocating for designs that demonstrably improve community health outcomes and well-being.[3] This article aims to empower and motivate health professions trainees to advocate for better built environments in their communities.

Built Environments' Health Influences

The connections between the built environment and health outcomes are wide and varied. Several examples are provided here, although this summary is by no means exhaustive.

Within dementia care facilities, design elements have been used to control residents' behaviors and reduce residents' behavioral and psychological symptoms of dementia that lead to the use of sedative medications and physical restraints, as both sedatives and physical restraints have been associated with negative health outcomes, including death,[4] pneumonia,[4] and fall risk.[5] These harm-reducing design elements may be as simple as using floor patterns or mats to limit residents' exit attempts[6,7,8] or as complex as immersive dementia villages that allow residents to wander in areas that are closed off from the world but designed to resemble normal community elements and foster a sense of autonomy.[9,10] Visuospatial processing is often impaired in dementia,[11] so the effect of these design interventions may be largely due to residents' dementia-related impairments. This conclusion is relevant because most facility designs are implemented outside formal research protocols—perhaps surprisingly, given the evidence of how design elements can influence and control the behavior of this particularly vulnerable population. Health professions trainees should advocate on behalf of all vulnerable community members in civic settings, especially where oversight or bioethics expertise is lacking.

Within hospital facilities, studies of the impact of the built environment on health outcomes have demonstrated that the proximity of sinks affects handwashing rates,[12] that nursing station visibility affects intensive care unit mortality,[13] and that some design features of a birthing unit, such as a higher ratio of operating rooms to labor and delivery rooms, can increase the number of cesarean sections performed (and the consequential increase of maternal morbidity).[14] One might expect that hospitals, in contrast to dementia care facilities, would have more uniform design standards due to the care they provide, but adoption of standardized hospital design codes varies by state, from spotty to nonexistent.[15] Given that patients and their families have limited ability to influence the environments in which they receive care, health professions trainees need to call for standardization and enforcement of existing codes and to hold organizations accountable for implementation of best practices.

Beyond health care-related architecture, community design elements, such as green space,[16] "enabling places" (environments that provide specific health-promoting benefits),[17] and even higher-density housing[18] have been associated with better social connection and less loneliness. Loneliness is a major health determinant and is linked to many detrimental health outcomes, including depression, anxiety,[19] and mortality.[20] The effect of social connection on likelihood of survival has been estimated to be comparable to that of smoking cessation (quantified as an approximately 50% greater likelihood of survival over a 7.5 year period).[21] In addition to their effects on health, community-level built environment elements raise broader issues of inclusion (or lack thereof) in the design process and equity or inequity in implementation. Health professions trainees can weigh in on these matters to amplify the voices of community members that are lost in the input of larger, more well-connected interest groups.

Regulation and Well-Being

Despite the evidence of built environments' influence on well-being and health, multiple regulatory agencies omit the promotion of health in their policies. The National Fire Protection Association, an organization publishing widely cited building codes for almost 130 years, focuses on fire and life safety, property protection, and hazard management—not the direct promotion of occupant health through design.[22] The International Code Council, another organization producing building codes and operational standards, omitted health promotion from its Vision 2025 goal to keep

people safe in built environments.[23] By contrast, the Facility Guidelines Institute, which develops health care-specific building codes, has begun in recent years to acknowledge the health impact of various design elements in its publications.[24] Perhaps most surprisingly, the Joint Commission's current priorities focus on infection prevention, workplace violence, suicide prevention, and emergency management—but do not acknowledge the impact of design on health.[25] While the goals of these organizations are prudent, effective, and even laudable, their conspicuous omission of the evidence linking the built environment to health outcomes demonstrates the need for increased advocacy from health professionals.

To its credit, the broader architectural community is becoming more receptive to many of these ideas. Since the late 1980s, the Center for Health Design, a nonprofit founded to improve the quality of health care facility design, has been cataloging articles at various levels of peer review related to health outcomes and the built environment, and its Knowledge Repository included more than 6200 articles as of July 18, 2024.[26] Despite spotty implementation over the past 10 years, the American Institute of Architects' guidance has increasingly focused on health outcomes,[27] such as by adding design for well-being as a component of its Framework for Design Excellence.[28] In similar fashion, several architecture firms have begun to develop an evidence-based focus on generative health (rather than health care alone). However, no profession-wide effort currently exists in the architectural or medical professions to study the health effects of specific elements of the built environment or the more dynamic long-term health effects of community design elements at scale.

Advocacy

Much of the current built environment was constructed at a time when urban design was used to create and maintain separation of ethnic minorities and low-income groups.[29] These elements—the interstate highway system,[30] redlining,[31] and gated communities with physical walls[32]—are hardwired into our urban fabric and continue to affect the lives of many living in modern-day communities. Many patients' asthma and obesity are significantly influenced by environments marked by poor infrastructure, air pollution, food deserts, and other harms created by design choices made decades ago.[33] These decisions—literally, elements of structural racism[34]—continue to adversely impact the health of millions of people in the United States and form the basis of environmental injustice.[35]

Health professions trainees can and should advocate for healthier, fairer built environments. Practically, trainees should contact local officials about development projects, national organizations about building codes and the need for a greater emphasis on health promotion, and nonprofit organizations dedicated to improving communities' built environments and health. They should also help educate the general public about how built environments influence health, which can be done both individually when seeing patients and collectively through civic engagement. Responses to these efforts will likely vary, as certain elements of the built environment are more easily and intuitively understood to be beneficial than others. Shade, trees, natural light, and views of nature, for example, are widely accepted elements of a healthy built environment: people frequently feel a sense of relaxation when outdoors in natural environments, consistent with studies suggesting that frequent exposure to green space is associated with slower epigenetic aging.[36] However, other design elements may be expensive to implement or less obviously influential, such as the impact of heating,

ventilation, and air conditioning systems on indoor air quality and associated health outcomes,[37] or the impact of various spectra of light on resident fall rates within long-term care facilities.[38] Health professions trainees have a professional obligation to educate the public on the many built environment factors impacting health, especially those with more subtle, less intuitive influences that inequitably affect vulnerable groups.

Conclusion

Built environments significantly influence communities' health.[1] Their effects are increasingly better understood, engendering a responsibility among health professionals to advocate for evidence-based designs that prioritize the health of communities and decrease the harms associated with built spaces. A similar rationale underlies the widely accepted responsibility to understand and apply evidenced-based therapies in medical practice. Despite many parties' involvement in regulation, most regulations of the built environment are reactionary responses to tragic events aimed to prevent specific harms and often do not emphasize the broader goal of promoting occupants' health and well-being. The inclusion of health and well-being as primary goals of the built environment is warranted not only by the evidence but also by the built environment's tainted history as an instrument of segregation, structural racism, and discrimination. If successful, regulations that govern the built environment can evolve to prioritize the health of the occupants. Compliance with these regulations could be achieved through evidence-based design techniques, thereby eliminating built environments that harm communities and attaining higher levels of regenerative design. The built environment's durability in this case could be an advantage, as advocacy efforts could result in built environments that improve the health of their occupants for generations. Such efforts will necessarily be multidisciplinary, including architects, policy makers, health professionals, bioethicists, and public health experts, all working with members of the community to craft spaces that promote health and well-being for years to come.

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