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ART OF MEDICINE

How Better Architecture of Health Care Structures and Spaces Can Help Avoid Iatrogenic Harm

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Abstract

This series of digital drawings considers how design influences patients' experiences.

Architecture and Well-Being

Often overlooked but key factors in health care structures' and spaces' **designs** include seating, lighting, sound, doors, windows, walls, and corridors.

Seating. Patients generally want more interaction with their clinicians, but a high volume of patients constrains clinicians' time and can limit their opportunities to meaningfully engage patients during clinical encounters. Wall-mounted seating might encourage some clinicians to sit, perhaps prompting some patients to perceive that they are getting their clinicians more focused attention, if not more of their time.

Lighting. Intense light impedes patient recovery and strains caregivers.¹ Diversified lighting zones enable selective illumination and allow individuals control over light levels.

Sound. Alarms disrupt rest, compromise many patients' recoveries, and can overwhelm both patients and clinicians.² Acoustic panels on walls or furniture can help redirect sound waves and curb excess noise.

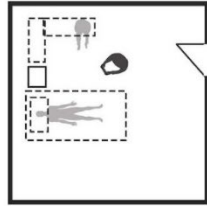
Doors. Doors influence experiences of privacy and mobility. Thin-aperture doors offer more privacy by limiting visual access. Wide-aperture doors enhance visual access and mobility but can compromise privacy.

Windows. Biophilic design significantly influences patient recovery.³ Rooms without windows prolong length of stay and impede recovery by **depriving patients of natural light and scenery.**

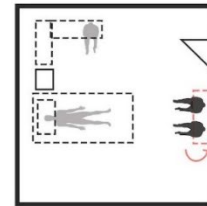
Walls. Interactive audio-visual walls can transform a room's landscape. Interactive or still images can be projected onto the walls, and lighting and sound can be individually controlled

Corridors. Cluttered hospital corridors can hinder movement, impede navigation, and cause collisions. Thicker corridor walls allow for alcoves, where equipment can be stowed or compact sinks can be installed.

Figure 1. *A Space for Doctors to Sit*



Patients seek reassurance, but limited doctor time due to high case volume restricts extensive interaction.

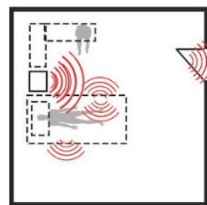


Wall-mounted seating cultivates the perception of extended doctor-patient interaction, despite the limited time.

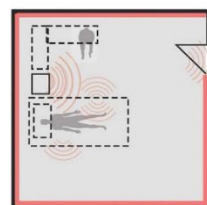
Media

Adobe Photoshop.

Figure 2. *Alarm Fatigue*



Alarm fatigue disrupts patient rest, hampers recovery, exhausts doctors, and inundates rooms with sensor noises.

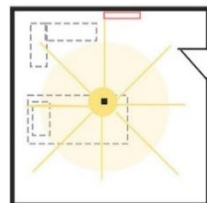


Optimal acoustical panels redirect sound waves, aiding patient recovery by reducing noise disturbance.

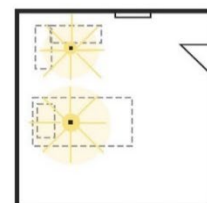
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Figure 3. *Lighting*



Single harsh light in wards hampers patient recovery and disrupts caregivers.

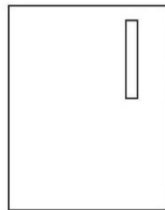
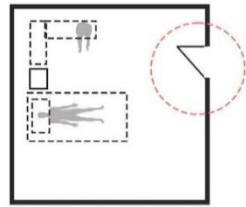


Varied lighting zones provide undisturbed patient recovery and caregiver rest with selective illumination.

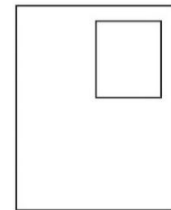
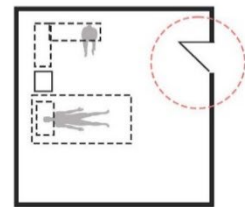
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Figure 4. Dilemma of Doors



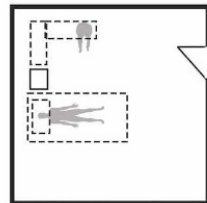
Thin-aperture doors offer enhanced privacy but reduce visual access by limiting potential for improved mobility.



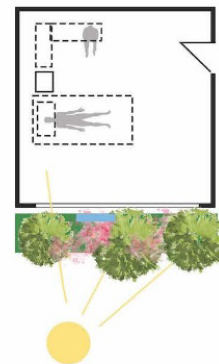
Wide-aperture doors enhance visual access for improved mobility but compromise privacy.

Media
Adobe Photoshop.

Figure 5. Effect of Biophilic Design



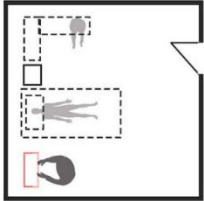
A lack of windows in rooms hampers recovery, prolonging stays by limiting access to natural light and landscape views.



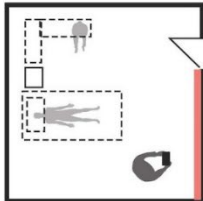
Rooms with windows accelerate recovery and shorten stays by providing access to natural light and scenic views.

Media
Adobe Photoshop.

Figure 6. Elements of PLAY in Rooms



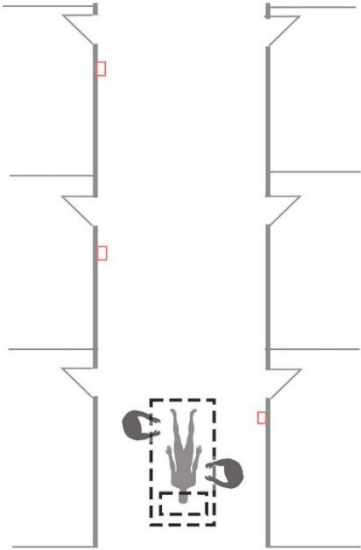
Corner-placed computers and verbal recovery updates are not optimal for information delivery.



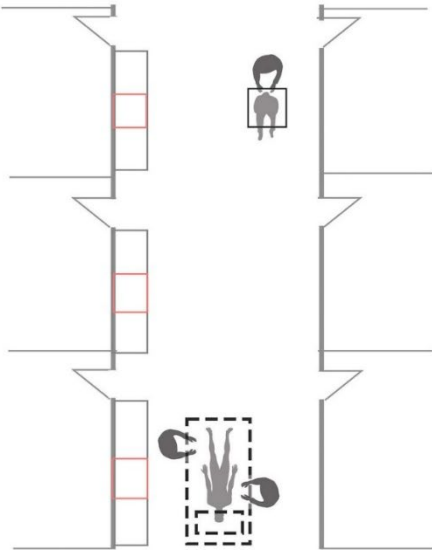
An interactive A/V wall in your room displays your reports as infographics and landscapes when there are no windows and allows lighting control and family video call access – empowering your environment.

Media
Adobe Photoshop.

Figure 7. Sinks Instead of Sanitizing



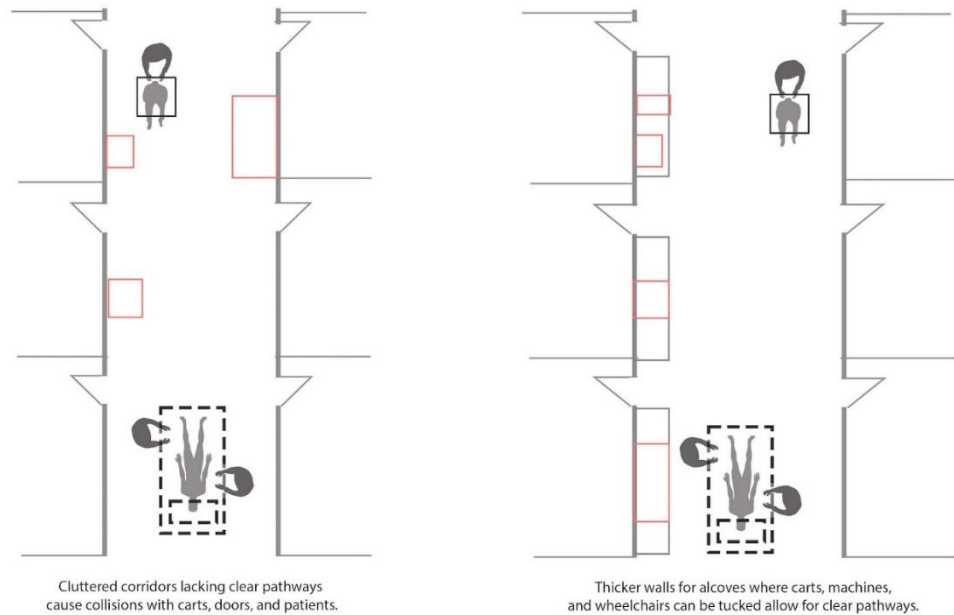
Relying solely on sanitizer pods outside wards isn't sufficient for doctors to eliminate all infections.



Compact sinks in thicker wall alcoves offer infection control without obstructing pathways for doctors.

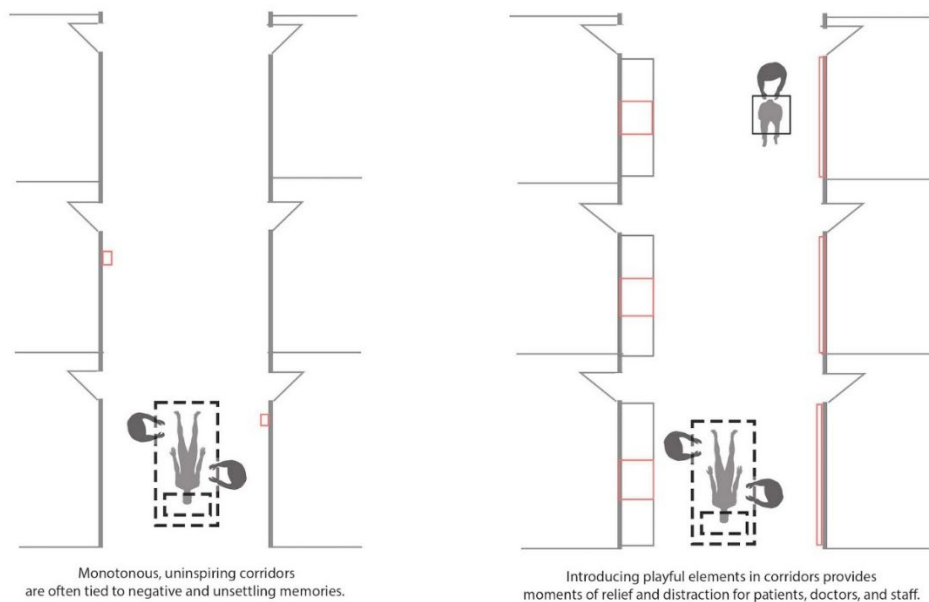
Media
Adobe Photoshop.

Figure 8. Alleviating Corridor Crashes



Media
Adobe Photoshop.

Figure 9. Element of PLAY in Corridors



Media
Adobe Photoshop.

References

1. Graves E, Davis RG, DuBose J, Campiglia GC, Wilkerson A, Zimring C. Lighting the patient room of the future: evaluating different lighting conditions for performing typical nursing tasks. *HERD*. 2021;14(2):234-253.
2. Albanowski K, Burdick KJ, Bonafide CP, Kleinpell R, Schlesinger JJ. Ten years later, alarm fatigue is still a safety concern. *AACN Adv Crit Care*. 2023;34(3):189-197.
3. Tekin BH, Corcoran R, Gutiérrez RU. A systematic review and conceptual framework of biophilic design parameters in clinical environments. *HERD*. 2023;16(1):233-250.

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Conflict of Interest Disclosure

Author disclosed no conflicts of interest.

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