Designed to be patient-centered

Examine how hospital designs and infrastructure are becoming patient-friendly, energy efficient, and green

BY SUJAN BHATTACHARYYA

Amit Shah, Managing Director, Classic Marble Company (CMC)

As the patient experience assumes priority, the concept of humanization of healthcare infrastructure is gaining traction and relevance rapidly in today's world. Caregivers recognize that patients are more than just numbers, and they must address their unique needs to provide the most effective care. Design thinking, therefore, prioritizes the creation of patient-centered healthcare spaces.

With the patient at their heart, caregivers are getting their hospitals or clinics designed in a way to incorporate features such as views of greenery and landscape, natural light, soothing colors, calming artwork, comfortable seating, slip-resistant floors, and more. All these elements do not just enhance the patient experience but also positively impact patient outcomes by alleviating stress, fear, and disquiet.

Here are some widely used ways of humanizing healthcare and healthcare infrastructure:

- Improving communication between healthcare providers and patients
- Providing patients with a comfortable and welcoming environment
- Engaging patients in care decision-making
- Lending emotional support to patients and their families
- Offering complementary therapies such as music therapy and art therapy
- Training healthcare staff in the human sciences

Most critical aspect

The most crucial aspect of the humanization of hospital infrastructure design is to provide a sense of control to the users of the space. Patients, healthcare staff, and other stakeholders should be allowed to adjust the lighting, temperature, sound, privacy, and personalization of their rooms or wards. They also need to be provided with clear information, wayfinding, choices, and participation in care decision-making, which goes a long way to reduce stress, anxiety, and pain, as well as enhance satisfaction and outcomes.

Amit Shah, Managing Director, Classic Marble Company (CMC), emphasizes creating a patient-centered environment. He says, "With the patient's needs, such as their physical, emotional, and psychological well-being, in mind, hospital infrastructure design should prioritize patient comfort, safety, and privacy. Hospital environs should be designed to reduce stress and anxiety with easy access to natural light, calming and soothing colors, décor, fresh air, and outdoor spaces to promote healing and recovery."

"Hospitals can be intimidating and stressful. So, it is essential to design spaces that put patients at ease and make them feel supported. This can be achieved by incorporating natural light, comfortable furniture, and calming colors and textures," says Amrit Singh, Co-founder, and CRO, Loop Health, echoing similar views.

Enhancing patient experience

Hospital infrastructure design can enhance a positive patient experience, lifting patient satisfaction, outcomes, and loyalty by considering:

* **Physical environment:** Creating a comfortable, safe, and healing environment for patients, staff, and visitors by providing features such as natural light, views of nature, pleasant colors, calming artwork, noise reduction, privacy, and personalization.
* **Digital environment:** Leveraging technology to enhance the patient

Amrit Singh, Co-founder, and CRO, Loop Health

Pradip Tondon, CEO, Belle Vue Clinic, Kolkata

Ayanabh DebGupta, Co-founder & Director, Medica Hospitals

Viraj Kataria, Design Director, Achal Kataria Architects

experience by providing access to information, communication, entertainment, and education via online portals, mobile apps, telehealth services, digital way-finding, and interactive screens.

* **Human environment:** Nurturing a culture of patient-centered care by facilitating communication, collaboration, and empathy among patients, staff, and visitors by providing clear signage, feedback mechanisms, staff training, and patient engagement.

The healthcare ecosystem, not just worldwide but in India, is undergoing a digital transformation with the rapid integration of artificial intelligence (AI) and machine learning (ML).

Pradip Tondon, CEO, Belle Vue Clinic, Kolkata, says, "Hospital infrastructures need upgrades to integrate new-age innovative solutions. With the utmost emphasis on patient-centricity, hospital infrastructure designs have begun to incorporate features such as smart beds and wards, which can act as step-down ICUs, along with providing patients with easier ways of communicating with healthcare staff for enhancing patient safety and care."

The space should also conform to the highest levels of hygiene and safety, as averred by Shah of CMC. Hospital design can enhance a positive patient experience by prioritizing patient needs and preferences. Singh of Loop Health thinks that a thoughtful layout of rooms and public spaces, provision of clear wayfinding, and comfort- and convenience-enhancing amenities such as private bathrooms and access to technology can go a long way in achieving that.

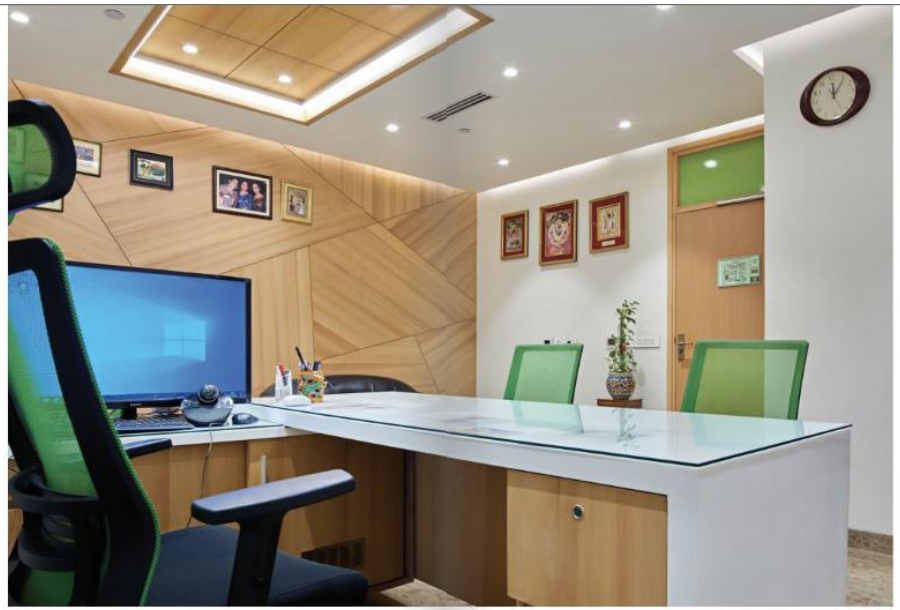
Design considerations

To ensure hospital spaces are welcoming and accessible to patients and visitors, the design must incorporate some key considerations:

* Audio environment: Lowering noise levels and providing soothing sounds or music to create a calm and relaxing atmosphere.

* Visual environment: Exposing spaces to nature, natural light, pleasant colors, refreshing artwork, clear signage, etc. to create a stimulating environment.

* Spatial environment: Offering users adequate space, privacy, and personalization, which eases movement and accessibility, lifts dignity, confidentiality, and autonomy, and provides identity, and



control, respectively.

According to Ayanabh DebGupta, Co-founder & Director, Medica Hospitals, key design considerations may include:

- Ease of navigation across spaces with clear signage-backed way-finding
- Accessibility to people with disabilities, such as mobility issues and visual impairments
- Comfort and a calming atmosphere with amenities like comfortable seating, natural light, and soothing colors.
- Sustainable design, optimizing daylight energy efficiency and artificial lighting needs, saving up to 20 percent of energy load.
- Use of recovery catalysts like green landscapes and gardens to boost wellness efforts.
- Privacy for patients and visitors across exam rooms, waiting areas, restrooms, etc.
- Prioritizing safety with features like non-slip floors, ramps, handrails, adequate lighting and ventilation, and more.
- Cultural sensitivity, considering the diverse backgrounds and unique needs of patients and visitors.
- Emotional support to patients and visitors with access to counseling and other support services.

"It is imperative to consider the aesthetic and functional aspects of materials used to ensure that hospital spaces are welcoming and accessible to patients and visitors. Flooring should be slip-resistant, especially in areas where spills and water are common. The layout should also accommodate wheelchairs and other mobility aids," adds Shah of CMC.

Balancing clinical efficiency and calming environs

A well-balanced marriage of clinical efficiency with the creation of a comfortable and calming environment for patient care is of paramount importance, as well. Some key ways to get the balance right:

- Engaging patients and staff in the design process creates ownership, empowerment, and satisfaction for both groups.
- Enhancing communication and information flow between staff and patients can reduce waiting times, confusion, and frustration for both groups. Technology solutions for this purpose may include online portals, mobile apps, telehealth services, digital way-finding, and interactive screens.
- Creating an aesthetically pleasing and stimulating environment by integrating elements such as natural light, views of greenery and plants, and artwork (paintings, sculptures, murals, etc.) that reduces stress, depression, fear, and pain for patients and staff.

Arti Gugnani, Partner at Vijay Gupta Architects says, "The sensory, psychological, and aesthetic experience of patients is as crucial to their recovery from illness as are their physiological needs. As research has proven, patients in a dimly lit space with no access to the outside world are more prone to post-operative trauma and prolonged illness vis-à-vis those in naturally lit and ventilated spaces."

Avers Dr Nikhil Mathur of CARE Hospitals: "With technological modernization, and the use of telemedicine, the most critical aspect of health care, the human touch, has taken

Dr Nikhil Mathur, Group Chief of Medical Services, CARE Hospitals Group

Arti Gugnani, Partner at Vijay Gupta Architects

Elements such as greenery and landscape, natural light, soothing colors, calming artwork, comfortable seating, and slip-resistant floors enhance patient experience and improve patient outcomes by alleviating stress, fear, and disquiet.

Dr Rajeev Boudhanar, Medical Director, Holy Family Hospital

a back seat. Humanizing the dealing with patients and their families entails an affable and humane touch, and a holistic treatment of illness and not just the disease."

A few innovative designs

India prides itself on innovative hospital designs that prioritize patient-centered care and humanization. DebGupta of Medica Hospitals cites some examples: Medica Super Specialty Hospital, the first green hospital in Kolkata; Mumbai's Kohinoor Hospital, the first platinum-rated green hospital in India; Fortis Hospital, and gold-rated Max Balaji Hospital, New Delhi; ESI Hospital, Bangalore; and Aster Med City, Kochi.

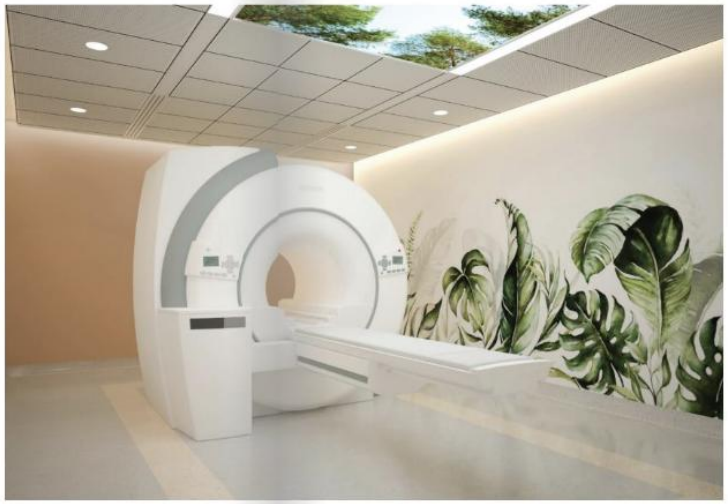
Symbiosis Hospital in Pune, designed by IMK Architect, is a really good example of human-centric hospital design that creates a calming environment by maximizing connectivity to nature across interior spaces, opines Ms Gugnani. She also mentions the Sitaram Bhartia Institute of Science and Research in New Delhi, designed by S Ghosh & Associates, as one that puts occupants' mental wellness at the center.

Some more hospitals with patient-centric, innovative designs are Manokamna Hospital (Siliguri), Putenuo Multispecialty Hospital (Kohima), Medanta, or The Medicity (Gurugram), Apollo Hospitals in Chennai, and Aditya Birla Memorial Hospital in Pune.

Role of technology solutions

Technology and digital solutions can play a crucial role in creating a more humanized hospital environment by:

- Improving communication and information flow between staff and patients via online portals, mobile apps, telehealth services, digital way-finding, and interactive screens;
- Providing personalized and empathetic patient care using AI algorithms, wearables, sensors, and virtual reality (VR)/augmented reality (AR) devices; and
- Improving patient outcomes and staff performance using data analytics, cloud computing, blockchain, and IoT (Internet of Things) devices.



Debasis Kole, Hospital infrastructure, PSRI Hospital, maintains that technology can not only streamline workflows and improve efficiency, reducing wait times and minimizing patient stress but also enhance patient comfort through entertainment and distraction solutions such as interactive media.

"Apart from innovations in healthcare products, digital solutions help in wayfinding, record-keeping, and improving efficiency in communications among staff, nurses, and patients," adds Viraj Kataria, Design Director, Achal Kataria Architects.

Meeting different patient-group needs

Hospital infrastructure design must emphasize catering to the needs of different patient groups, such as children, seniors, and those with disabilities, by considering audio, visual, and spatial environments.

"Designing hospital infrastructure catering to the needs of different patient groups requires a comprehensive approach that takes into account the specific needs of each group," stresses Dr Rajeev Boudhanar, Medical Director, Holy Family Hospital. Dr Boudhanar suggests some key considerations for serving different patient groups:

- Children: Offering colorful murals, aptly sized and designed chairs and tables, play areas, age-appropriate entertainment tools, and options.
- Seniors: Providing navigation-friendly layouts, clear signage, handrails, reclining chairs for comfortable seating, adjustable lighting, and easy-to-use controls.
- Physically challenged: Empowering people with ramps, elevators, wheelchairs, walkers, user-friendly controls, accessible bathrooms, art, and music therapies.

Key sustainability considerations

A hospital infrastructure design project should aim to include essential eco-friendly products in its ambit that serve the purpose as efficiently as conventional materials would. Sustainable materials can mitigate the environmental impact. Recycled and locally sourced materials and non-toxic materials can help design for durability and longevity. And incorporating green spaces, including green roofs, courtyards, and indoor gardens, can offer many significant benefits such as better air quality, less stress, and improved patient outcomes.

Raj Narayan Tomar, AGM - Architect, Rudrabhishek Enterprises opines, "Energy-efficient designs can reduce greenhouse gas emissions and operational costs. Renewable energy sources such as solar power, energy-efficient lighting and heating systems, and efficient insulation use should be priorities. Water conservation measures should include low-flow faucets and toilets, rainwater harvesting systems, and greywater for irrigation and flushing."

Infrastructure design going forward

The hospital infrastructure design, around the world and in India, is increasingly prioritizing patient-centered care in many

Dr Karthiyayini Mahadevan, Head of Wellness and Wellbeing, Columbia Pacific Communities

Raj Narayan Tomar, AGM - Architect, Rudrabhishek Enterprises

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Debasis Kole, Hospital infrastructure- PSRI Hospital

different ways. With the government's encouragement of public-private partnerships, hospital infrastructures for rural and urban healthcare will improve in the coming years.

Going forward, hospital designs will look at embracing digital transformation, adopting modular and flexible design, integrating biophilic and regenerative design, and so on, more intensely.

"Future evolution should be a revelation," says Dr Karthiyayini Mahadevan, Head of Wellness and Wellbeing, Columbia Pacific Communities. He believes the controlled use of AI in patient care and a more humane approach to nursing can deliver better healthcare. Besides, hospitals' architecture and design should focus on sensitivity towards noise pollution and natural elements like trees and plants.

Tondon of Belle Vue Clinic observes that digital adoption not only promises patient-centric care but also increases flexibility for the healthcare workforce. He says, "Even at its nascent stage, AI is making waves in caregiving. Further technological advances will only boost the quality of patient care with the development and expansion of smart hospitals across regions."

Contactless remote patient monitoring, noise and temperature control, hygiene, exposure to natural light, and internet connectivity are some key areas that will evolve in the hospital design.

Advice to architects and designers

From time to time, experts and healthcare professionals have been offering useful pieces of advice to architects and designers working on hospital infrastructure projects to ensure that their work is humanized and patient-centric.

Kole of PSRI Hospital packs some words of wisdom for architects and designers:

- Interpretation of colors and light
- A functional lively building with an elegant architectural design
- Attributes such as landscape, natural light, and calm and clean patient rooms
- Indoor gardens, and glass panels using natural materials
- A relaxing environment for all treatment centers
- Optimizing OT cleaning
- Use of renewable energy and the latest technologies
- Greater operational reliability, energy efficiency, low maintenance costs, and more. HR

To ensure hospital spaces are welcoming and accessible to patients and visitors, the design must incorporate audio, visual, and spacial considerations