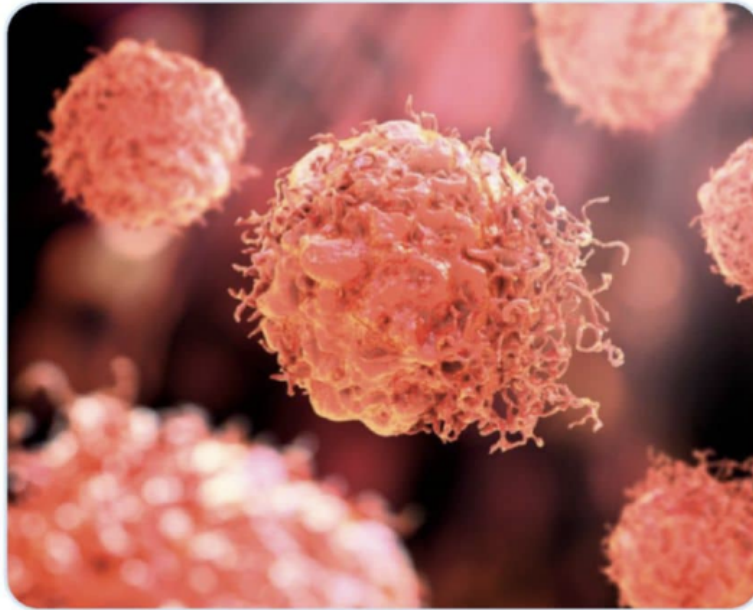
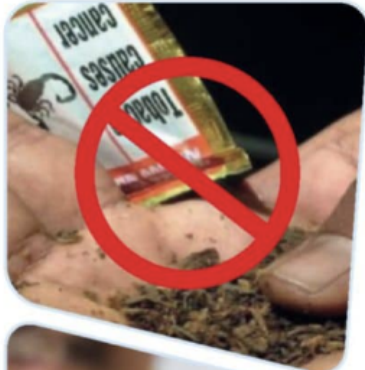


HEALTHCARE RADIUS

ALIGNING BUSINESS AND HEALTHCARE IN INDIA

FEBRUARY 2024 • VOL. 12 ISSUE 5 • ₹100



INDIA'S CANCER PREVENTION BLUEPRINT

Top oncologists offer valuable insights into prevention strategies for India's most prevalent cancers.

HEALING WITH SUSTAINABILITY

India's healthcare landscape is witnessing a green upgrade with eco-friendly hospitals being developed nationwide.

– Team HR

Hamidia Hospital ward - Abundant natural light

Hospitals stand as beacons of health and healing, yet their operations often leave a significant footprint on the environment. Balancing these seemingly disparate priorities takes creativity and foresight, requiring the integration of sustainability principles into the very fabric of hospital design.

For Nandini Bazaz, Director – Architectural Services, HOSMAC, it's about creating not just efficient buildings, but “environmentally responsible healthcare spaces,” she says. Their approach emphasizes attaining a minimum IGBC silver rating, but goes beyond mere certification. “We prioritize well-ventilated, naturally lit environments,” she explains, “strategically reduc-



“Considering that a hospital annually spends around 3 percent to 4 percent of its total income on energy expenses, redirecting this budget from energy costs to patient care and health services can significantly help improve India's public health landscape.”

- Nandini Bazaz, Director – Architectural Services, HOSMAC

INFRASTRUCTURE

ing energy consumption.” This philosophy manifests in the selection of eco-friendly materials, energy-efficient air-conditioning, and sustainable lighting solutions.

Bakul Chandra, Co-Founder, Mentor and Design Strategist at Renascent Consultants advocates for a multi-pronged approach. He outlines a few key aspects: “Greater emphasis on energy-efficient systems and designs, incorporating renewable energy sources like solar panels to reduce the carbon footprint,” he outlines. Additionally, he emphasizes “use of eco-friendly, recycled, or locally sourced materials to minimize environmental impact.”

Water conservation through recycling and rainwater harvesting plays a crucial role, alongside efficient waste management and adaptable design to minimize future alterations. Smart building technologies add another layer, optimizing resource utilization and enhancing overall efficiency. Importantly, Chandra notes the need for hospitals to “foster community engagement by designing spaces that are integrated into the local context, promoting accessibility.”

Arti Gugnani, Partner, Vijay Gupta Architects (VGA), echoes the emphasis on energy consumption, with lighting and HVAC



systems accounting for over 50 percent in hospitals. VGA helps its client organizations employ a combination of strategies, including “intelligent HVAC systems, passive design elements like optimal building orientation, and high-efficiency windows to minimize solar gain,” she explains. Water conservation measures like STP, ETP, rainwater harvesting, and low-flow fixtures are a cornerstone of their approach. Waste reduction, indoor air quality improvement, and the safe disposal of medical waste are further vital components of their sustainable design ethos.

“Combining architecture with eco-friendly principles allows you to create healing environments that positively impact patient well-being while minimizing the ecological footprint.”

- Bakul Chandra, Co-Founder, Mentor and Design Strategist at Renascent Consultants

The path to incorporating sustainability principles in hospital design isn't without its challenges. Costs can be higher, and finding qualified sustainable design professionals can be difficult. However, the benefits are undeniable. As Bazaz aptly puts it, “Hospitals that are designed to be sustainable are not only good for the environment, but they are also good for the health of patients and staff, and they can save money on energy and water costs.”

DESIGN PROJECT CHALLENGES

Building hospitals in India is no easy feat. The need for accessible, high-quality healthcare faces constant hurdles, from



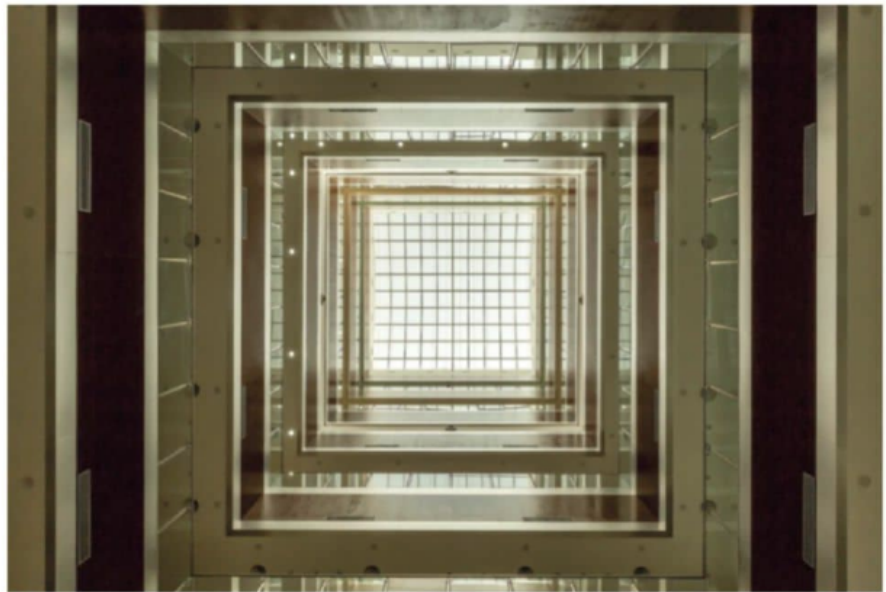
Shrimad Rajchandra Hospital - Amidst the natural surrounding

resource constraints to outdated infrastructure. But in recent years, a new layer of complexity has emerged: the imperative for sustainability. While green designs offer long-term environmental and economic benefits, bringing them to life in Indian hospitals presents a unique set of challenges. The conversations with industry experts reveal a range of challenges. Let's explore some of these briefly.

*** Infrastructure limitations:** Existing infrastructure can impede renewable energy integration and advanced sustainability features, as Kumar Rahul Naman, Principal Architect at KRN Architect, points out. "Collaborating with local authorities and utilities is crucial," he advises, "to find innovative solutions for overcoming these hurdles."

*** Cost constraints:** Green technologies and materials often come with higher up-front costs, a pressing concern in a budget-conscious market. Naman advocates for a thorough cost-benefit analysis, "demonstrating the long-term savings and benefits, like seeking government incentives for green initiatives." However, while the up-front investment may seem high, explains Nandini Bazaz of HOSMAC, "the green initiatives tend to be cost-effective in the long run, due to reduced operational expenses and energy savings. Usually, the payback period is less than three years."

*** Climate considerations:** India's diverse climate demands region-specific solutions. "Passive cooling, water management, and



Alexis Hospital - Atrium

tailored energy efficiency strategies are key," Naman emphasizes, "adapting to the specific climate of each region."

*** Operational challenges:** Ensuring staff and occupants embrace sustainable practices is crucial. Dikshu Kukreja, Managing Principal, CP Kukreja Architects, shares valuable insights from redeveloping Hamidia Hospital. "Training programs for staff on energy conservation and waste management are vital," he notes, "fostering a culture of sustainability within the organization."

Neelesh Shinde - Group Chief Technical Officer, Jupiter Hospital, says, "Addressing the

lack of expertise across phases and tackling subsequent maintenance challenges can be the key obstacles in a green hospital design project. However, through strategic planning, effective communication, stakeholder engagement, and investment in specialized talent, we navigated through these, ensuring successful implementation of energy-efficient initiatives in our facility."

*** Cultural heritage preservation:** Modernizing healthcare facilities while respecting historical significance can be a balancing act. Dikshu Kukreja of Kukreja Architects highlights their approach at Hamidia Hospital: "Binding the complex through a consistent design language while conserving its heritage was the primary challenge." He underscores the importance of "curating a development model that extends the life of the complex without altering its cultural fabric."

Ravideep Singh, Associate Director at Creative Designer Architects, New Delhi, zooms out to a broader perspective: "Future-proofing India's healthcare infrastructure requires addressing several critical challenges."

*** Outdated infrastructure:** "Many healthcare facilities lack modern amenities and technologies," Singh points out, referencing the National Family Health Survey-4 statistic that 69 percent of the population travels over 5 km for healthcare. He emphasizes the need for efficient upgrades

“The challenges in designing green hospitals in India primarily revolve around a need for greater awareness among hospital administrators regarding the adoption of environmentally friendly building practices, which are essential for preserving the environment and lives.”

- Arti Gugnani, Partner, Vijay Gupta Architects (VGA)





“The geographical setting of any hospital design plays a crucial role in defining the sustainability parameters. In response to the context, the design should use the existing social and environmental systems as major structuring elements on site.”

- Dikshu Kukreja, Managing Principal, CP Kukreja Architects

A FEW RECENT EXAMPLES

India's new green hospitals weave medical excellence with environmental responsibility, building a future where healing embraces both patients and the planet. Given below are a few new hospital buildings (or parts thereof) that incorporate the green principles.

AIIMS Guwahati: Prime Minister Modi's inauguration of AIIMS Guwahati marked a landmark moment in bridging the healthcare gap in North-East India. The hospital aspires to elevate the quality of healthcare and set new benchmarks for sustainable design. Targeting a GRIHA 5-star rating, the project weaves climate-responsive architecture while catering to diverse needs with creative spaces, optimized air circulation, and adaptable layouts. Here, healing extends beyond individual patients, embracing the environment itself giving equal importance to the well-being of the hospital staff and visitors as well.

Paras Hospital, Kanpur: Sustainability at Paras Hospital isn't just a buzzword, it's the cornerstone of its design. By adaptively reusing an existing structure, the hospital focuses on saving resources. The once narrow floor space has been transformed into a seamless, efficient facility with a welcoming entrance and a

strategically carved-out green terrace.

Sarvodaya Hospital, Greater Noida: In the rapidly developing region of Uttar Pradesh, Sarvodaya Hospital stands to improve healthcare accessibility for people in the surrounding areas. Identifying a critical gap in medical facilities, the hospital has transformed its existing commercial building into a 300-bed super-specialty marvel. This adaptive reuse minimizes environmental impact, reduces construction costs, and delivers high-quality care to the community. Sarvodaya presents a good example where sustainability and accessibility go hand-in-hand.

Jupiter Hospital: From improved roof and wall insulation to the utilization of free cooling methods and treated fresh air units, Jupiter Hospital's focus on energy efficiency and occupant comfort can be seen in every detail. By replacing diesel boilers with heat pumps, the hospital has taken a crucial step towards reducing CO2 emissions, adhering to sustainable healthcare practices.

Graphic Era Hospital, Dehradun: This ultra-modern facility aspires to provide world-class care with environmental responsibility. Targeting an IGBC Gold rating, the hospital incorporates a range of sustainable features, from efficient water management and energy-efficient building



Ashirvad Hospital - Abundant space and natural light

to meet the growing demand, reducing healthcare costs in the long run.

*** Personnel shortages and burnout:** “Designing hospitals with spaces that promote caregiver well-being and reduce stress is essential,” Singh stresses, recognizing the growing healthcare worker shortage.

*** Tech disruption:** “Selecting and integrating the right technology in the rapidly evolving healthcare landscape is crucial,” Singh advises, advocating for user-friendly, efficient, and secure tech solutions.

*** Limited resources:** Finding cost-effective ways to upgrade facilities amidst resource constraints is crucial. Singh underscores the need for “innovative solutions to meet increasing demand.”



Safdarjung Hospital - Biophilia

systems to the use of locally sourced materials and innovative design strategies. Here, every detail whispers a commitment to a greener future.

Paras Hospital, Panchkula: This multi-super-specialty hospital exemplifies the delicate balance between functionality and environmental responsibility. With its triangular site and thoughtful design, the hospital optimizes space utilization while prioritizing natural light, views of the surrounding hills, and a welcoming atmosphere for patients and visitors. The focus on both accessibility and a ‘Silver’ IGBC rating demonstrates that green practices can enhance not just the environment but also the patient experience.

Signature Hospital, Gurugram: In the heart of Gurugram, Signature Hospital blends modern medical technology with a profound belief in holistic patient care. Here, the lines between healthcare and hospitality blur, offering a serene and

personalized recovery environment. From advanced diagnostic imaging to dedicated specialty departments, this hospital puts innovation at the forefront of patient well-being. But beneath the sleek facade lies a green heart, evident in its commitment to energy efficiency and responsible waste management, proving that even the most cutting-edge facilities can embrace sustainable practices.

Across India, several hospitals can be seen adopting the green principles. Shrimad Rajchandra Hospital in Gujarat embraces natural ventilation and sensory gardens, while hospitals like Dr LH Hiranandani Hospital and Kohinoor Hospitals in Mumbai, and Alexis Hospital in Nagpur bear the IGBC’s green building certification.

Please note, this list is indicative only as it’s based purely on our conversations with industry representatives for this particular feature only. It may exclude many good examples.

*** Climate change resilience:** India’s hospitals must prepare for extreme weather events. “Designing for climate change resilience is critical,” Singh concludes, highlighting the need for emergency preparedness infrastructure.

The path to sustainable hospital design in India is paved with numerous challenges, but the rewards are substantial. By acknowledging and addressing these hurdles, India can build innovative, adaptable, and resilient healthcare facilities that prioritize both planetary and human health, paving the way for a healthier future for all.

DRIVING PUBLIC HEALTH OUTCOMES

Hospitals stand as sentinels of health and

healing, yet their environmental impact often casts a long shadow. In India, where public health faces unique challenges, a new paradigm is emerging: green hospitals. These sustainable sanctuaries aim to not only heal individuals but also nurture entire communities, fostering a future where environmental responsibility and public health outcomes intertwine. Let’s delve into this transformative vision through the voices of industry experts.

Neelesh Shinde of Jupiter Hospital paints a poignant picture of the tangible and intangible benefits green hospitals offer. “Improved air quality within our facility fosters faster patient recovery,” he notes, highlighting the impact on well-being. He



“Hospitals designed with climate-responsive features can better withstand extreme weather conditions, reducing the impact of climate-related health issues. This includes designing for heat resilience, addressing vector-borne diseases, and ensuring water management practices to mitigate the health risks associated with climate change.”

- Kumar Rahul Naman, Principal Architect, Architecture & Interior, KRN Architect

underlines the importance of natural light, stress-relieving spaces, and even CFC-free refrigerants in ensuring both environmental safety and patient comfort. “Design considerations accounting for the positive effects of colors on patients and staff” further underscore the holistic approach, fostering a more nurturing environment.

Beyond individual well-being, green hospitals contribute to public health at a larger scale. Bakul Chandra of Renascent Consultants, points out their role in “reduc-

INFRASTRUCTURE



“Improved air quality within the facility has contributed to faster patient recovery, creating a healthier environment for occupants. Incorporating daylight has positively impacted patient recovery, providing a connection to the outdoors, and promoting natural well-being. Inclusion of stress-relieving spaces has facilitated physical fitness and mental relaxation among patients and staff alike”
- Neelesh Shinde - Group Chief Technical Officer, Jupiter Hospital

ing environmental impact, lowering energy costs, and promoting overall well-being.” This translates to sustainable healthcare practices that benefit surrounding communities through improved air and water quality. “Green hospitals often prioritize patient comfort and healing through eco-friendly designs, natural lighting, and green spaces, creating a healthier environment for patients and staff alike,” Chandra adds, emphasizing the holistic impact on both individual and collective well-being.

However, the path to realizing this vision isn't without its hurdles. Kumar Rahul

Naman of KRN Architect, identifies infrastructure limitations, cost constraints, and diverse climatic considerations as potential roadblocks. He advocates for collaborative efforts with authorities and innovative solutions to overcome these challenges. Naman also emphasizes “demonstrating the long-term savings and benefits associated with sustainable features,” highlighting the cost-effectiveness of green practices in the long run.

Ravideep Singh of Creative Designer Architects, expands on the multifaceted impact green hospitals have on public health. He points to their contribution to “creating healthier indoor environments, reducing pollutants and promoting better air quality,” thereby mitigating the burden of poor air quality on public health. “Sustainable healthcare facilities often... encourage awareness and environmentally conscious behavior,” Singh adds, highlighting the ripple effect of green practices towards fostering a culture of health and responsibility within the community.

HEALING WITH HARMONY

As India strides towards the future, its healthcare landscape is poised for a transformative shift. At the heart of this change lies the burgeoning realm of green hospital design, promising a paradigm where environmental responsibility and patient well-being intertwine. Let's explore the inspiring visions of industry experts outlining the ex-



“Healthcare planners and designers must work closely with communities to identify gaps in the system and develop solutions to address these. For example, only 28 percent of Indian women receive full antenatal care, highlighting the need for more equitable healthcare distribution.”
- Ravideep Singh, Associate Director at Creative Designer Architects, New Delhi



Peerless Hospital - Natural surrounding for fast recovery



Graphic Era Hospital, Dehradun: Closer to nature

citing prospects of this evolving approach.

Ravideep Singh of Creative Designer Architects, paints a picture of a future where technology and humanity dance in perfect harmony. "The orchestration of advanced technologies, like AI and predictive maintenance, becomes pivotal," he envisions, "not just for energy efficiency, but for crafting spaces that transcend functionality and elevate patient experiences." This seamless integration of digital health solutions into architecture promises healthcare environments that breathe with efficiency and prioritize human well-being.

Bakul Chandra of Renascent Consultants, echoes the call for sustainability. "Energy-efficient systems, eco-friendly materials, and green spaces," he predicts, "will define the future of hospital design." Chandra foresees flexible layouts adapting to evolving needs,

smart technology optimizing energy and waste management, and ultimately, a resilient healthcare infrastructure aligned with global environmental goals.

Arti Gugnani of VGA takes the vision a step further, imagining green hospitals as "integral to enhancing patient well-being and expediting the curative process." Gugnani champions sustainable hospitals that reduce their environmental footprint, acknowledging the "intrinsic link between human health and the environment." This holistic approach envisions hospitals actively engaging in community health, fostering equity, and driving a sustainable future.

Kumar Rahul Naman of KRN Architect, dives into the specifics of this transformation. He outlines five key pillars:

- **Net-zero and energy efficiency:** Hospitals will harness renewable energy

sources like solar and wind, contributing positively to the energy grid.

- **Climate-responsive design:** Buildings will adapt to India's diverse climate, utilizing natural cooling, rainwater harvesting, and resilient infrastructure for optimal patient and staff safety.
- **Technology integration for health and efficiency:** Telemedicine and AI will weave their way into healthcare delivery, enhancing both care and resource management.
- **Circular economy practices:** Waste will be minimized, reused, and recycled, further reducing the environmental footprint.
- **Biophilic design and healing spaces:** Nature will find its way into hospitals, with greenery, gardens, and natural elements fostering a sense of well-being. 