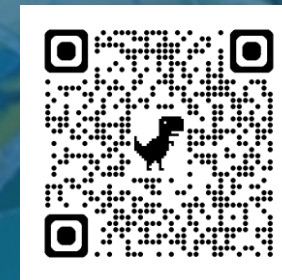


UIA-Public Health Work Programme Seminar
@ UIA World Congress of Architects 2026

Transitions: Design to Protect, Develop and Restore Health

Centre de Convencions Internacional
de Barcelona (CCIB) 130 & 129
Barcelona, Spain | July 1, 2026

20 Presentations from **14+** countries in **5**
UIA Regions on topics of healthy
environments, healthcare facilities, theories,
and technologies.



Event Agenda

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The mission of the UIA-PHG is to advance the role of design in protecting, developing, and restoring human health across all built environments. PHG advocates for the notion of design for health for every architectural practice and project, recognizing the profound impact of the physical environment on physical, mental, and social well-being. Through international collaborative practice, education, and research, PHG aims to empower architects and allied professionals to create environments that support equitable, resilient, and sustainable public health outcomes for global communities.

Seminar Committees

The UIA-PHG seminar explores the continuum of design for health—Design to Protect, Develop, and Restore Health—and emphasizes transitional processes in architectural thinking and practice that respond to evolving health challenges. Aligned with the UIA World Congress of Architects 2026 in Barcelona—“Becoming”, the seminar provides an interdisciplinary platform for advancing evidence-based, practice-informed, and technology-enabled approaches to health architecture.

Organizing Committee

Alexandra Demetriu, Pal Rutkai, and Karin Imoberdorf

Scientific Committee

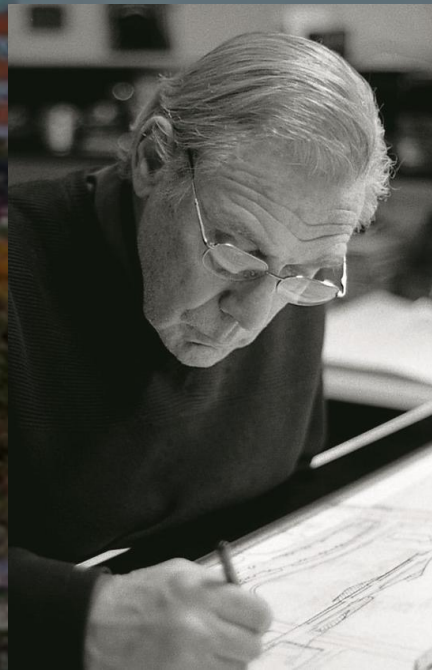
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A. Ray Pentecost and Zhipeng Lu



Keynote Speaker Mario Corea

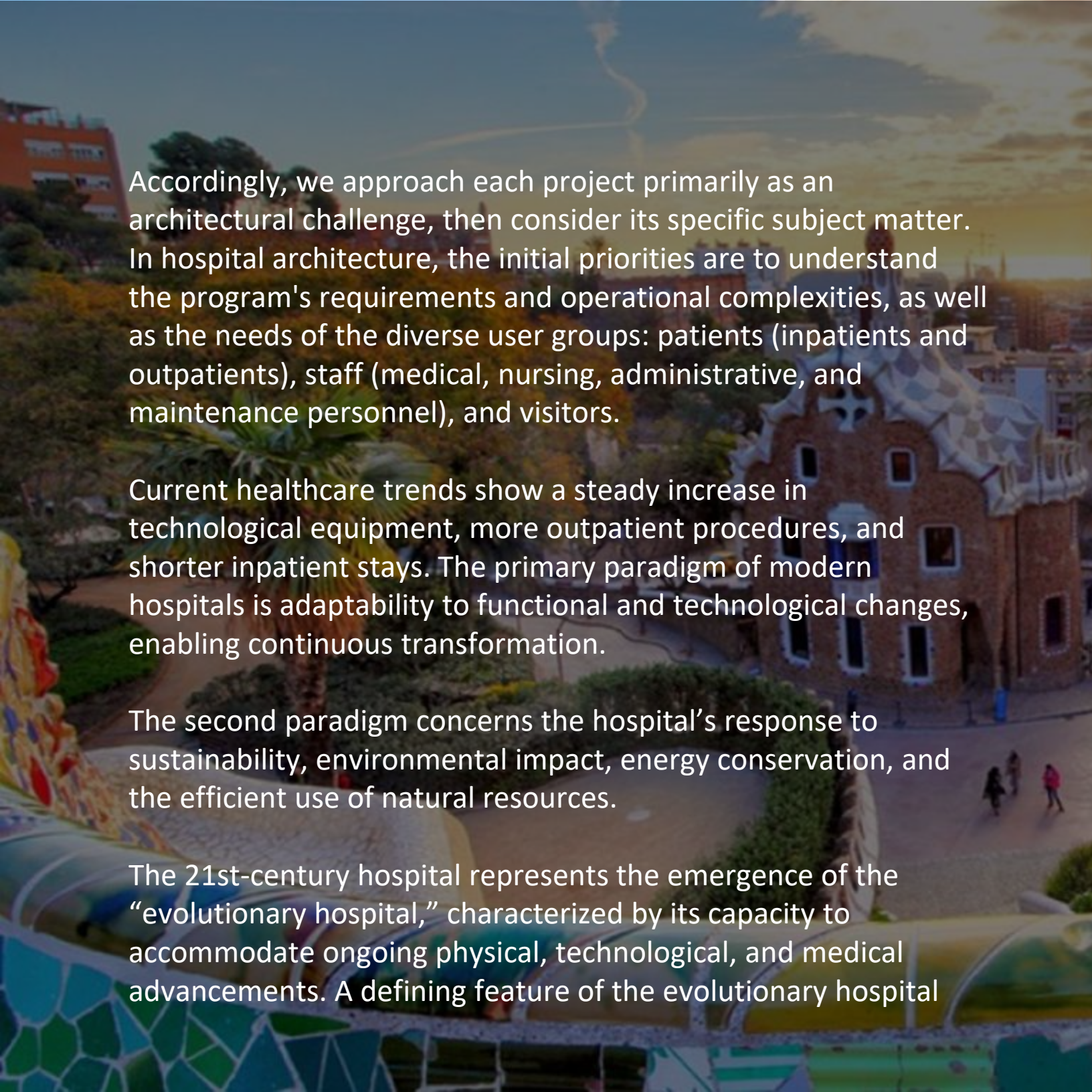
Mario Corea, Hon. FAIA, is the founding partner of Mario Corea Arquitectura, based in Barcelona with offices in Buenos Aires and Rosario. He holds a degree in architecture from the Universidad Nacional de Rosario (UNR), a Master's in Urban Design from Harvard GSD, and a Diploma in Urban Studies from the Architectural Association. Among his numerous distinctions he has received the National Prize for Architecture from the Fondo Nacional de las Artes of Argentina in 2016, and he is Doctor Honoris Causa of the UNR and the Universidad de Mar de Plata. From 1976 to 2007, he was a professor at the Escola Tècnica Superior d'Arquitectura del Vallès, and has been a visiting professor and lecturer at many international universities. Since 2015, he has served as Academic Director of LA(H)B Laboratorio Arquitectura Hospitalaria Barcelona, an academic and professional platform for research in new concepts for healthcare architecture.

Transforming Healthcare: Bringing the Evolutionary Hospital to Life (Abstract)

The “evolutionary hospital” is a concept our studio has been developing over the years to meet the ongoing demands of rethinking, redefining, and readapting hospital spaces. The objective is not only to provide an architectural response to technological advances but also to envision these spaces as active tools for well-being. At the same time that functional solutions continue to emerge, it is increasingly recognized that hospital spaces play an essential role in supporting the healing process by fostering environments that contribute to care and recovery.

This holistic approach leads to a broader consideration of architecture and to the understanding that when discussing hospital architecture, we are ultimately addressing architecture itself. Regardless of typology, we prioritize the building’s architectural values in every project. All structures must be thoughtfully integrated into their surroundings, shaping the landscape. As functional spaces, they require careful consideration of space, form, and light in relation to human experience.

(To be continued on the next page)



Accordingly, we approach each project primarily as an architectural challenge, then consider its specific subject matter. In hospital architecture, the initial priorities are to understand the program's requirements and operational complexities, as well as the needs of the diverse user groups: patients (inpatients and outpatients), staff (medical, nursing, administrative, and maintenance personnel), and visitors.

Current healthcare trends show a steady increase in technological equipment, more outpatient procedures, and shorter inpatient stays. The primary paradigm of modern hospitals is adaptability to functional and technological changes, enabling continuous transformation.

The second paradigm concerns the hospital's response to sustainability, environmental impact, energy conservation, and the efficient use of natural resources.

The 21st-century hospital represents the emergence of the "evolutionary hospital," characterized by its capacity to accommodate ongoing physical, technological, and medical advancements. A defining feature of the evolutionary hospital

is its ability to adapt functional layouts and technological systems without altering supporting structures, circulation paths, or facades.

Key concepts for this hospital model include a modular approach and a structural framework tailored to the varied dimensions of its components. When possible, a horizontal hospital design is preferable, offering greater efficiency than vertical hospitals, which rely on elevators for circulation and other operational challenges.

This presentation will feature examples from our research into evolutionary hospitals presenting constructed facilities in Argentina and Catalunya. These case studies will illustrate how adaptable, progressive design can transform healthcare environments and inspire continued innovation in hospital architecture.

Keywords: Healthcare Evolutionary Hospital Sustainability Innovation

Co-author: Maricel Fernanda Aguilera

Seminar Programme

Date: July 1, 2026

Morning Session (CCIB Room 130)

Greeting and social

10:30 – 10:45

Opening speech A. Ray Pentecost

10:45 – 11:00

Keynote Speech Mario Corea

11:00 – 11:30

Session 1 – Region I

11:30 – 12:00

Moderator: Karin Imoberdorf

- Lidor Gilad (Switzerland)

Designing Hospital Lifecycles: Spatial Strategies for Adaptive Campus Transformation

- Albert de Pineda Álvarez (Spain)

Architecture as a Public Health Instrument

Session 2 – Region II

12:00 – 12:30

Moderator: Alexandra Demetriu

- Oana Gavrilu (UK)

Setting the Ground Early: Collaborative Frameworks for Healthcare Projects

- Cristina-Olga Gociman, Alfred Toader, Anna Abronov & Monica-Georgiana Ene (Romania)

Renewal of Existing Healthcare Infrastructure: A Case Study of the Medical Complex Fundeni Clinical Institute in Bucharest

Session 3 – Region III

12:30 – 13:00

Moderator: Zhipeng Lu

- Stephen Parker & Roxana Jafari (USA)

Sensory-Enabled Architecture: An Evidence-Based Study

- Astrid Maria Debuchy (Argentina)

UIA-Public Health Group Region III: Past, Future, and New Challenges

Session 4 – Region IV

13:00 – 13:30

Moderator: Tracy Lord

- Vivian Cheung (Hong Kong)

The Modular Evolution: Navigating Architectural Transitions in Global Health

- Norwina Binti Mohd Nawawi, Najah binti Md Alwi, Srazali Bin Aripin & Wan Siti Hajar Binti Omar (Malaysia)

Reviewing Space Utilization in Aging Malaysian Public Hospitals: A Case Study Approach to Extended Design Life Based on Locality Needs and Culture

Session 5 – Region V

13:30 – 14:00

Moderator: Ray Pentecost

- Henning Lensch (Germany)

Ndanda St Benedict's Referral Hospital, Tanzania: Incremental Renovation, Expansion and Transition Towards a Resilient, Resource-Autonomous Healthcare Institution

- Ahmed Bouchoucha (Tunisia)

Transitioning Public Healthcare Infrastructure in Tunisia: Integrating Resilient Architecture, Energy Efficiency, and Digital Innovation in Public Hospitals: The Case of Charles Nicolle University Hospital

Break, Lunch, and Transition to afternoon session

14:00 – 16:00

Seminar: July 1, 2026

Afternoon Session (CCIB Room 129)

● **Session 6 – Architectural and Urban Design for Health**

16:15 – 16:55

- Ilaria Iaconi Iambrenghi (Italy)
Invisible Health, Visible Barriers: Chronic Conditions in Climate Responsive Urban Design
- Lienelle Geldenhuys, Michael Woodford & Anna Arias (UK & Sweden)
Continuity and Change: 75 Years of Shaping Health-Centered Architecture
- Eleni Oureilidou, Gino Gironzini (Spain & Greece)
Sensory Legibility and Spatial Justice: A Multi-Scalar Framework for Neighborhood Infrastructure
- Zhipeng Lu, Xuemei Zhu & Mardelle M. Shepley (USA)
Environmental Design for Health: A Transdisciplinary Framework for Design Education, Research, and Practice

● **Session 7 – Healthcare Facility Design & Innovations**

16:55 – 17:55

- Claudia Romero (Italy)
Designing Health Beyond Care: Integrated Logistics, Lean Operations and One Health in the New Padua University Hospital
- Philip Patrick Sun & Chen-Ju Sun (USA)
A Bridge to Close
- Jenica Craiu, Albert de Pineda, Alexandrina Kiss, Florin Dico, Alexandra Demetriu & Serban Tiganas (Romania)
Transitions across a Historical Hospital Campus: The Integrated Transplant Center in Cluj-Napoca Transilvania as an Act of Reuse and Regeneration.
- Andreea Tanase (Romania)
Designing for Healthcare in Romania
- Andrès Alberto Haugh (Argentina)
The Unfinished Work

- Pablo Daniel Viqueira, Astrid Maria Debuchy, Ana Maria Sandoval, Maria Susana Albornoz & Valeria Alejandra Martinez (Argentina)

Approaching the concept of "Quality" as a design tool

Closing remark A. Ray Pentecost

17:55 – 18:00

Video Presentations

- Artemis Kyrkou (Greece)

From Philoxenia to Healing: Architectural Design Approaches for Restorative Health Spaces in Greece.

- Alexandru Iftimie (Romania)

Hybrid Modularization of Hospital Infrastructure: Toward Adaptive, Scalable, and Resilient Urban Healthcare Systems

- Alina-Andreea Micloș & Cristina-Olga Gociman (Romania)
Proximity Infrastructures for Mental Health and Addiction: Repurposing Bucharest Polyclinics into a Differentiated Urban Care System

- Andrei-Bogdan Dumitru, Cristina-Olga Gociman & Anca Mitrache (Romania)

Urban Symbiosis: Bridging Educational and Health Infrastructures for Resilient Communities in Bucharest

- Nirit Putievsky Pilosof (Israel)

"What Would Nightingale Say?" Architecture of Underground Emergency Hospitals in Wartime"

- Yunanistya Rahmadhiani, Mohamad Zaini Bin Abu Bakar & Ngakan Ketut Acwin Dwijendra (Indonesia)

Integrating Acculturation and Sustainability in Mosque Architecture: A Health Centred Framework from a Minority Context

- Nur Halinda Halimi (Malaysia)

The Importance of Collaboration Between Built Environment Professionals, Cerebral Palsy Community and Health Practitioners



**Presentation Abstracts and
Presenter Biographies**
(Arranged by Regions)

Invisible Health, Visible Barriers: Chronic Conditions In Climate Responsive Urban Design

AUTHOR:

Ilaria Iacconi
Iambrenghi

cris&s – Centre
for Research on
Intersectional
Spaces and
Societies

KEYWORDS:

Chronic
conditions; Urban
health; Climate
vulnerability;
Intersectional
urbanism; Care
infrastructures.

ABOUT THE AUTHOR:

Ilaria Iacconi Iambrenghi (1994) works at the intersection of architecture, communication, and urban sociological studies, investigating how space produces power relations, inequalities, and forms of belonging. Her approach integrates architecture, sociology, critical theory, and communication as interconnected and non-hierarchical fields, moving beyond traditional disciplinary boundaries.

Her research understands urban space as a relational system that organizes behavior, distributes exposure and protection, and encodes political, cultural, and ecological conditions. Within this perspective, the city is analyzed as an active agent shaped by crisis, vulnerability, and structural asymmetries.

She develops theoretical work on intersectional urbanism and the concept of crip space. In 2024 she founded cris&s – Centre for Research on Intersectional Spaces and Societies, a research platform dedicated to studying space as a structural condition of permanent crisis.

ABSTRACT:

The built environment is increasingly recognized as a determinant of public health; however, urban design continues to assume a standard, able, autonomous body, overlooking chronic and invisible conditions. This research, currently in an early stage, addresses a gap in health oriented design related to the lack of consideration of chronic conditions within design criteria.

The analysis is based on a preliminary qualitative study of approximately 50 testimonies involving individuals with chronic gynecological conditions characterized by persistent pain and comorbidity. The data show that access to the city is regulated by micro spatial conditions such as the possibility to sit, the presence of public toilets, the availability of shade, and access to spaces for pause. Their absence is not marginal, but directly affects the ability to remain in public space, mobility, and social participation, leading to avoidance strategies and retreat into the domestic sphere.

Climatic conditions, particularly heatwaves and temperature fluctuations, exacerbate these dynamics, intensifying pain and fatigue and further limiting the ability to navigate and inhabit urban space. This results in an uneven distribution of environmental exposure, systematically affecting bodies that are not accounted for in prevailing design models.

The findings highlight a structural limitation in current design for health approaches, which tend to prioritize standardized parameters while neglecting chronic and situated needs. Beyond identifying barriers, the research reframes everyday urban elements such as seating, shade, and accessible sanitation as critical care infrastructures that mediate health outcomes.

By integrating qualitative, experience based data into the design discourse, this study argues for the inclusion of chronic conditions as a relevant parameter in urban planning and architectural practice. It proposes a shift from compliance based accessibility to a more situated and health responsive approach capable of addressing variability, temporality, and embodied experience.

This contribution ultimately identifies a gap between health oriented design principles and actual conditions of urban habitability, suggesting the need to rethink design priorities in order to create environments that are not only resilient to climate stress, but also inclusive of diverse bodily conditions.

Designing Hospital Lifecycles: Spatial Strategies for Adaptive Campus Transformation

AUTHOR:

Lidor Gilad

Lidor Gilad /
Itten+Brechtbühl AG

KEYWORDS:

Hospital Transformation,
Spatial Resilience,
Lifecycle Planning.

ABOUT THE AUTHOR:

Lidor Gilad finished his master's degree in architecture at Accademia di Architettura Mendrisio (USI) in 2003 and is now Partner, Member of the Executive Board, and Head of Design Switzerland at Itten+Brechtbühl AG.

He leads complex, large-scale projects with a focus on infrastructure, aviation, and healthcare architecture, particularly hospital design and transformation.

Since 2007, he has been involved in research and teaching at the Accademia di Architettura Mendrisio (USI), where he is now contributing to the development of a new Institute for Sustainable Architecture and Technology (IAST). The IAST serves as a platform for interdisciplinary research, bringing together preservation and adaptive reuse, structural design and engineering, digital technologies, and sustainability strategies in a holistic approach.

Lidor Gilad's work operates at the intersection of practice, research, and education, with a strong focus on adaptive transformation processes, the delivery of complex projects, and the long-term evolution of the built environment.

ABSTRACT:

Many hospital campuses are approaching the limits of their original infrastructure while continuing to function as critical public assets. Simultaneously, healthcare delivery is undergoing rapid transformation: advances in medical technology, diagnostics, and minimally invasive procedures, along with a shift from inpatient to outpatient care, are fundamentally reshaping spatial requirements. These developments reduce the need for long-term bed capacity while increasing demand for adaptable, high-performance environments. The central challenge is therefore not only the replacement of obsolete buildings, but the initiation of a new lifecycle for hospital campuses that ensures continuity of care while making strategic use of existing resources.

Drawing on practice-based experience, this contribution highlights the importance of identifying or preserving a “spatial reserve” — a free parcel of land within or adjacent to the hospital campus — as a critical enabler of sustainable transformation. Such reserves allow for the phased construction of new facilities prior to the decommissioning of outdated structures, enabling the stepwise relocation of functions and uninterrupted hospital operation. In this way, the next lifecycle of the hospital can emerge from within the existing system rather than through disruptive replacement.

The paper presents a series of case studies illustrating diverse transformation strategies: the long-term redevelopment of the central campus at CHUV Lausanne; the reconfiguration of the emergency department as a new operational interface at HUG Geneva; the replacement of an obsolete bed tower with an integrated care and operating facility at Bruderholz Hospital; and the forward-looking campus evolution at St. Anna Clinic in Lucerne. These examples demonstrate how spatial, functional, and operational transitions can be coordinated over time.

The findings suggest that sustainable hospital development depends not solely on new construction, but on the strategic interplay between retained structures, targeted replacement, and the deliberate preservation of land for future adaptation. Hospital campuses should be understood as dynamic, evolving systems whose long-term value lies in their capacity to accommodate technological change, support new models of care, and enhance resilience while minimizing material and operational waste. This approach contributes to health-centred architecture by aligning spatial planning with continuity of care, adaptability, and resource-conscious design.

Continuity and Change: 75 Years of Shaping Health-Centred Architecture

AUTHOR:

Lienelle
Geldenhuys
Michael Woodford
Anna Arias

Lienelle
Geldenhuys – White
Arkitekter

KEYWORDS:

Human-centred
design
Evidence-based
practice
Healthcare
innovation
Sustainability
Integrated care.

ABOUT THE AUTHOR:

Lienelle Geldenhuys is an Associate Director at White Arkitekter's London studio, with over 20 years' experience delivering complex healthcare projects across the UK and Europe. A Chartered Architectural Technologist and registered architect, she specialises in the design and delivery of patient-centred environments that integrate clinical innovation with sustainable design principles.

Lienelle is currently the Architecture Director for the Royal Cornwall Women's and Children's Hospital and has led key projects including Cambridge Children's Hospital and the Reuben Young People's Centre. Her work spans new-build hospitals, major refurbishments, and masterplanning, with a particular interest in environments for children and young people.

She brings strong leadership across multidisciplinary teams and a deep understanding of healthcare design standards, combining evidence-based design with practical delivery to create environments that support patients, families, and staff.

ABSTRACT:

Since its founding in 1951, White Arkitekter has contributed to the evolution of healthcare architecture across Europe, guided by a consistent ambition: to improve society through design.

Over 75 years, this work has developed from early notions of healing environments into a comprehensive, research-informed approach that places health, wellbeing, and sustainability at the core of the built environment.

This presentation reflects on that legacy, exploring how continuity in values, human-centred design, collaboration, and social responsibility, has enabled meaningful change in response to shifting healthcare needs. From the outset, our work has been grounded in an understanding that architecture is not simply a backdrop for care, but an active contributor to health outcomes. Patients, staff, and families remain central to every design decision, shaping environments that support dignity, recovery, and efficiency.

A defining characteristic of our approach is the integration of research into practice. Through long-standing collaborations with academic institutions, healthcare providers, and interdisciplinary networks, we have contributed to the development of evidence-based design methodologies that link spatial quality to measurable improvements in patient and staff wellbeing. This knowledge has informed projects across a wide range of scales and typologies, enabling architecture to respond to both clinical innovation and societal change.

The New Karolinska Solna in Stockholm represents a milestone in this journey. As one of Europe's most advanced university hospitals, it embodies a model of integrated care, research, and education, organised around the needs of the patient. Its design demonstrates how architectural strategies, such as co-location, daylight optimisation, and flexible planning, can support new models of healthcare delivery while enhancing resilience and long-term adaptability.

Today, projects such as the Velindre Cancer Centre in Cardiff build on this foundation, addressing contemporary challenges including climate change, health inequality, and the need for more sustainable, community-oriented care environments. Here, architecture extends beyond the clinical brief to engage with landscape, biodiversity, and public life, reflecting a broader understanding of health as interconnected with environmental and social systems.

Our portfolio illustrates how design knowledge can be accumulated, tested, and refined over time. By bridging research and practice, and by working in close partnership with clinicians, patients, and communities, we continue to shape healthcare environments that are not only functional, but restorative, adaptable, and future facing.

This presentation offers a perspective on how sustained commitment to research, people, and place can enable architecture to respond to ongoing change, while remaining anchored in a clear and enduring purpose.

Architecture as a Public Health Instrument

AUTHOR:

Albert de Pineda
Álvarez

Pinearq

KEYWORDS:

Therapeutic environments,
Participatory co-creation,
Biophilic design,
Hospital territoriality.

ABOUT THE AUTHOR:

Architect from the Higher Technical School of Architecture in Barcelona (ETSAB) since 1980 and Master in Planning and Design of Hospital Centers in the Universitat Oberta de Catalunya (UOC). He founded Pinearq in 1997, an international architecture studio specialized in the development of complex projects for the health sciences which it has built hospitals in Europe, Latin America, Asia and Africa. Besides, he is a member of the Advisory Board of the DABC of the Politecnico di Milano and director of several hospital design courses at the University of Barcelona. He has been invited as speaker in many international conferences in Europe and America.

ABSTRACT:

The relationship between architectural design and health outcomes has moved well beyond programmatic efficiency. A new generation of healthcare projects demonstrates that the built environment is itself a therapeutic instrument, one capable of actively developing resilience, protecting vulnerable populations and restoring health across individual, community and urban scales. This briefing proposes to contribute to the UIA Public Health Group Work Programme through a series of interconnected case studies and theoretical frameworks that bridge research, professional practice and implementation.

Central to this contribution is the argument that evidence-based design must be understood in its broadest sense: not only as a set of spatial variables that improve clinical outcomes, but as a comprehensive methodology that encompasses participatory co-creation, digital intelligence and the long-term adaptive capacity of buildings. The SJD Pediatric Cancer Center in Barcelona illustrates this convergence. Through a rigorous co-design process involving clinicians, patients and families, the project transformed a redundant educational building into a cognitive building, one where spatial atmosphere, biophilic strategies and programmed social spaces directly mediate the therapeutic experience. The adaptive reuse of an existing structure, extended through a 90-metre enclosed bridge, demonstrates how rehabilitation and regeneration can generate public health value while minimising resource consumption.

At a larger scale, the expansion of Hospital del Mar in Barcelona offers a compelling model for health-oriented digital environments. The integration of BIM methodology with real-time IoT sensor networks, circadian lighting, robotic pharmacy systems and 5G-enabled remote surgery platforms reveals how data-informed design can reduce clinical error, personalise patient experience and create responsive, living infrastructures. Crucially, this technological sophistication was shaped by an extensive co-creation process involving patients, families and clinical staff, affirming that smart environments must be anchored in human need.

The question of territorial implantation deserves particular attention. Hospitals located at the threshold between city and natural or peripheral landscape occupy a condition of structural tension: they must serve as accessible urban nodes while avoiding becoming barriers. The new Girona Health Campus proposes a model of porous, park-integrated infrastructure articulated through public plazas and pedestrian axes that deliberately prevent the hospital from fragmenting its surrounding urban fabric. Similarly, the Hospital Monopoli-Fasano -conceived as a hospital and social node for the southeastern territory of Bari- demonstrates how a healthcare facility can be designed to bind together dispersed communities, address demographic transitions and integrate landscape identity as a therapeutic value.

Across these cases, a shared framework emerges: interdisciplinary collaboration between architects, urban planners, health professionals and communities is the indispensable condition for producing environments that genuinely develop, protect and restore health. This Work Programme proposes to systematise these experiences as transferable models, advancing a global discourse in which architectural design is recognised as a primary instrument of public health strategy.

Sensory Legibility and Spatial Justice: A Multi-Scalar Framework for Neighborhood Infrastructure

AUTHOR:

Eleni Oureilidou,
Gino Gironzini

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KEYWORDS:

Visual Disability,
Urban Health,
Universal Design,
Right to the City,
Spatial Justice

ABOUT THE AUTHOR:

Oureilidou Eleni is an Architect, Landscape Architect and holds a PhD from School of Architecture, Aristotelian University of Thessaloniki. Her research is oriented towards the mediated narratives of the "arrival" landscapes, and their implementations for landscape democracy and has been supported by the Hellenic Foundation for Research Innovation (HFRI) and the State Scholarships Foundation (IKY).

ABSTRACT:

Universal design transcends mere accessibility, serving as a fundamental pillar for Urban Health by ensuring that city environments support the physical, social, and mental well-being of all citizens. This research investigates ways to generate neighborhood infrastructures that respond to the needs of people with visual disabilities, hypothesizing that inscriptive movement—the ability to move independently and safely using memory—is significant for acquiring a sense of place and fostering participation in local decision-making processes. Focusing on el Raval neighborhood in Barcelona—a dense urban environment where every square meter is contested between local needs and global economic forces—the research employs a mixed-methods approach combining a PRISMA-based literature review, digital ethnography, and spatial analysis to increase the neighborhood's "sensory legibility."

Initially, the literature review identifies neighborhood typologies and infrastructures that bridge universal design with Spatial Justice, framing accessibility as a prerequisite for collective health and the mitigation of social isolation. Through the analysis of case studies—such as Age-Friendly Cities, Walkable Cities, and the Guerilla Gardening movement—the study evaluates how active mobility and green interventions function as restorative systems. The resulting data synthesis identifies a multi-scalar framework—spanning spatial morphology, socio-sensory environmental conditions, and socio-economic connectivity—to define the feasibility of inclusive projects, arguing that the Right to the City for people with visual impairments is intrinsically linked to the right to a healthy life.

Subsequently, the research utilizes digital ethnography and spatial analysis to map "silent" and "loud" urban zones within El Raval. The findings reveal potential "restorative circuits" and walkable loops that enhance the urban experience by interrupting the existing "space of flows." These loops create moments of reflection and facilitate participation in an emerging network of grassroots cultural infrastructures. Ultimately, this research opens a dialogue on universal design as a tool for spatial justice, ensuring that sensory-coherent environments empower the visually impaired people to move from passive inhabitants to active participants in the ongoing "becoming" of the neighborhood.

Ndanda St Benedict's Referral Hospital, Tanzania: Incremental Renovation, Expansion and Transition Towards a Resilient, Resource-Autonomous Healthcare Institution

AUTHOR:
Henning Lensch

KEYWORDS:
Evidence-based
design,
resilience, energy
autonomy, maternal
health, low-
resource settings.

ABOUT THE AUTHOR:

Henning Lensch is Managing Director of LL+P Hospital Architects Planners Pte Ltd, Singapore-Germany, a specialist practice with over 30 years of exclusive focus on healthcare architecture and planning across more than 45 countries. He holds a Master of Architecture from the University of Fine Arts Hamburg. His work spans the full healthcare project lifecycle — from large-scale strategic programmes through to construction delivery, with a particular focus on Asia, Africa and Europe. He has been a member of the UIA Public Health Group since 2005 and is a regular speaker at international healthcare forums, including the Journées de l'Architecture en Santé (Brussels), Spital der Zukunft (Switzerland), and comparable venues worldwide. His practice is defined by a commitment to affordable, efficient healthcare design — delivering clinical quality within realistic budgets across diverse economic contexts. 'Health for All.'

ABSTRACT:

Ndanda St Benedict's Referral Hospital in southern Tanzania embodies a design transition of particular relevance to resource-constrained healthcare systems globally. Founded by Benedictine missionaries and grown organically over more than a century, the hospital presented the design team with a complex brief: to renew and substantially upgrade a living institution without interrupting clinical operations, whilst achieving international standards in infection control, patient safety, and environmental performance — at a cost accessible within the sub-Saharan African context.

Since 2019, LL+P Hospital Architects Planners has led a phased renovation and expansion programme across the 200-bed teaching hospital in close collaboration with the hospital's clinical leadership, resident Benedictine community, and local construction trades. The approach is grounded in evidence-based design principles adapted to local operational realities: spatial reorganisation to enforce rigorous separation of clean and contaminated workflows, and the systematic upgrading of clinical infrastructure to meet contemporary standards of care.

The current phase of works — presently under construction — centres on the complete renovation and expansion of the Operating Theatre suite and Central Sterile Supply Department (CSSD). The design introduces dedicated sterile and non-sterile corridors, laminar airflow systems, and workflow zoning in strict compliance with infection control protocols, addressing one of the most critical functional deficiencies in the existing facility. Concurrently, a new Mother and Child Care Centre (MCC) is being established on campus, providing dedicated inpatient and outpatient facilities for maternal and neonatal care. The MCC responds directly to regional epidemiological priorities and is designed to serve as a model of low-cost, high-performance maternity care infrastructure for rural Tanzania.

A defining characteristic of the overall project is its commitment to environmental resilience and energy autonomy. The design strategy integrates existing hydropower resources, photovoltaic generation, and passive climate-responsive construction to reduce dependence on grid supply and fossil fuels — conditions that in many African hospital settings directly determine clinical continuity. Locally sourced materials and on-site fabrication have been prioritised throughout, simultaneously reducing costs, supporting the local economy, and minimising embodied carbon.

The paper argues that this project challenges a persistent assumption in international healthcare development: that high standards of care environment necessarily demand high-cost, import-dependent solutions. Through sustained interdisciplinary collaboration — encompassing architecture, clinical operations, public health, engineering, and community engagement — Ndanda demonstrates that evidence-based, infection-safe, and environmentally responsible design is achievable under conditions of significant resource constraint. The lessons drawn from this long-term project offer a transferable framework for hospital renewal across low- and middle-income contexts, where the majority of the world's future healthcare infrastructure will be built.

From Philoxenia to Healing: Architectural Design Approaches for Restorative Health Spaces in Greece

AUTHOR:
Artemis Kyrkou

International
Hellenic
University

KEYWORDS:
Human-Centered
Healthcare Design,
Restorative
Architecture,
Health-Centered
Design.

ABOUT THE AUTHOR:

Artemis Kyrkou is a graduate of the American College of Thessaloniki, the Department of Renovation and Restoration of Buildings and Complexes (Peloponnese University) and the School of Architecture (Aristotle University of Thessaloniki). In 2019 she obtained her PhD and in 2021 her PostDoc research under honorary academic scholarship. Her area of research focuses on architectural synthesis and architectural design, the design of healing environments, the role of landscape as tool in architectural composition. She is practicing and teaching architectural design. Her work includes health care facilities planning, design of commercial, educational, leisure spaces and interior design of private and public spaces. She has published articles in international scientific magazines, scientific book chapters and has taken part in many international architectural conferences, workshops and architectural competition committees. Currently, she is an Adjunct Professor at International Hellenic University - Department of Interior Design teaching Architectural Design Studio on Healthcare Spaces Design.

ABSTRACT:

Philoxenia—literally meaning “love of the stranger”—is a foundational Greek cultural value expressing generosity, dignity, and an ethic of care toward others. More than hospitality, it represents a spatial and social attitude of openness, welcome, and emotional warmth. This paper investigates how philoxenia can be reframed as an architectural design principle to inform restorative health environments in contemporary Greece. The objective is to explore how culturally rooted architectural approaches can support healing, psychological comfort, and social wellbeing, addressing the seminar’s theme of transitions in health centered design. The relevance lies in Greece’s Mediterranean context, where climatic pressures, socio economic disparities, and aging healthcare infrastructure create urgent needs for human centered, culturally meaningful environments.

The methodology combines architectural analysis, environmental psychology, and qualitative case study research. Four representative examples were selected to capture diverse scales and contexts: the new SNF hospitals in Komotini, Sparta, and Thessaloniki; renovated pediatric units at Agia Sofia Children’s Hospital in Athens; primary healthcare centers across the Aegean islands; and municipal KAPI elderly care facilities. Each case was evaluated for spatial organization, environmental strategies, materiality, circulation, and user experience, with particular attention to how cultural values manifest in architectural decisions.

Key findings indicate that restorative qualities emerge through a synthesis of daylight rich spaces, bioclimatic design, warm material palettes, and spatial layouts that encourage social interaction and emotional ease. In the SNF hospitals, hospitality inspired architectural sequences—welcoming entrances, intuitive circulation, and human scaled waiting areas—reduce stress and enhance patient dignity. In pediatric settings, reconfigured spatial zones, family centered layouts, and sensory responsive environments reflect Greek caregiving traditions. Island clinics demonstrate how vernacular architecture, local materials, and passive cooling strategies create comfort despite limited resources. Elderly care centers highlight the importance of domesticity, familiarity, and community oriented spatial design in supporting mental wellbeing.

The contribution to health centered architecture lies in proposing a culturally grounded Mediterranean framework for restorative design. By treating philoxenia as a guiding architectural principle, the study bridges traditional values with contemporary health challenges, offering a model for restorative environments that is both context specific and adaptable. This approach demonstrates how cultural identity, environmental sensitivity, and human centered architecture can collectively support more humane and resilient healthcare spaces.

Hybrid Modularization of Hospital Infrastructure: Toward Adaptive, Scalable, and Resilient Urban Healthcare Systems

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KEYWORDS:
Hybrid modular
architecture
Modular hospital
design
Healthcare
infrastructure
resilience
Urban adaptability
Scalable medical
systems.

ABOUT THE AUTHOR:

Alexandru is an architect with a professional focus on healthcare infrastructure and adaptive design strategies. He is currently pursuing a PhD centered on hybrid modular architecture applied to hospital systems, investigating its potential to enhance flexibility, scalability, and resilience in contemporary medical environments. His research engages both architectural theory and applied urban strategies, with particular emphasis on modular integration within existing healthcare networks.

Alongside his academic work, Alexandru has developed practical experience in the field, contributing to projects and studies that explore the implementation of modular solutions in real-world contexts. His approach combines technical rigor with a critical understanding of urban dynamics, positioning hybrid modularity as a viable response to evolving healthcare demands.

ABSTRACT:

This paper investigates hybrid modular architecture (HMA) as a strategic framework for enhancing the adaptability, resilience, and scalability of contemporary hospital infrastructure. Against the backdrop of systemic healthcare stress—intensified by the COVID-19 pandemic—the research identifies the structural and operational limitations of conventional hospital models, particularly their inability to respond rapidly to fluctuating demand and emergency scenarios. The study advances the thesis that modular hybridization—the integration of prefabricated modular units with permanent, site-specific construction—constitutes a paradigm shift in hospital design and urban planning. Through a synthesis of recent literature, case studies, and comparative analysis, the paper demonstrates that hybrid modular systems significantly reduce construction time (up to ~50%), while maintaining clinical standards and enabling incremental, non-disruptive expansion of medical facilities. A central contribution of the research lies in conceptualizing HMA not merely as a construction technique, but as an urbanistic instrument. Modular hospital extensions function as deployable, reversible, and scalable components within the urban fabric, allowing cities to dynamically redistribute healthcare capacity. Case studies—from rapid deployment hospitals in Asia to modular network planning in Western Europe—illustrate how hybrid systems enable territorial adaptability, supporting both emergency response and long-term demographic evolution. The paper further elaborates a planning framework for hybrid modular hospitals, structured around three core dimensions: (1) programmatic definition of modular-compatible medical functions, (2) spatial configurability and standardization of modules, and (3) integrated coordination of technical infrastructure. This triadic model supports both functional scalability and seamless integration into existing hospital and urban systems. Despite its advantages, HMA implementation presents challenges, including regulatory misalignment, technical integration complexity, and environmental performance constraints. However, emerging trends—such as BIM-driven design, smart modular systems, and sustainable prefabrication—indicate a maturation of the field and reinforce its long-term viability. The paper argues that hybridization in modular hospital design represents a critical evolution in healthcare infrastructure, enabling a shift from static, monolithic institutions toward adaptive, networked, and resilient systems. As cities confront increasing uncertainty, HMA can become a robust, scalable, and sustainable model for aligning spatial planning with public health demands.

Proximity Infrastructures for Mental Health and Addiction: Repurposing Bucharest Polyclinics into a Differentiated Urban Care System

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KEYWORDS:

Mental health, addiction, urban care system.

ABOUT THE AUTHOR:

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ABSTRACT:

In the European context, Romania faces notable public health vulnerabilities, particularly in alcohol consumption and gambling-related addictions, both exceeding EU averages. Beyond statistics, these issues expose a strained relationship between urban infrastructure, healthcare access, and compulsive behaviours, highlighting the limits of a care system that remains largely reactive and insufficiently territorially integrated.

The study investigates how proximity-based architectural infrastructure can support mental health by reconfiguring the existing polyclinic network into an alternative urban care system. It proposes an interdisciplinary model linking health sciences and architecture to reconceptualize addiction as a medical condition and examine its spatial manifestation. The research highlights how addiction reshapes individuals' interactions with the built environment, influencing behaviour, perception, and patterns of access within it.

The methodology involves an urban-historical analysis of the polyclinic infrastructure of the city of Bucharest, together with a typological conceptualization of the treatment, care, and support spaces. The distinction between substance-related and behavioural addiction(s) exposes different regimes of time, regimes of intensity, regimes of intervention. These differences have been associated with how the space mediates the therapeutic process, hence providing support for different types of engagement. Within this framework, two spatial typologies are defined: "crisis cells," focused on immediate intervention and stabilization, and "continuity cells," supporting prevention, recovery, and social reintegration. Together, this distributed care infrastructure fosters therapeutic engagement, improves accessibility for individuals in need, and reduces both physical distance and associated stigma.

The fragmentation of polyclinic service provision as currently exists and identifying that condition as an opportunity for new polyclinic service provision will ultimately result in the implementation of an adaptive conversion polyclinic development paradigm. Because the local neighbourhoods within the city are represented by some level of variation (heterogeneity), each unit of polyclinic care will be distributed and allocated in accordance with that unit's local vulnerability profile at the local neighbourhood level. Therefore, architecture becomes an active tool in helping to achieve a fair balance of health care, along with the differences in availability of health care.

The model of urban mental health infrastructure suggests that not only proximity but also adaptability and distribution can enhance the urban environments that provide mental health services, and urban environments must therefore also meet a set of principles of healing architecture which demonstrate that the built environment can contribute to health spaces and in rethinking the relationships between the individual, community, and medical system.

Urban Symbiosis: Bridging Educational and Health Infrastructures for Resilient Communities in Bucharest

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Cristina-Olga Gociman (Prof. Emeritus, PhD, Arch.),
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KEYWORDS:
Built Environment,
Public Health,
Spatial
Integration,
Emergency Centers

ABOUT THE AUTHOR:

My name is Dumitru Andrei-Bogdan. I am an architect and academic based in Bucharest. Since October 2023, I have been working as a University Assistant and PhD Candidate at the "Ion Mincu" University of Architecture and Urban Planning (UAUIM), where I guide students in architectural design. My doctoral research focuses on creating sustainable models for revitalizing educational infrastructure in Bucharest through user-centered design.

In addition to my academic work, I am an Architect and Team Coordinator at SC Yard Architects S.R.L.. In this role, I manage architectural and urban planning projects across various phases, coordinate multidisciplinary design teams, and provide technical assistance during execution. My educational background includes an integrated Bachelor's and Master's degree in Architecture from UAUIM, supplemented by Erasmus+ study mobilities at Bauhaus-Universität Weimar in Germany and Universidade Lusófona in Lisbon, Portugal.

ABSTRACT:

In the complex urban fabric of post-communist Bucharest, the built environment plays a decisive role in shaping public health outcomes. Traditionally, urban planning has treated educational institutions and healthcare facilities as distinct, isolated silos. However, as the city faces escalating environmental and social stressors, there is an urgent need to re-examine the spatial and functional relationships between these essential networks.

Approached from the perspective of architectural and urban research, this paper explores the critical bridges between Bucharest's educational infrastructure and its direct impact on the built environment, proposing a paradigm shift toward integrated urban resilience.

Bucharest's extensive network of schools acts as a structural anchor within its neighborhoods. The design, accessibility, and integration of these campuses into the broader cityscape directly dictate local mobility patterns, access to green spaces, and community cohesion. By reimagining the urban perimeter of educational institutions, planners can mitigate severe stressors such as urban heat islands and traffic-induced air pollution. When schools are physically linked to health spaces through active mobility corridors and shared public realms, they cease to be mere academic enclosures and instead become vital arteries for community well-being.

Furthermore, this research investigates the physical and programmatic intersections of health and educational infrastructures. It proposes architectural strategies where schools function as active health promoters. By embedding preventative care nodes, mental health resources, and community-driven wellness spaces—such as therapeutic urban gardens and accessible recreational facilities—within the educational footprint, the built environment can actively foster long-term public health. The spatial boundary between the clinic and the classroom becomes permeable, creating a cohesive ecosystem of care, learning, and prevention.

Crucially, the adaptability of educational infrastructure is paramount in crisis management. Bucharest's historical vulnerability to seismic events, coupled with recent lessons drawn from global health emergencies, highlights the absolute necessity for resilient public buildings. This paper outlines how schools can be architecturally programmed to serve as emergency centers. By designing flexible, dual-purpose spatial typologies, educational buildings can rapidly transition from learning environments to safe havens, integrated in a general strategy of risk management, providing immediate triage, shelter, and medical support to the surrounding community during emergencies.

Aligning with the overarching theme, this study advocates for a holistic urban policy. By physically and functionally bridging the gap between educational and health infrastructures, architects and urban planners can transform Bucharest's schools into dynamic catalysts for healing, equity, and sustainable community resilience.

Renewal of Existing Healthcare Infrastructure: A Case Study of the medical complex Fundeni Clinical Institute in Bucharest

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KEYWORDS:

Healthcare infrastructure renewal, integrated hospital design, therapeutic space, rehabilitation

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ABSTRACT:

Romania's healthcare system faces major structural and operational challenges, with cardiovascular diseases, cancers, and traumatic injuries remaining the leading causes of preventable mortality. Much of the hospital infrastructure is outdated, with most facilities exceeding 50–60 years of use and lacking the capacity to meet contemporary medical standards or efficiently integrate healthcare services. In many cases, adapting existing buildings is either impractical or more costly than new construction, underscoring the urgent need for infrastructure renewal. Limited investment over recent decades has led to a shortage of modern public hospitals, contributing to safety risks and reduced care quality. This paper presents an ongoing case study, a project currently under development, centred on the Fundeni Clinical Institute, one of Romania's leading medical centres and the only institution performing liver, kidney, and bone marrow transplants. As the core of the "Fundeni Medical Platform," a major healthcare hub expanded incrementally over time, the institute faces spatial and functional constraints that necessitate further development. In response, a new medical complex is proposed in front of the existing main building, designed to integrate future departments within limited available land.

The project envisions a facility comprising specialty clinics, administrative, and educational spaces, conceptually inspired by "healing hands" and therapeutic environments that support both patient recovery and staff wellbeing. A central component, defined through a participatory design process involving medical personnel, is a compact surgical platform that integrates operating rooms and intensive care units for all surgical specialties, with particular emphasis on transplant services. The proposal prioritizes functional efficiency, interdisciplinary collaboration, and optimized medical workflows. At the same time, the project addresses broader systemic needs by aligning with evolving medical technologies and updated regulatory standards in hospital design, fire safety, and hygiene. It emphasizes structural safety, sustainability, and resilience, ensuring long-term adaptability in a complex healthcare environment. European guidelines recommending the replacement of hospital infrastructure after 30–50 years further reinforce the necessity of such interventions, given issues such as structural degradation, aging systems, and persistent hospital-acquired infections.

The Fundeni development project illustrates a forward-looking approach, demonstrating how strategic investment in modern infrastructure and integrated design can contribute to safer, more efficient, and patient-centred healthcare systems. It is part of a broader series of significant developments within Romania's healthcare sector, reflecting substantial progress driven by the EU and state-supported investments, as well as by ongoing improvements in both medical expertise and the quality of healthcare architecture and infrastructure.

“What Would Nightingale Say?” Architecture of Underground Emergency Hospitals in Wartime

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KEYWORDS:
Underground
Shelter, Emergency
Hospital,
Resilience,
Evidence-based
Design, Adaptation

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Dr Nirit Pilosof is an architect and researcher exploring the intersection of Healthcare, Technology, and Architecture. She is a Senior Lecturer at the Coller School of Management, Tel Aviv University; an Associate of Cambridge Judge Business School (CJBS) at the University of Cambridge in the UK; Head of Research in Healthcare Transformation at Sheba Medical Centre; and an Executive Member of Israel for the International Union of Architects (UIA) Public Health Group. Nirit leads international research collaborations on ‘The Hospital of the Future’, focusing on Healthcare Design and Architecture, Planning for Change, Digital Transformation, Hybrid Models, and Hospital at Home. She also serves on the Scientific Advisory Boards of ENAH, EHD, and the HERD Journal.

ABSTRACT:

Recent armed conflict in the Middle East has driven healthcare organisations to rapidly find solutions to protect patients and staff from missile attacks. Most hospitals in Israel have adapted underground parking floors to serve as emergency hospitals, moving hundreds of patients, along with equipment, supplies, and staff, managing immense clinical, logistical and operational challenges. While this solution demonstrated the hospitals’ resilience in times of crisis, ensuring safety and functional continuity, it created an underground, windowless environment for patients and staff who remained there for weeks.

The experience of staying underground without exposure to natural light, views of the outdoors, natural sights, and lack of privacy, for both patients and staff, can have a significant impact on their physiological and psychological health. Previous research, beginning with Florence Nightingale's pioneering work during the Crimean War, has proven the impact of the care environment on patient safety and mortality. Accordingly, a recent WHO report (2025) explicitly calls for more evidence on how hospitals function today during prolonged armed conflict and highlights the gap between the original engineering design and the clinical and human needs required for extended stays.

To document and analyse this unfortunate, unique situation, an ongoing study of the underground emergency hospitals is conducted across several healthcare organisations. The study documents the underground spatial and environmental infrastructures, including ventilation, acoustics, lighting, and digital integration, and illustrates diverse innovative solutions for creating privacy, dividing space between medical units, and creating improvised storage areas and nursing stations. Observations, surveys, and interviews with staff members, including medical directors, physicians, and nurses, illustrated the impact of the underground environment on their experience and performance over time. Preliminary results revealed that while the underground shelter provided a sense of safety and allowed the hospital to provide continuity of care, the staff experienced deterioration in the quality of care, fear of medical errors, violations of patient privacy, and significant harm to their well-being.

The study argues for integrating architectural foresight into emergency preparedness, advocating evidence-based design principles to create sheltered healthcare environments that support dignity, performance, and well-being during prolonged crises. It positions architects as central actors in redefining emergency hospital design under conditions of conflict, uncertainty, and resilience.

Designing Health Beyond Care: Integrated Logistics, Lean Operations and One Health in the New Padua University Hospital

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KEYWORDS:
Integrated
Logistics; Smart
Hospital
Technologies; Lean
Healthcare Design;
Infection Control;
One Health

ABOUT THE AUTHOR:

Claudia Romero is an architect at Politecnica Ingegneria ed Architettura, specialising in healthcare design, hospital functional layout, patient and logistics flows, and the operational organisation of complex healthcare facilities. She holds a degree in Architecture from the Universidad Central de Venezuela and a Master in Operations Management in Healthcare Organisations from Università Cattolica del Sacro Cuore. Her work integrates hospital planning, clinical and operational processes, digital innovation, and logistics automation, with a strong focus on efficiency, quality, sustainability, and One Health. She has contributed to major healthcare projects in Italy and internationally, including the New Padua University Hospital, Zealand University Hospital in Køge, the East African Kidney Institute in Nairobi, and several new hospitals and specialist centres across Italy. She also has extensive experience in wellbeing-oriented healthcare design, operational management, ergonomics, and the creation of supportive environments for patients and staff.

ABSTRACT:

The New Padua University Hospital demonstrates that, in large-scale healthcare facilities, logistics must be conceived not as a secondary support service but as a strategic health infrastructure. With over 218,000 sqm and 963 beds, the project responds to complexity through an integrated operational model in which the journeys of patients, staff, users, goods, and data are designed, monitored, and continuously optimised as one coordinated system.

The hospital is structured through functional zoning, flow separation, and process re-engineering, applying a LEAN and evidence-based framework to improve appropriateness, safety, quality, and operational reliability. This approach reduces waste, unnecessary handling, time loss, and organisational fragmentation, while supporting more effective use of staff time and hospital resources. Operational design is therefore treated as a core component of care quality, rather than as a technical layer added after clinical planning.

Automated storage systems, smart chute systems, centralised management of mobile medical equipment, automated bed and mattress washing systems, robots, cobots, IoT-enabled control devices, and real-time monitoring platforms support the governance of the hospital's macro supply chain. Within this model, AGVs are deployed mainly as a flexible backup solution, reinforcing resilience and continuity rather than serving as the primary logistics backbone. Innovation lies not in the isolated presence of advanced technologies, but in their integration into a measurable system capable of supporting decision-making, adapting over time, and governing complexity at scale.

Continuous monitoring through KPIs enables the evaluation of process efficiency, service reliability, resource allocation, life-cycle cost optimisation (CAPEX/OPEX), and infection prevention performance. In particular, the project addresses infection control and healthcare-associated infections (HAIs/ICA) through traceable flows, separation between clean and dirty routes, automated handling, controlled interfaces, and reduced manual transport, thereby strengthening safety and environmental hygiene throughout the hospital.

At the same time, the re-engineering of movements and support functions generates spatial and human value. By optimising surfaces and reducing the footprint of support activities, the project releases space for restorative environments, internal gardens, physical activity areas, and spaces for listening, decompression, and mental health support. This expresses a One Health vision in which operational efficiency, infection control, environmental quality, staff wellbeing, patient experience, and clinical performance are mutually reinforcing.

The New Padua University Hospital thus offers a replicable European model where integrated logistics, digital innovation, infection control, and LEAN operations become design tools for healthier, more sustainable, and evidence-based hospitals.

Transitions across a Historical Hospital Campus: The Integrated Transplant Center in Cluj-Napoca Transilvania as an Act of Reuse and Regeneration

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KEYWORDS:

Adaptive Reuse,
Architectural
Heritage, Hospital
Campus
Regeneration,
Urban Continuity

ABOUT THE AUTHOR:

Architect with international training, focused on projects with urban and community impact.

Co-founder of cra-de.studio (2011), he currently collaborates as architect and Lead Designer with bxd arquitectura and Pinearq S.L.P., working on healthcare, education, and housing projects. He has partnered with studios such as Brullet de Luna, Bonell i Gil, and Tdb arquitectura on projects in Spain, Romania, and Latin America.

In academia, teaching assistant in the BAC Japan program at Barcelona Architecture Center (2011–2019, returning in 2024) and correspondent for Zeppelin magazine.

Recognitions include: first prize for Salardú Civic Center (2025) and Pergola El Prat (2025), distinctions for the Cluj-Napoca Transplant Center and Sant Joan de Déu Hospital, awards at the Romanian National Architecture Biennial, and the MA House nomination for the 2026 Mies van der Rohe Awards.

ABSTRACT:

Transitions across a Historical Hospital Campus: The Integrated Transplant Center in Cluj-Napoca as an Act of Reuse and Regeneration

Category: Projects - Adaptive reuse and regeneration for public health outcomes

The Integrated Transplant Center (CIT) in Cluj-Napoca will be built within the pavilion-type campus of the Spitalul Clinic Județean de Urgență on Strada Clinicilor, an ensemble of over thirty buildings conceived between 1900 and 1904 by Hauszmann, Korb and Giergl at the southern edge of the historic city. More than a century later, the campus continues to operate as one of the largest hospitals in Romania, but its original logic - pavilions separated by gardens, a clear hierarchy of accesses, a legible relationship with the surrounding streets - has been progressively obscured by successive additions, parking surfaces and perimeter walls.

The competition-winning proposal for a 300-bed transplant center is approached not as an autonomous insertion but as an operation of adaptive reuse at the scale of the whole campus. The new building takes its position, volumetry and alignments from the Belle Époque pavilion grammar, restoring a fragment of the original urban figure while absorbing the highly specialised clinical program of a tertiary transplant facility. Existing listed pavilions are retained and reprogrammed for outpatient, research and support uses; circulations are reorganised around a continuous pedestrian spine; the degraded edge along Strada Clinicilor is recovered as a public, permeable frontage rather than a service perimeter.

The methodology combines historical cartographic analysis, regulatory reading of the Romanian heritage framework, functional programming according to transplant-specific adjacencies, and verification of flows - patients, medical staff, organs, materials - across old and new fabric. A comparative matrix of European academic hospitals operating within protected historic ensembles (Vienna, Budapest, Bologna) informed the strategy of selective demolition, infill and reuse.

Key design insights emerging from the project concern the reversibility of interventions within a living hospital, the calibration of clinical technicality against heritage constraints, and the role of the campus as a piece of public city rather than a fenced enclave. The transplant center becomes the instrument through which the whole ensemble is recomposed: a specialised program triggering a broader urban regeneration.

The contribution to health-centred architecture lies in demonstrating that adaptive reuse in hospital settings is not a compromise between heritage and clinical performance, but a viable strategy for restoring the historical continuity between hospital and city that nineteenth and twentieth-century urbanism established and that late-modern hospital planning largely dismantled.

Designing for healthcare in Romania

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Order of
 Architects Romania

KEYWORDS:
 Healthcare design,
 architectural
 competitions

ABOUT THE AUTHOR:

Andreea Tănase holds a dual specialisation in architecture and urban planning. She graduated from the Faculty of Architecture at the Politehnica University of Timișoara in 2009, subsequently continuing her studies at the Bartlett School of Planning, where she earned a master’s degree in urban planning. Driven by a particular interest in the impact of various urban stakeholders on city development, she is primarily involved in urban planning projects. Through her own practice, she coordinates the development of several urban development strategies and urban regeneration schemes in Transylvania, Romania.

Since 2018, she has collaborated with the Romanian Order of Architects on the development and implementation of design competitions for complex public investments. As a professional advisor, she has drafted design briefs for competitions dedicated to medical infrastructure (Comprehensive Transplant Centre, 2019, Cluj-Napoca; Children’s Hospital, 2021, Cluj-Napoca), office development (North – West Regional Development Agency, 2026, Cluj-Napoca), and complex urban regeneration projects (Cibin Market, 2023, Sibiu).

ABSTRACT:

The article embarks on a curious exploration of the following two objectives:

- (1) draft a comparative analysis of how public healthcare design practices evolved in post-communist Romania, in conjunction with the associated public procurement practices.
- (2) discuss the impact of the architectural competitions focused on healthcare projects, promoted by the Order of Architects from Romania in the past decade.

The objectives become the starting point for a more detailed presentation that can contrast and compare the benefits that local authorities can derive from using architectural competitions for healthcare projects, as part of the procurement process. The analysis will draw conclusions based on several case studies, namely:

- (a) 2020 Comprehensive Transplant Center International Design Competition from Cluj-Napoca, Romania: an example of adaptive reuse and regeneration for public health outcomes.
- (b) 2021 Children’s Hospital International Design Competition from Cluj-Napoca, Romania: a complex example that touches upon institutional redesign;
- (c) Paediatric Campus Marie Curie, Bucharest Romania: an example of how civil society can impact the development of public healthcare infrastructure
- (d) Development of the regional emergency hospital scheme at the national level, with a focus on the Regional Emergency Hospital from Cluj-Napoca, Romania.

Moving beyond the procedural aspects (professional frameworks / regulatory integration), the article will also look at the community-based and participatory design processes, as well as the extent to which the projects selected for implementation manage to create a therapeutic environment.

Setting the Ground Early: Collaborative Frameworks for Healthcare Projects

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KEYWORDS:
Collaboration,
Standards,
Healthcare,
Engagement,
Framework

ABOUT THE AUTHOR:

UK-based healthcare architect and strategic advisor with over 20 years' international experience delivering complex hospital and healthcare projects across the UK, Ireland, the Middle East and Australia. Her work spans strategic planning, masterplanning, healthcare design and delivery, with notable projects including the New Children's Hospital in Dublin, Great Ormond Street Hospital masterplan and Children's Cancer Centre (London), Leeds Hospitals of the Future, the Canberra Hospital Expansion, and the Kingdom Health Academic Medical Campus in Amman. Her focus is on translating international best practice into buildable, adaptable and human-centred healthcare environments.

ABSTRACT:

Objectives and Relevance

Healthcare projects increasingly bring together international architects, local architects, and health service advisors. While this creates opportunities to combine global expertise with local knowledge and service-led thinking, it also introduces risk if roles, responsibilities, and ways of working are not clearly defined from the outset. This talk focuses on the practical need to establish a robust collaboration framework early in a project, ensuring that international best practice, local regulation, and service planning inputs are aligned rather than competing. It directly responds to the Practice stream by addressing professional workflows, regulatory integration, and multidisciplinary collaboration in real-world delivery contexts.

Methodology / Approach

The presentation is grounded in professional practice rather than research. It draws on healthcare projects in Europe, Middle East and Australia to illustrate how collaboration models are established and evolve through briefing, concept design, and delivery. Using comparative case examples, it examines different approaches to structuring teams, allocating scope, and integrating inputs from international and local architects alongside health service advisors. Both effective and less effective scenarios are discussed (anonymised), focusing on how early decisions around governance, scope split, and communication protocols shape project outcomes.

Key Insights / Practice-Based Findings

The talk identifies recurring patterns in what enables or undermines successful collaboration:

- Early agreement on roles, scope boundaries, and decision-making authority is critical
- Clear alignment between service planning inputs and spatial design responses prevents disconnects
- Poorly defined scope splits between international and local architects lead to duplication or gaps
- Health service advisors are most effective when embedded early and continuously, not consulted intermittently
- Rigid application of international standards without local interpretation creates delivery and compliance risks
- Conversely, overly localised approaches can limit clinical performance and long-term adaptability
- Iterative, shared design processes outperform linear handovers between parties

It also highlights practical tools such as responsibility matrices, structured gateways, and joint review mechanisms that support alignment.

Contribution to Health-Centred Architecture

By focusing on how multidisciplinary teams collaborate, rather than solely on design outputs, this paper contributes a practice-led perspective on delivering healthcare environments that are both clinically robust and contextually appropriate. It proposes a transferable framework for structuring collaboration between international and local architects and health service advisors, helping to bridge standards, regulations, and operational needs. Ultimately, it supports the delivery of healthcare environments that better enable safe, efficient, and patient-centred care across diverse settings.

Sensory-Enabled Architecture: An Evidence Based Study

AUTHOR:
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Stephen N. Parker

ABOUT THE AUTHOR:

A dedicated behavioral health planner and mental health design subject matter expert, Stephen is a proponent of “architect as advocate” for colleague, client, and community alike, and he believes strongly in leadership through service. Advocating by design for humanity at its most vulnerable, elevating communities in crisis, and serving those that suffer in silence, Stephen is driving purpose across Stantec’s boundaryless Mental + Behavioral Health projects from the Arctic to Australasia. Stephen has served a diverse client base, including the Cleveland Clinic, Kaiser Permanente, and the U.S. Department of Veterans Affairs, helping develop the VA’s new Inpatient Mental Health Design Guide. Stephen is an Associate Member of the American Indian Council of Engineers & Architects and served as Co-covener of the AIA Strategic Council’s Mental Health + Architecture during the pandemic. Stephen serves as Associate Director for the Design in Mental Health Network headquartered in the UK.

KEYWORDS:
Sensory Design,
Neuroarchitecture,
Neuroinclusive.

ABSTRACT:

Beyond Inclusion: Designing for Neurodiverse Needs

Traditional design often assumes a one-size-fits-all approach. But for individuals who experience the world differently—whether through heightened sensory sensitivity or unique processing styles—standardized environments can create stress and hinder performance. Forward-thinking organizations are moving beyond surface-level inclusion to design spaces that adapt to human variability. This means integrating sensory-friendly elements like adjustable lighting, acoustic control, and tactile textures. Quiet pods for deep focus, flexible collaboration zones, and environments that modulate based on user needs are no longer optional—they’re essential for reducing anxiety and enabling flow states. We all complete tasks at our own pace and our environment can enable us to find and enhance our flow state more easily. The pandemic taught us the value of our spaces in relation to our mental wellbeing, lessons we should take to heart.

Approaching the concept of "Quality" as a design tool

AUTHOR:

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KEYWORDS:

Quality, Certification, Evaluation, Accreditation, Health Facilities

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ABSTRACT:

The Research Center on Health Facility Planning (CIRFS), of the Faculty of Architecture, Design and Urbanism of the University of Buenos Aires (FADU/UBA), Argentina, was founded in 1979. Its purpose is to develop research, teaching, information, and technical cooperation programs on health facility planning.

CIRFS recognizes the significant impact of quality on healthcare outcomes. The research addresses the concept of quality, understood as an essential tool to consider for the health facility planning process. Quality must be much more than an external attribute of the spatial envelope of a technical solution. It should not be something added to the building in its final construction phase, but should influence the entire planning process at all stages of its design. Therefore, it was essential to develop a specific study of the quality of physical resources as part of the overall health infrastructure.

The research developed by CIRFS encompasses five (5) projects. Three of them are qualified by the Science and Technology Secretariat of the University of Buenos Aires (UBACyT Projects), followed by two research projects from the Research Secretariat of the Faculty of Architecture, Design and Urbanism of the University of Buenos Aires (PIA Projects).

1. The Health Facility Quality Assurance (UBACyT Project 2011-2014)
2. The Quality Requirements for the Accreditation of Health Facilities (UBACyT Project 2014-2017)
3. The Certification of the Physical Resources in Healthcare Services of Accredited Hospitals (UBACyT Project 2018-2022)
4. The Certification of Physical Resource in Health of Accredited Hospitals: The Inpatient Care Service (for adults) (PIA Project 2023-2025)
5. The Certification of Physical Resources in Health, of Accredited Hospitals: The Emergency Departments (PIA Project 2025-2027) (in process)

The research adopted a mixed-methods approach, beginning with a quantitative survey to identify general trends, followed by qualitative interviews to explore those trends in depth. As a result of the work, the Certification Manual for Health Services was developed for: i) Ambulatory Care, ii) Surgical Center, iii) Intensive Care Unit, iv) Inpatient Care Unit, and v) Emergency Care (in development), where architecture, installations, and equipment are evaluated. Each Manual has their own "Evaluation Worksheets" as an assessment tool to be applied by specialized interviewers in the different services of a health unit.

The Certification Manuals of CIRFS emphasize the importance of using assessment tools to achieve improvements in the quality of health facilities and, consequently, improve the overall quality of care.

UIA- Public Health Group Region Iii: Past, Future, And New Challenges

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KEYWORDS:
Region Iii,
Exchange Of
Knowledge, Networks

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ABSTRACT:

As part of the activities of the Public Health Group (UIA/PHG) Region III, the First Webinar of Region III – Latin America was held on October 1, 2, and 3, 2025 at the Central Society of Architects (SCA) in Buenos Aires, Argentina, titled: “Trends in Architecture in Latin America: Innovation, Technology, and Humanization of Healthcare Spaces.”

- The thematic axes of the event were:
- Design Trends in Healthcare Architecture
 - Innovation in Hospital Engineering
 - Sustainability and Energy Efficiency
 - Planning, Management, and Public Policies

The event consisted of three days: the first focused on UIA and UIA/PHG participants, the second on Latin America, and the third on Argentina, the host country.

Objectives

- Promote the exchange of knowledge and experiences among professionals in Latin America.
- Disseminate innovative trends in healthcare architecture design and planning.
- Integrate technological, sustainable, and human-centered aspects into healthcare design.
- Strengthen networks among architects, engineers, health managers, and public agencies; and
- Promote the activities of the Public Health Group of the International Union of Architects (UIA/PHG) in the region.

Final comments:

Throughout the three-day event, participants demonstrated great interest in healthcare architecture, with more than four hundred registered attendees. The seminar emerged as a way to bring the message of the Public Health Group to an audience that proved highly engaged. The participation of distinguished speakers, along with the presence of notable figures from the International Union of Architects (UIA), was fundamental to the success of the event. It is also important to highlight the UIA’s crucial role in elevating the visibility of its regions. This is strategically significant, as it acknowledges regional particularities and seeks to respond to their unique characteristics and needs.

The Unfinished Work

AUTHOR:
Andrés Alberto
Haugh

Grupo Oroño

ABOUT THE AUTHOR:

Andrés Haugh
Architect | Master's Degree in Healthcare Architecture:
Design, Organization and Management

Born in Rojas, he moved to Rosario in the early 1990s to pursue his studies at the School of Architecture of the National University of Rosario. In 1997, he graduated with distinction, receiving First Prize in the ARQUISUR Student Competition.

In the mid-2000s, he joined Sanatorio Parque as Head of Maintenance. He currently serves as Architectural Advisor to Grupo Oroño, where he leads interdisciplinary teams in the development of the group's architectural projects and construction works.

In parallel, he directs his own architecture studio, working across architectural design, strategic planning, interior design, and heritage value. His professional approach is focused on achieving excellence, integrating visual quality, sustainability, and technology.

KEYWORDS:

ABSTRACT:

The Unfinished Work:
Architectural Design as a Continuous Process in Healthcare Environments

This paper explores architectural design as a continuous and cumulative process, positioning healthcare architecture as a critical field for the development, testing, and refinement of spatial strategies oriented toward health outcomes. Drawing on 25 years of professional practice within Grupo Oroño, the research frames built work not as isolated responses, but as part of an evolving system of knowledge.

Aligned with the UIA PHG seminar's focus on transitions, the study examines how design moves across stages—from conception to construction and subsequent reinterpretation—through iterative cycles of evaluation and adjustment. The approach is grounded in practice-based research, analyzing a series of healthcare projects as case studies that reveal the progressive transformation of architectural solutions.

Particular attention is given to the role of construction detailing, material systems, and building envelopes as key instruments for knowledge transfer. Through the repeated testing and refinement of these elements, design strategies are continuously improved, enabling higher levels of spatial performance, operational efficiency, and user-centered environments.

Within this process, institutional image is understood not as a superficial layer, but as an evolving architectural construct. Identity, coherence, and trust are progressively built through consistent spatial, material, and formal decisions across multiple projects, reinforcing both user experience and organizational recognition.

The paper argues that architectural practice, when conceived as a continuous process, becomes a mechanism for advancing health-oriented design. By integrating accumulated knowledge into successive interventions, architecture contributes to the development of more adaptive, resilient, and responsive healthcare environments.

Ultimately, this work contributes to the discourse on practice-based approaches in health architecture, demonstrating how iterative design processes can support long-term improvements in the quality of care and the built environment.

A Bridge to Close

AUTHOR:

Philip Patrick Sun, Emeritus AIA, NCARB, ACHA

Adept Organizational Logistics and Integrated Program Development Solutions

KEYWORDS:

How, Who, Where, When, Success

ABOUT THE AUTHOR:

Mr. Sun has been both an "Owner", CEO, Executive Director of healthcare systems and separately an Architect delivering major capital programs that include the planning, design, and construction of over \$6.0 billion in institutional settings with major projects in the USA and internationally. He has succeeded at delivering projects with No Surprises, No Excuses, and No Increases.

Mr. Sun has developed Lean and integrated program management processes which have been successfully applied on engagements for government entities, the not-for-profit sector and the private sector.

Mr. Sun lectures regularly and has given numerous courses at the graduate level in hospital administration and health care planning and development. He is a member of the Lean Construction Institute and was the leader of a demonstration project for OSHPD in California.

ABSTRACT:

Subtitle: The Difference Between Success and What Looks Like Success

Mini Title: How To Start, Affect and Reach Durable Decisions

In an epic film of the title "A Bridge too Far", that won 14 Oscars, 49 years ago, reveals how ambition without planning can create heroes but not success.

It takes a knife's surgeon to determine a cut. The planning, however, and the decision is fundamental and critical. Once cut, what then? Observing vs. Planning. What are the tools required to solve the healthcare planning and architecture problems in a manner that leads to success? While a crystal ball cannot tell us an answer, tested and proven processes can provide a path.

Times have changed and the question is what have we learned? In healthcare, what is great design? Images of well rendered buildings are now easily within reach and sometimes so compelling that drama rather than facts in evidence sway the day (decision). Our role and our facilities affect and lives saved.

This paper proposes to address all the categories in the call for abstracts.

In the UIA we are the protectorate of human lives. Humanity is based on multiple conditions, lives are based on the performance of our planning and facilities.

The delivery of healthcare is based on the success of the program plan, the functional plan, the space program, the conceptual plan, the schematic plan, the development plan and all of this relates to the original affordable proposition. The architect is more than a technician. The architect is the conductor of the orchestra, the coach of the team. The Architect must have the tools to lead, to effectively research the underlying problem, and the techniques to bring about responsive solutions. Technologies have emerged that enhance these tools and techniques that lead to cognitive "durable decisions".

This paper provides examples of success and also failures and failures in the making. Decisions are ultimately made by the Owner and the Owner's team. This paper identifies the Owner's five critical Roles and Responsibilities, three cognitive parts in making durable decisions, five steps that underscore the process, and the major points in effectively leading the technical team that includes the design team, the constructor and the Owner.

Basis: a history of award winning projects, all of which have been within budget, on schedule, built without changes and have ultimately benefitted individual and group health and saved lives.

Environmental Design for Health: A Transdisciplinary Framework for Design Education, Research, and Practice

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KEYWORDS:

Environmental
Design, Design for
Health, Framework,
Architectural
Education

ABOUT THE AUTHOR:

Dr. Zhipeng Lu is an expert in environment and behavior, design for health, and environments for aging. He was honored as the 2023 Healthcare Design Magazine HCD10 Educator of the Year and recognized as a CTE-Montague Scholar by Texas A&M University Center for Teaching Excellence. Dr. Lu holds the Julie & Craig Beale Endowed Professorship in Health Facilities Design and serves as an Assistant Professor in the Department of Architecture, and the Associate Director of the Center for Health Systems & Design at Texas A&M University. Dr. Lu also coordinates the International Union of Architects – Public Health Group (UIA-PHG) Secretariat and the Global University Programs in Health Architecture (GUPHA).

ABSTRACT:

Architectural education must prepare future practitioners to address urgent health challenges at individual and population levels. This presentation examines new framework for Environmental Design for Health, and outlines its core concepts for integrating health into environmental design education, research, and practice. The presentation first establishes why environmental design is central to health. The spaces where people live, work, study, and play shape daily exposures and behaviors that support or undermine health. Echoing Hippocrates’ assertion that protecting and developing health should take precedence over restoring it, the framework frames everyday environments as critical determinants of healthy lifestyles and health equity.

The framework emphasizes:

- Environmental design as part of the broader ecosystem for health, requiring multidisciplinary collaboration with public health, medicine, planning, and policy.
- Human-centered, outcome-driven approaches shared by both design and health promotion.
- Environmental design as a population-level intervention strategy, in which changes to physical settings can promote, protect, and restore health.

Social and behavioral factors are highlighted as essential pathways linking design and health. They offer identifiable, modifiable targets through which environmental design and public health can jointly foster healthier lifestyles and population outcomes.

Finally, the presentation argues that design education and practice must be more tightly connected to research. Environmental design projects can generate evidence and contribute to an evolving knowledge base on design for health. We discuss appropriate study designs and intervention strategies, call for more systematic reviews and empirical work, and emphasize moving beyond cross-sectional studies toward research on causal and dose–response relationships. The Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework is introduced as a tool for planning, evaluating, and scaling design interventions, and for identifying needed policy support to advance effective health promotion through environmental design.

Integrating Acculturation and Sustainability in Mosque Architecture: A Health Centred Framework from a Minority Context

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Rahmadhiani
Mohamad Zaini Bin
Abu Bakar
Ngakan Ketut Acwin
Dwijendra

ABOUT THE AUTHOR:

Yunanistya Rahmadhiani is a PhD candidate in Social Sciences, with Architecture as her primary field of expertise, focusing on religious architecture, cultural acculturation, and sustainability in Southeast Asia. Her doctoral research examines mosque architecture in Bali as a case of cross cultural acculturation, exploring how Islamic principles are integrated with Balinese vernacular traditions and sustainability frameworks, particularly in relation to health and wellbeing.

In addition to her academic work, she is engaged in professional architectural practice, with experience in design development, project coordination, and technical documentation across residential and institutional projects. Her practice informs her research through a grounded understanding of climate-responsive design and socio cultural contexts.

Her work contributes to advancing discussions on intercultural coexistence and health-supportive religious architecture in multicultural societies.

KEYWORDS:
Health centred architecture, wellbeing, mosque architecture, acculturation, minority contexts.

ABSTRACT:

This study addresses the growing need to position architecture as a mediator of health and wellbeing within culturally diverse and minority contexts. In Bali, Indonesia, where Muslims constitute a minority, mosque architecture plays a critical role not only as a religious facility but also as a socio spatial environment that influences social inclusion, cultural acceptance, and psychological comfort. The study aims to develop a health centred architectural framework that integrates religious principles, local cultural values, and sustainability considerations.

A qualitative approach is employed through secondary data analysis and semi structured interviews with key informants, including architects, academics, community representatives, and religious scholars. The study is structured around a theoretical framework consisting of three interrelated layers. The first layer identifies key design drivers: Islamic architectural principles, Balinese spatial philosophies, and sustainability parameters. The second layer conceptualizes the process of architectural acculturation through four analytical stages: cultural elements, selection, reinterpretation, and integration. The third layer evaluates design outcomes in relation to health and wellbeing dimensions.

The findings indicate that mosque architecture in Bali reflects a dynamic negotiation between religious, cultural, and environmental parameters, resulting in adaptive design strategies that support multiple dimensions of health. These include mental wellbeing through enhanced sense of belonging and spiritual comfort, social health through inclusivity and community cohesion, and environmental health through climate-responsive design. Cultural acceptance emerges as a critical factor linking acculturation processes to overall wellbeing outcomes.

This study contributes to the discourse on health centred architecture by proposing an integrative framework that connects acculturation processes with measurable wellbeing outcomes. The framework offers a transferable model for designing inclusive and health supportive religious architecture in diverse socio cultural contexts.

The Modular Evolution: Navigating Architectural Transitions in Global Health

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Architects

KEYWORDS:
Modular Hospital;
Modular Integrated
Construction;
Resilient
Architecture;
Emergency
Architecture;
Multi-storey
Hospital.

ABOUT THE AUTHOR:

Ar. Vivian Cheung is the Deputy Director (Architecture) at China State Construction International Medical Industry Development Company Limited, a wholly-owned subsidiary of China State Construction International Holdings Limited (a member of China Overseas Holdings Limited). As an Authorized Person and Registered Architect in Hong Kong with degrees in both architecture and law, she leads the architectural design team in strategic design and delivery of advanced healthcare infrastructure, specializing in Modular Integrated Construction. Having delivered different projects across the globe, her human-centric design philosophy and bold architectural approach have earned her multiple recognitions, including the Gold Award at the A&D Awards, the 40 Under 40 Award, etc.

ABSTRACT:

The 21st-century healthcare landscape demands unprecedented agility. From natural catastrophes, like seismic events or sudden pandemics, to geopolitical conflicts, traditional hospital construction methodology will not be able to keep pace with these urgent realities. As global health systems navigate these critical transitions, Modular Hospital presents an alternative approach to healthcare architecture, proving that rapid deployment can coexist with international-standard design.

This presentation explores how modular medical-architectural designs addresses the Congress's theme of transitioning design to develop, protect, and restore health in an era of constant disruption.

Develop: Transitioning from site-heavy construction to prefabricated typologies allows health systems to anticipate needs rather than merely react. By utilizing standardized clinical modules and adaptable structural framework, this architectural methodology reduces construction timeline, enabling the inclusive expansion of healthcare capacity in even remote and resource-depleted environments.

Protect: In public health crises, time is critical. Resilient modular design sets up a prompt shield for vulnerable populations by delivering hospital-grade bio-containment in a fraction of traditional timeframes. Complex MEP systems integrated inside controlled factory environments guarantee the execution of negative pressure isolation for infection control. This adaptability ensures health systems safeguarding communities when existing infrastructure is overwhelmed.

Restore: Ultimately, healthcare architecture must support recovery physically, psychologically, and socially. Modular Hospital prioritizes human-centric design in parallel with medical logistics to create therapeutic environments that support patient recovery, mitigate staff trauma, and foster holistic healing. After the acute deployment during crisis, such designs are repurposed as long-term facilities, extending life-cycle value and supporting post-crisis community needs.

From the first modular hospital – the North Lantau Hospital Hong Kong Infection Control Centre to the first multi-storey hospital adopting the Modular Integrated Construction technology – the Chinese Medicine Hospital of Hong Kong, this presentation will demonstrate how modular solutions reflect the future of public health infrastructure. We will illustrate that flexible design is no longer just a temporary emergency measure, but a sustainable, long-term architectural strategy essential for the future of global health in an unpredictable century.

The Importance of Collaboration Between Built Environment Professionals, Cerebral Palsy Community and Health Practitioners

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ABOUT THE AUTHOR:

Nur Halinda Halimi is currently a professional architect from the Public Works Department Malaysia. She has 15 years of experience designing and managing a diverse range of projects namely hospitals and health care facilities, higher education institutions, government agency offices and a few Malaysia Embassies abroad. She graduated her Master of Science Built Environment from International Islamic University Malaysia and had her Bachelor of Architecture from University of Technology Malaysia. She has published and presented multiple papers during her Masters research work. Among papers presented and published are during UIA World Congress of Architects Copenhagen 2023 and UIA Kuala Lumpur Forum 2024. She also participated as one of the panels in blind paper peer review for UIA World Congress of Architects Copenhagen 2023.

KEYWORDS:
Cerebral Palsy,
Accessibility,
Built Environment

ABSTRACT:

Cerebral palsy is also known as CP or mostly as spastic and is a common physical disability in children. Buildings, products and physical environments that are accessible to individuals of all ages, abilities and circumstances including CP patients are defined as universal design. In Malaysia, the Malaysian Standard document MS 1184 : 2014 – Universal design and accessibility in the built environment – Code of practice has been made the primary guideline for the designing and planning of the built environment to ensure inclusivity and barrier free for all. High awareness of universal design contributes to effective accessible built environment. However, currently there is no designated design framework or guideline that brings together designers, community and health professionals to create a built environment that fosters long-term families living with cerebral palsy patients. The objective of this study is to determine the importance of collaboration between built environment designers, community and health practitioners in Malaysia. The methodology adopted for this study is mixed methodology via interview, case study and survey. This study managed to attain respondents from cerebral palsy family members, occupational therapists dealing with cerebral palsy children and built environments designers and allied assistants in Malaysia. Findings of this study denote that the importance of collaboration between built environment designers, community and health practitioners are as follows; i. Promoting public health through environmental design; ii. Creating evidence-base design; iii. Fostering community engagement and equity; and iv. Enhancing holistic and sustainable environment. From the findings, the study suggests that more initiatives and proactive actions to increase the collaboration between built environment designers, community and health practitioners in creating a more accessible and CP-friendly physical environment. Further studies are recommended to establish a detailed design guideline specifically to assist in designing the appropriate built environment for cerebral palsy patients.

Reviewing Space Utilisation in Ageing Malaysian Public Hospitals: A Case Study Approach to Extended Design Life Based on Locality Needs and Culture

AUTHOR:

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ABOUT THE AUTHOR:

Norwina (P.hD) is currently a freelance architect, researcher and health facility planner, contributing her over 30 years experiences in government practice and academia through Social Community and Responsibility committee of the Malaysian Institute of Architects (PAM) . She is a PAM representative on UIA-Public Health Workprogramme since 2000, UIA-Architecture for All Region IV Director from 2023-2026 and advisor to ARCASIA Social Responsibility Committee.

KEYWORDS:

Space Utilisation, Ageing Hospital Infrastructure, Design Life, Locality Needs

ABSTRACT:

Malaysia's public healthcare system, established in the 1850s, currently operates 146 public hospitals that serve a diverse, multi-ethnic population. However, many of these facilities are ageing, presenting a critical challenge: severe space utilisation inefficiencies stemming from poor spatial layouts and inadequate facility planning. While new hospital construction receives significant attention, the urgent need to review and adapt existing ageing hospital stock—particularly to extend their safe and functional design life—remains largely unaddressed. This research addresses that gap by evaluating space utilisation patterns across selected ageing public hospitals in Malaysia, with the explicit goal of developing design-life extensions that balance functional requirements, climatic considerations, and cultural sensitivity. A sequential desktop mixed-method design is employed. Phase 1 conducts systematic space utilisation assessments on case study hospitals representing different age cohorts and geographic locations across Peninsular Malaysia, Sabah, and Sarawak. Phase 2 applies post-occupancy evaluation techniques, including baseline analysis and walkthrough observations. Phase 3 analyses evidence addressing both physical and psychological needs of users. The necessity for this review is clear: without locality-specific and culturally calibrated guidelines, generic renovation strategies risk worsening inefficiencies or eroding care quality. Preliminary evidence suggests that systematic reviews will reveal significant gaps between the intended spatial design and actual usage patterns—gaps often influenced by local climate, patient demographics, and cultural practices around caregiving and family presence. The research aims to deliver two key outputs: (1) a validated space utilisation assessment tool tailored to Malaysia's ageing public hospitals, including culturally calibrated design guidelines for extended life applications; and (2) a decision-support framework for the Ministry of Health's Planning Division to identify which spatial configurations can be successfully adapted versus those requiring replacement. These evidence-based recommendations will inform Malaysia's 13th Malaysia Plan, enabling reallocation of capital budgets from new construction toward strategic space utilisation renewal. Ultimately, this approach optimises investment in national healthcare infrastructure while respecting Malaysia's multicultural and multi-ethnic context in delivering care.

Transitioning Public Healthcare Infrastructure in Tunisia: Integrating Resilient Architecture, Energy Efficiency and Digital Innovation in Public Hospitals: The Case of Charles Nicolle University Hospital

AUTHOR:
Ahmed Bouchoucha

Charles Nicolle University Hospital

KEYWORDS:
Healthcare Architecture, Energy Efficiency, Digital Health, Preventive Maintenance, Sustainable Development.

ABOUT THE AUTHOR:

Ahmed Bouchoucha is a senior Tunisian architect and healthcare infrastructure specialist with more than 22 years of professional experience in hospital architecture, medical planning, project management, and public healthcare infrastructure.

Graduated from the National School of Architecture and Urbanism of Tunis in 2003, he currently serves as Director of Maintenance and General Services at Charles Nicolle University Hospital, where he oversees technical management and the construction phase of a major hospital project of approximately 140,000 m².

Previously, he held leadership positions within the Ministry of Health of Tunisia, directing programming and standardization initiatives for healthcare facilities across Tunisia and contributing to major hospital projects, including 500-bed university hospitals.

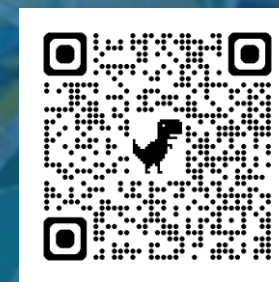
Internationally, he served as General Manager of Hamed Al Hatmi Engineering Consultancy in the Sultanate of Oman, supervising healthcare, industrial, commercial, and mixed-use developments. His expertise focuses on resilient healthcare architecture, hospital modernization, energy-efficient infrastructure, technical management, and the integration of digital technologies and AI within healthcare environments.

ABSTRACT:

Public healthcare systems are increasingly challenged by demographic growth, climate change, technological transformation, and rising operational demands. In Tunisia, university hospitals must simultaneously address aging infrastructures, limited financial resources, increasing patient flows, and the need to modernize healthcare environments while ensuring continuity and quality of care. This paper explores how public healthcare architecture can evolve toward more resilient, energy-efficient, and digitally integrated hospital environments through the combined action of architectural planning, technical management, maintenance strategies, and emerging technologies. The contribution is based on the author’s current role as Director of Maintenance and General Services at Charles Nicolle University Hospital in Tunis, one of Tunisia’s largest and most historically significant public healthcare institutions. The study presents concrete actions and ongoing transition projects implemented within the Tunisian public healthcare sector, particularly at Charles Nicolle University Hospital. Special attention is given to strategies aiming to improve environmental performance and operational sustainability through the optimization of HVAC systems, intelligent energy management, preventive maintenance, LED conversion programs, and the progressive integration of photovoltaic energy production within hospital infrastructure. The paper also examines the growing role of information technology and artificial intelligence in transforming healthcare management and patient pathways. Current initiatives involving digital infrastructure, hospital information systems, data management, smart monitoring tools, and AI-assisted patient management are discussed as part of a broader transition toward intelligent healthcare environments capable of improving efficiency, safety, traceability, and decision-making processes. The methodology combines operational field experience, architectural analysis, infrastructure assessment, and evaluation of healthcare facility performance. The contribution highlights how adaptive rehabilitation, technical modernization, and interdisciplinary collaboration between architects, engineers, healthcare professionals, and public authorities can support long-term resilience in public hospitals operating under constrained conditions. Through practical case studies and public-sector healthcare projects, this paper argues that hospital maintenance, energy transition, and digital innovation should be fully integrated into the architectural continuum as essential tools for protecting and restoring public health. The proposed contribution aligns with the seminar themes related to professional practice, construction, emerging technologies, and health-centered design transitions, while offering a practical perspective from the reality of healthcare transformation in Tunisia and North Africa.

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