STUDIES IN HEALTH TECHNOLOGY AND INFORMATICS 297

# Transforming our World through Universal Design for Human Development

*Proceedings of the Sixth International Conference on Universal Design (UD2022)*


Editors: Ilaria Garofolo
Giulia Bencini
Alberto Arenghi

IOS Press

An environment, or any building product or service in it, should ideally be designed to meet the needs of all those who wish to use it. Universal Design is the design and composition of environments, products, and services so that they can be accessed, understood and used to the greatest extent possible by all people, regardless of their age, size, ability or disability. It creates products, services and environments that meet people's needs. In short, Universal Design is good design.

This book presents the proceedings of UD2022, the 6th International Conference on Universal Design, held from 7 - 9 September 2022 in Brescia, Italy. The conference is targeted at professionals and academics interested in the theme of universal design as related to the built environment and the wellbeing of users, but also covers mobility and urban environments, knowledge, and information transfer, bringing together research knowledge and best practice from all over the world. The book contains 72 papers from 13 countries, grouped into 8 sections and covering topics including the design of inclusive natural environments and urban spaces, communities, neighborhoods and cities; housing; healthcare; mobility and transport systems; and universally-designed learning environments, work places, cultural and recreational spaces. One section is devoted to universal design and cultural heritage, which had a particular focus at this edition of the conference.

The book reflects the professional and disciplinary diversity represented in the UD movement, and will be of interest to all those whose work involves inclusive design.


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# TRANSFORMING OUR WORLD THROUGH UNIVERSAL DESIGN FOR HUMAN DEVELOPMENT

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# Transforming our World through Universal Design for Human Development

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The image on the front cover represents the Winged Victory of Brescia, a bronze statue from the first century CE. The statue is preserved in the Roman Archaeological Park in Brescia.

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# Preface

> *"All over the world, people are struggling for a life that is fully human, a life worthy of human dignity. Countries and states are often focused on economic growth alone, but their people, meanwhile, are striving for something different: they want meaningful human lives."* (Martha C. Nussbaum, 2012. Creating Capabilities, p. 1, Cambridge, Massachusetts and London, UK, Harvard University Press)

From its first edition in 2012, the journey of the international conference on Universal Design has been the story of an expanding intellectual and practical movement. The aim of this movement is to put into practice the aspirations and goals of human-centred approaches to sustainable development founded on human rights, human development and equality for all, such as those encoded in the United Nations Sustainable Development Goals and the Convention on the rights of Persons with Disabilities (UNCRPD).

After the first meeting in Norway (Oslo, 2012), which was organised by several enlightened governmental bodies in the Scandinavian region as a forum for the exchange of views and sharing of good practice in Universal Design, the second edition in Lund in 2014 saw the entry of academia, with wide participation from across academic disciplines, setting the stage for UD practitioners, researchers and educators to connect directly and to share ideas, research and practice.

The role of academic institutions in organising the UD conference (York, 2016, Dublin, 2018 and Helsinki, 2021) has persisted across successive editions, strengthening over time, as universities have increasingly recognised and taken on board their responsibility as primary actors in working towards societies that are founded on equity, justice and sustainable development for all human beings through their research, educational and outreach activities.

The 2022 edition, held in the historic town of Brescia, Italy, marks another landmark in the journey of the UD movement, as it crosses the alps to be hosted in southern Europe for the first time. Three Italian Universities – the Universities of Brescia, Trieste, and Ca' Foscari University of Venice – have joined forces to make this edition possible, opening up a space for conversations between researchers, educators and policy-makers in a truly multi-disciplinary vision for UD.

The title: Transforming our World for Human Development is intentionally aimed at realising broad sustainable development goals from a person-centred UD perspective by engaging delegates in a conversation across cultural, geographical, and disciplinary boundaries about what sustainable development really means. This was eloquently put by our dear colleague and friend Elio Borgonovi:

> *"There is much talk about renewable energies, resources and circular economies. Most of the time, however, we forget that human beings, with their characteristics and capabilities, provide the most precious renewable energy of all. Human capabilities develop with age and grow through education and experience. People flourish when they are given the chance to exercise their potential. This potential is exercised in social and natural environments when human beings can contribute*

*with their physical, intellectual, rational and emotional participation, by people, with people and for people."* (Address delivered at the University of Brescia, December 17th, 2020).

The sessions of the 2022 edition are characterised by their multi-disciplinary and multi-perspective nature, with sessions aimed at the design of inclusive natural environments and urban spaces, communities, neighbourhoods and cities, housing, healthcare, and educational facilities, mobility and transport systems, moving on to universally-designed learning environments, work places, cultural and recreational spaces. Contributions come from 13 different countries and various continents (Africa, Australia, Central America, East Asia, Europe, North America, South Asia) once again demonstrating that this is a growing international movement.

Our special thematic session is dedicated to Universal Design and Cultural Heritage. We believe that cultural heritage is part of what makes our lives human and meaningful. Providing full access for all human beings to cultural heritage combines two fundamental values crucial for human development and flourishing: cultural heritage provides each and every person with the possibility to engage meaningfully with their cultural and historical past, and at the same time it develops the awareness in each human being of the value of conserving the past so that we can better live in and understand the present.

A distinctive characteristic of the UD conference is the coming together of academic, governmental and professional communities under one roof. Our wish and invitation for the conference is for openness to others and to perspectives and experiences that may be different from our own, letting go of professional and disciplinary barriers, engaging with each other with empathy and curiosity. The experience of being so long deprived of face-to-face interaction due to the Covid-19 pandemic has made everyone more aware of the value of coming together during live conferences, in formal and informal ways.

The professional and disciplinary diversity represented in the UD movement is what allows us to transcend current existing separations between communities of knowledge and communities of practice, as well as existing separations between academic disciplines. Only when knowledge, practice and research from different disciplines are allowed to engage meaningfully and to feed into each other in a virtuous circle, can the power of ideas and actions become truly transformational.

Brescia, September 2022

Ilaria Garofolo, University of Trieste
Giulia Bencini, Ca' Foscari University of Venice
Alberto Arenghi, University of Brescia

# About the Conference

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| Giulia Bencini | Department of Linguistics and Comparative Cultural Studies, Ca' Foscari University of Venice |
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# Home-Based Primary Care: Adaptability Criteria for the Bedroom Layout and the Furnitures/Technological Equipments

Cristiana CELLUCCI[a,1]
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**Abstract.** Within the past decade, advances in medical technology, the desires and complex care needs of an ageing population, and innovative care delivery models have initiated a shift from providing care in hospitals to outpatient settings. And more recently, the acceleration and amplification of these factors is pushing healthcare options even further from the traditional inpatient and outpatient settings towards acute and subacute care in the home. This has led the medical community to look toward providing more tools and methods of care that patients can access safely right from home and the designers to think as the homes of the future will be flexible to support both an array of devices to provide a healthcare delivery and the humanization and personalization of the domestic space. The paper identifies criteria for the flexible design of the physical environment (including the home, equipment, furniture, etc.) that support and facilitate safety, comfort, and healing, in relation to the various patient populations, at their own physical and psychosocial needs, at the range of equipment/technology (from chronic to acute care), at the caregiving and daily living activities.

**Keywords:** Flexibility, Patient-Centered Design, Aging in Place, Universal Design, Healthcare at Home, Customization

## 1. Introduction

In the discussions triggered by the ageing of the population in the last thirty years, the impact of the ageing in place and the healthcare at home on both the healthcare facilities cost and the quality of care has only marginally been addressed. The percentage of the older people in Europe is currently the highest in the word and growing. It is estimated by Eurostat and WHO'statistics that in 2080 the share of people aged 80 and over will be more than double of 2019 (14,6% compared to 5,8%) [1]. At the same time, it increases the impact that the aging of the population has on assistance, on the costs of health services, on social organization, on the lives of the elderly and on the maintenance of their conditions of personal autonomy. These population trends are driving the shape and scope of home healthcare services. The desires and complex care needs of an aging population, the advances in medical technology and care delivery models have initiated a shift from providing care in hospitals to outpatient settings. Recently, these factors - and their the acceleration / amplification - are pushing healthcare options, even further

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from the traditional inpatient and outpatient settings towards acute and subacute care in the home. This has led the medical community to look toward providing more tools and methods of care that patients can access safely right from home and the designers to think as the homes of the future will be flexible to support both an array of devices to provide a healthcare delivery and the humanization/personalization of the domestic space.

In Italy, the Covid-19 pandemic was a period of experimentation on this issue. Territorial operational centres or telephone support services contributed to the improvement of home care for people affected by Covid-19 as well as for non-Covid subjects with chronicity/fragility, necessarily domiciled also because of the moment of great distress of the National Health Service (SSN). Keeping people at home has not only led to an improvement in the quality of care of the patients, especially the most frail ones, but also to greater safety in care, as it has reduced exposure to infectious risk factors [2] [3]. The same investments of the PNRR foresee a loan of 4 billion euros for the assistance of people suffering from chronic diseases, with particular attention to those over 65. Among the main objectives is the increase in the number of patients cared for in their own homes, increasing it to over 1.5 million by 2026.

Starting from this scenario of needs and opportunities, the paper identifies, through a literature review on Scopus and PubMed databases, the main trends concerning the main approaches on the role of the built environment in safe and effective delivery of healthcare at home, for patients and providers. Appropriate search terms have been selected based on previous literature reviews and papers collected in the field of healthcare facilities. A two-level set of keywords has been identified as well as some eligibility criteria in order to separate in-scope from out-of-scope results and avoid biases generated by the selection through keywords. (Table 1). Additional information has been gathered from secondary sources such as research centers repositories (Health and Care Infrastructure Research and Innovation Centre, International Academy for Design & Health, Center of Health Design).

**Table 1**. Keyword identification and eligibility criteria used.

| | **Type of healthcare at home** | **Residential Design Approaches** |
|---|---|---|
| Keywords search string: | "hospital in the home", "hospital at home", "home healthcare", "home hospitalization", "Early supported discharge", "Home-based primary care" | "Universal Design", "Aging in Place", "Healthcare at Home" |
| Eligibility criteria (Nature of the topic) | Visual Environment, Audio Environment, Safety Enhancement, Waynding System, Sustainability" Patient Space, Family Support Spaces, Staff Support Spaces - Physician Support Spaces, | |

Criteria were subsequently defined for the flexible design of the physical environment (including the home, equipment, furniture, etc.) that support both the safety, comfort, healing of the patient (with the own physical and psychosocial needs in the daily living activities), and the activities of the caregiving with the range of equipment/technology for the different levels of care (from chronic to acute care).

## 2. The home as a High-Performance Environment: an analytical framework

Back in 2011, the report by the National Research Council (NRC) declared, "Health care is coming home" [4]. However, the literature is confusing because there are different terms of healthcare at home (Hospital in the home, HITH; Home Healthcare; Home Hospitalization; Early Supported Discharge) [5] and different types of services, some of which focus on specialities (surgical and medical specialities, rehabilitation medicine, geriatrics, psychiatry, infectious diseases, respiratory diseases), others on diagnostic groups (e.g. hip fracture or stroke), or a mixture of them [6] [7]. Both the complexity and the intensity of the health care services provided in home settings are increasing and making changes to home care. In fact, it is changing from a service to help people or older adults – with disabilities, chronic illness, or cognitive impairment by assisting in their daily living activities – to a service that provides acute or subacute treatment in a patient's residence for a condition that would normally require admission to hospital. The key is substituting for in-hospital care. Home-Based Care includes admission avoidance (i.e. full substitution for hospitalisation) and early discharge followed by care at home (i.e. shortened hospitalisation). It can be cost-effective and convenient, reducing unnecessary hospital admissions and allowing patients to receive the care they need where they are most comfortable [8]. The advantages of Home-Based Care can be summarized in the following ways:

- greater safety for frail elders because they will have fewer of the common complications of hospitalization (such as delirium, stress etc.). The NRC [4] report noted that acutely ill older persons often experience adverse events when cared in the acute care hospital, while they value the delivery of health care at home, as it promotes healthy living and well-being when it is managed well. Living independently at home is a priority for many, especially individuals who are ageing with disability;
- greater patient-centred care [9], that leads to a better understanding of important issues, such as how medications and nutrition are handled, a more intimate clinician-patient relationship;
- greater patient autonomy [10], especially patients with lower levels of mobility and elders can benefit from the opportunity to receive the care they need where they are most comfortable. Ageing in place in the home includes efforts to help beneficiaries remain comfortable at home in the last 6 to 12 months of life.
- lower costs [9][5] and lower strain on saturated healthcare facilities (including emergency departments and hospitals with limited bed capacity) [11]. Besides, Home Healthcare can reduce unnecessary hospitalization and connected risk of healthcare-associated infections [10] [12].

While there are numerous advantages to Healthcare at Home, there also are many challenges. There are still only a few healthcare organizations that offer formal home-care models for primary and hospital-level care (e.g. Johns Hopkins Hospital at Home, Ohio Veterans Administration Hospital in Home) and there are limited researches available on the role of the built environment in safe and effective delivery of healthcare at home, for both patients and providers (Universal Design, Aging in Place, Healthcare at Home approaches). However, as Healthcare at Home is becoming more commonplace as a practice, there is an opportunity to shift thinking from the typical residential design

to a more sustainable home concept, 'how the home can support health and healing'. This has led the medical community to seek to provide more tools and methods of care that patients can safely access right from home, and the designers to think as the homes of the future will need to be laid out strategically to address both an array of ageing needs and support this form of healthcare delivery.

## 3. Persons, tasks, equipment/technology and environments interaction

Over the last ten years, technological progress in healthcare management and communication systems (telemedicine), the gradual replacement of the human factor through robotization (automation of care work) and digitization (magnetic resonance, CT and PET scans) have led to a reorganization of hospital facilities so that they can accommodate the changes taking place in a fruitful relationship between.

- user-centred approach that has influenced not only the modes of communicative exchange between patient and medical staff but also the physical-functional characteristics (accessibility, distribution of spaces) and the psycho-sensory and perceptive characteristics of care spaces finding confirmation in Evidence-Based Design.
- bio-technological approach that has led to a further reorganization of hospital structures and to the emergence of new, highly original and relevant forms of interaction aimed at the 'medicalization of life'.

This approach applied to home care involves a broad reflection of the human-designed system-environmental relationship, in which the quality of the designed systems is conveyed through the correct correspondence among the users, the tasks, the physical environment and the range of equipment/technology. With Regard to this relationship some considerations can be made about the type of users and tasks, the physical environment and the range of equipment/technology (Figure 1).

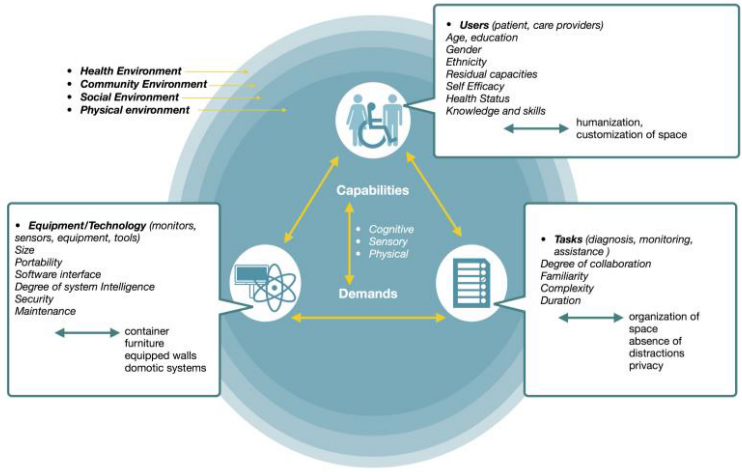


**Figure 1.** Model of Health care at Home

With the ageing of the population, more services will be required for the treatment and management of chronic and acute health conditions at home, especially those most prevalent with ageing (e.g. hypertension, arthritis, heart disease, cancer, diabetes, and stroke) [13]. The primary persons involved in home health care are: the health care provider; the health care recipient; family and friends, who are not primary caregivers, but are included within the social environment of the patient. The physical environment (e.g. including home, equipment, furniture) can support and facilitate – in carrying out the tasks – safety, comfort, accessibility and healing, but the people and their tasks must be considered simultaneously with the abilities/disability that evolve and shift throughout the life course (both on a temporary and permanent basis). The well-being of the users, who receive care at home, depends on the capacity of space/equipment to: maintain/facilitate their level of independence; minimize patient stress anxiety and risk of fall; guarantee accessibility, safety of use, patient satisfaction and comfort. The well-being of care-providers depends on safety against the risk of injury, such as musculoskeletal injuries from patient handling; slips/trips/lift injuries, from dangerous flooring/rugs/stairs; control of the infections [14]; mental health stressors [15].

Many home health care tasks require the use of technologies and equipment (medication administration equipment, durable medical devices, dialysis machines, feeding tubes, catheters, defibrillators, ambulation aids and oxygen tanks) by the health care providers as well as the care recipients. However, these technologies and equipment were designed by manufacturers to be used only in clinical settings by trained professionals. This most complex medical equipment leads to the highest risk of injury, as shown by an analysis of adverse events at home. Moreover, The home environment differs in many ways from the controlled environment of a hospital or clinic. This imposes unique challenges because each home a health care worker visits is different and their ability to provide adequate care may be hindered by environmental (i.e., crowded or dimly lit surroundings) and socio-environmental factors (such as family over or under-involvement) [16].

The design process aims are thus focused on designing physical and cognitive interfaces. They are intended as places where a continuous process of functional interaction occurs among the users, the systems (space and range of equipment/technology/furniture), and the environment. In this broader view of the human-interface-environment paradigm, the configuration of the interface as a prosthetic system intent on satisfying the individual's well-being can be identified on two levels characterizing the design process: Physical/technological layout level and the level of furniture/technological equipment

## 4. Design criteria for layout adaptability to physical and technological needs

The layout of a home environment can have important implications for delivering care safely, supporting activities of daily living, and minimizing the risk of injury, especially for impaired, elderly or otherwise physically compromised individuals. The human and private-space relationship involves considerations of spatial organization and on the technological apparatus that impacts the usability of that apparatus, regardless of the body's shape, posture or capacity to move. This level concerns the choice of spatial and technological solutions able to facilitate care tasks and ensure conditions of psycho-physical well-being, accessibility and safety for patients and operators. Likewise, the user-object system (furniture/technological equipment) relationship involves

considerations of the quality of objects constructed in relation to human needs. In order for this system to assume an interface role and become prosthetic, it must be capable of enabling the functional capacities of a person in relation to his/her remaining abilities. This is done through observation of gestures and is not leveraged on a single standard of performance but rather on the capacity to guarantee performances that are useful toward the user's remaining functionalities. Considering that the location of care delivery in the home depends on the level of care needed and that the planning for a renovation or remodel to support home healthcare needs can be challenging when future needs are unknown, designers should consider how the home might accommodate some of the more challenging healthcare needs that may arise, and prioritize from there, to determine what is most critical and feasible. Focusing on the bedroom that may be more appropriate for acute care, some researches show the following needs and consequent design criteria.

### *4.1. Accessibility, ease of use, safety and physical well-being of the patient*

In this framework of needs, design criteria of the layout of bedroom concern: 1) maximize open areas around the bed and primary path of circulation (i.e. from the bedroom to the bathroom); 2) place the bedroom adjacent to the bathroom and on the main level (street level) of the home (or accessible by ramp, stairlift, or elevator) [17]; 3) use of smooth, level floor surfaces with minimal variations (minimize thresholds) that allow freedom of movement [18]; 4) avoid sources of falling using soft interior flooring materials (e.g., cork, rubber, or linoleum) that are gentler underfoot than harder materials and can lessen the impact of falls, also avoid deep pile carpet or loose/worn carpet and flooring materials with intricate high-contrast patterns [19]; 5) provide wainscot trim that protrudes from the wall (i.e. handrails, grab bars with wood pleasant finishes) to offer support and a reference for orientation of the patient [20].

In this framework of needs, design criteria of the furniture/technological equipment that may help to support increased independence for patients receiving care at home concern: 1) integrate technological device in the furniture system, such as an intercom system or voice-activated smartphone technology, easy-to-reach operational (remote) controls that allow natural light to be blocked/reduced during the day if needed, electrical system with sufficient output to support all medical equipment without overloading outlets, Aging Service Technologies (ASTs) including sensors and actuators that monitor and evaluate health conditions and monitor daily activities (fall- and wandering-detection technologies) [21]; 2) easy-to-open doors/furniture (consider handling grip, mechanics, and weight of the door); 3) bed and lounge chairs adjustable for safe entry and exit [18].

### *4.2. Psycho-emotional well-being and psychosocial support of the patient*

While home care can offer many benefits to one's mental state, the same care may also present emotional challenges. Social, cognitive, personal, and behavioural factors are key when designing to support better outcomes for patients receiving healthcare in the home and for staff providing healthcare [22]. In this framework of needs, design criteria of the layout of the bedroom concern: 1) Access to positive distractions (e.g., nature-themed artwork, music, TV, Internet, reading materials); 2) movable screens/curtains for visual and auditory separation minimizing stimulation and optimizing privacy; 3) allow reorganization of space (e.g., easily movable furniture, modular elements) to accommodate changing needs; 4) ample windows that open on the outside with scenes

of good quality that can be seen from any seat, integrating to them easy-to-reach operational (remote) controls that allow natural light to be blocked/reduced during the day if needed [18]; 5) Space for people to sit with the individual receiving care without obstructing the provision of care; 6) Space for second bed/sleeping arrangements to facilitate the proximity of a family member [22].

In this framework of needs, design criteria of the furniture/technological equipment concern: 1) integrate (into equipped walls and furnishings) medical equipment (e.g., oxygen tanks, home-dialysis units, infusion pumps, blood glucose meters, feeding tubes, catheters, commodes, ambulation aids, patient lifts/hoists and specialist equipment) near the bed/chair care areas to support changing levels of care [16]; 2) movable screens/curtains to cover medical equipment whether fixed or mobile, from the patient's view during exams and/or the administration of treatments; 3) integrate medical devices (medical gases electrical devices, oxygen and) in a compact package within technical interstitial spaces such as ceiling or equipped floors or technical cores that can be expanded and integrated over time as the conditions of use change concerning the patient subjective conditions (intensity of care); 4) wireless or wired internet connection to facilitate telehealth/telemedicine [4]; 5) monitoring devices (sensors or wearable) to record daily living activities and transmit data to caregivers (where data is measured against present targets); 6) furniture that is easy to move and adjust (e.g. furniture with modular elements) can accommodate changing needs for the variety of the patient types receiving a variety of care in their home.

### *4.3. Efficient delivery of care and work-related safety of the caregivers*

In this framework of needs, design criteria of the layout of the bedroom concern: 1) design spaces for care that are quiet or can be closed off (at least temporarily) from distractions from pets and children to support safe care procedures (medication preparation, use of sharps, exams and treatment) [16] [23] [15] and that facilitate better communication between patients and care providers through telesupport systems [16]; 2) easy access to sink or alcohol gel dispenser in care areas, in a location where caregivers can wash their hands and still keep direct visual contact with their patients; 3) guarantee adequate space for two people to provide caregiving assistance using patient-handling equipment (e.g. to move the patient to toilet, bed, car).

In this framework of needs, design criteria of the furniture/technological equipment concern: 1) easy-to-clean materials to reduce surface contamination; 2) provide computer devices for digital processing, and archiving for paper documents, and devices for viewing diagnostic images by multiple users contemporaneously; 3) integrate the furniture with telemedicine exam equipment such as a laptop with integrated medical devices (e.g., horoscopes, stethoscopes and vital signs monitors, spirometers); 4) provide a designated location for medical device and patient handling equipment manuals for caregiver access; 5) prepare the ceiling or wall for future integration of repositioning devices that support ergonomic conditions for patient handling and movement, if needed (e.g. ceiling-mounted trapeze hooks); 6) arrange multiple storage locations for personal protective equipment to facilitate proper safety protocols; 7) provide easily accessible and adequately sized storage for sharps disposal, it may help to reduce exposure to punctures or cuts [15].

### *4.4. Psycho-emotional well-being of the caregiver*

This need can be satisfied by design criteria concern: 1) Operable windows that can be opened for cross-ventilation and fresh air inlet; 2) lighting systems with scattered light that is uniform, indirect, and not blinding, dedicated to the various work areas, with characteristics and arrangements that do not cause disturbance, and with an adequate light quality; 3) furniture and equipment organization to allow communicative exchange between health personnel; 4) efficient ventilation to minimize unpleasant smells and control system of air temperature, relative humidity and flow speed maintained at comfort level without dramatic difference between spaces; 5) use of Telehealth that may also be able to help support the psychosocial needs of care providers who in a particular context (eg. rural zone) can feel quite isolated by lack of a collegial support (burnout, stress from mentally and emotionally taxing profession).

## 5. Conclusions

Healthcare at Home offers potential advantages over traditional healthcare options for both healthcare organizations and patients, which suggests in the future, there will be the potential for more wide-reaching extensions of the hospital into the home environment. However, if the home is not properly equipped, or if a formal home-care model for hospital-level care is not available, hospitalization or a move into a rehabilitation or long-term care setting may be the only viable option for people with increasing healthcare needs [23]. The majority of the literature refers to individuals receiving care at home as “patients”. However, the individuals receiving care may or may not see themselves as patients in their own homes. This is an important distinction in how care is provided and designed. Healthcare at Home does not involve just a functional dimension, bat also an emotional one (sense of comfort and safety, based on familiarity and/or memory). For these reasons, the limits to the application of this model concern: the degree of adaptability of dwellings both to the evolving needs of its residents and to the evolution of the disease; the high costs of upgrading and adapting. Continental and Nord Countries are moving in this direction both with guidelines for the low-cost adaptability of the existing and new housing stock (Lifetime Homes Design Guide, UK, 2010) and with financial schemes for the adaptation of housing to the individual limitations of the people. Multidisciplinary equips (formed by owners, architects and designers in healthcare) may be the best qualified to undertake the challenge of design for Healthcare at Home. They aim to balance the provisions for safety with the preservation of the personal effects and person-centred experience that make healthcare at home such an attractive option for healing in the first place. Therefore, the validity of a project can be appreciated by the multifactorial quality of the space. It can be connected with physical, environmental, management, perceptual, psychological and relational elements, in a perspective that is not "patient-centric" but considers the totality of users.

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