

# Futuristic Geriatric Hospital

Rajesh Harsvardhan, Gupta S.

Department of Hospital Administration, AIIMS, New Delhi, India

**Abstract:** An integration of modified built environment can reinforce the personal environment to support. Strategies must be formulated to cope with differencing health needs, cultures, climates and budgets. Design responses must embrace all parts and aspects of the hospital. Hospital architecture must facilitate technology adoption, implementation and also contribute to the efficiency and transparency of processes. It must provide a seamless integration of clinical requirements with building planning and designing issues. It has been rightly said that healthcare facilities age unpredictably with changing medical technology, and evolving healthcare delivery system rendering some obsolete while relieving others. It has to be acknowledged that what is built for today will not be permanent. Hospital for tomorrow will be places that contribute to the healing process. The hospitals of tomorrow will be green buildings; they will incorporate excellent features that result in environment protection, water conservation, energy efficiency, usage of recycled products and renewable energy. Evidences galore, which have proved that well designed hospital environment, can have a significant impact on patient recovery and welfare.

**Key Words:** Geriatric Hospital, Futuristic Hospital, Environmental Facilitation, Geriatric Day Hospital, Hospital Architecture, Emerging Trends

## INTRODUCTION

Hospitals were first constructed at the commencement of the Christian era to shelter sick/ weary travelers and persons who were poor/ill to be treated at home. The transformation of the role and function of the hospital through the ages has been metamorphic. It has to be accepted that bricks and mortar alone do not make outstanding hospitals. Major transformations are occurring in delivery of healthcare. Advances in basic sciences including molecular biology, evidence based medicine, demographic and epidemiological changes have and are transforming medical care. This has directly impacted and continues to influence the architecture design and planning of future hospitals.

With changing hues of times, healthcare provisioning has assumed the role of one of the most challenging and dynamic services. Patient is the focus of all activities in a healthcare organizations and for redressal of their needs coupled with those of attendants and staff requires the multipronged strategies including those of hospital architecture. Evidences galore, which have proved that well designed hospital environment can have a significant impact on patient recovery and welfare.

Much of the hospital architecture strength comes from the intense regards for the need of patients, staff and visitors. The age old essence of architecture viz respect for function, structural integrity, awareness of time, integration with environment and expression of meaning are still valid. The art and science of hospital architecture calls for the fact that the environment should restore the dignity of patients, offer comfort and safety to visitors, staff and patients.

## OBJECTIVE

Set a new vision and direction for both acute and community geriatric medical care and to produce a better model of medical care for these complex older patients.

## NATURE OF THE PROBLEM

Over the next 20 years the major diseases will be dementia, delirium, care giver fatigue / collapse, adverse drug reactions, recurrent falls, osteoporotic fractures, malnutrition with complications including recurrent infections, prolonged, expensive and complicated hospital stay<sup>1</sup>. The lack of multidisciplinary holistic care in the community has overwhelmed both the GP's and the hospital ED with avoidable geriatric presentations.

The lack of an electronic medical record, inability of the hospital to provide rapid access to old medical records and the fragmentation of medical information, results in a delay in medical treatment and worsens the health outcome.

Experts warned Monday that the United States faces a massive health care shortage that threatens to leave millions of seniors without proper health care within the next three decades. A report issued by the Institute of Medicine says that medical and nursing schools are training far too few doctors and nurses on how to care for the elderly.<sup>2</sup>

## EXTENT OF THE PROBLEM

In this older group any acute illness may cause preventable major geriatric syndromes including delirium, falls, loss of mobility leading to prolonged, complex and costly acute hospital admission requiring prolonged rehabilitation and complex post acute care. These acute hospital admissions could potentially be avoided by better and early appropriate geriatric community care. 50% of geriatric patients greater than 75 years of age presenting to the Gosford Emergency Department are admitted as a direct result of major preventable adverse drug reactions<sup>3</sup>.

The lack of domiciliary consultation for geriatric patients to support the General Practitioners in the community results in premature functional decline in these patients and potentially preventable public hospital Emergency Department presentations and acute hospital admissions.

## FUTURISTIC HOSPITALS: GENERAL CONSIDERATIONS

### Emerging Issues

The emerging issues related to hospital architecture are mainly linked to the changing role of the hospitals. The main changes that have occurred in the healthcare delivery system are as follows<sup>4</sup>.

- \* Enhanced patients expectations: The patients have become more quality conscious as well as price sensitive. They expect clinical, administrative and supportive services as well as design of facilities to be conducive to their requirements.
- \* Epidemiological and demographic changes: There has been a change in the pattern & in the incidence of lifestyle diseases and geriatric related healthcare problems.
- \* Emphasis on ambulatory / daycare: Hospital stay is gradually being programmed for high dependency inpatient care and for other cases more emphasis is on shorter stay.
- \* Enhanced standards: There has been an up gradation of standards and norms in the delivery of healthcare in almost all aspect.
- \* Changing function of hospitals: Hospitals are an evolving system. Hospitals apart from curing the sick have the added functions of maintenance and prevention of health, biomedical research and providing

**Correspondence:** Dr. Rajesh Harsvardhan, Senior Resident, Department of Hospital Administration, All India Institute of Medical Sciences New Delhi - 110029, India

community outreach services. Focus has shifted from treating illness to creating wellness.

- \* Health Insurance: Health insurance is gradually permeating as an important facet of healthcare delivery system. The providers of insurance and healthcare as well as the recipients view the hospital as an important hub for healthcare delivery.
- \* Advancement in Medical Sciences: Advancement in medical sciences dictate/change the paradigm of healthcare delivery. Trends and dimensions in molecular biology, pharmaceuticals and surgical interventions have changed medical management outcomes. New diagnostic and therapeutic modalities require special controlled environment, energy requirements and other engineering services

### **Strategic Essentials**

Hospitals inevitably are a combination of technologies, processes and human resources. Any structure may have many functions and any function may be fulfilled by alternative structure or process. Hospital architecture must facilitate technology adoption, implementation and also contribute to the efficiency and transparency of processes. It must provide a seamless integration of clinical requirements with building planning and designing issues. Strategies must be formulated to cope with differencing health needs, cultures, climates and budgets. Design responses must embrace all parts and aspects of the hospital.

Some of the strategic issues<sup>5</sup>, which must be considered, are:

**Design for flexibility and expandability:** Due to the complexity of hospital organization and diversity in various factors such as operations, functions and development, alterations and expansion of buildings are varied and frequent. Buildings should be adaptable to changing requirements. Jhon Weeks, the British architect had remarked. "Functions change so rapidly that designers should no longer aim for an optimum fit between building and function. The real requirement is to design a building that will inhibit change of function least and not that will fit specific function best". Some of the futuristic patterns for obtaining flexibility are:

- \* Buildings designed to facilitate the docking of mobile and plug in modules. It is likely that specialized major diagnostic and diagnostic surgical equipment will be manufactured in self contained pre-constructed modules intended for docking at strategic points – 'ports' in the building.
- \* Heat, ventilation and air conditioning (HVAC) will be modularized and zoned with vertical circulation, mechanical shafts and transport system moved from the core of the building to the perimeter in order to create free fields within the core floor plate that are easily adaptable to different layouts
- \* As and when functions/equipment expand it should be possible to extent buildings as well as equipment and installation easily. It has to be acknowledged that building and function life span differs. The golden architectural principle of indeterminacy should be followed which enables a "building to grow with order and change with calm".
- \* In order to combat obsolescence in hospital buildings universal space modules, modular design and interchangeable components which may be reinstalled / replaced should be utilized to keep space with changing needs.
- \* Anticipate Change in Demand Functions: None of the varied elements are static, for as technology develops, medical understanding progresses and their combined application expired so do social demand and expectations.

### **NEED TO PLAN FOR THE FUTURE**

It has been rightly said that healthcare facilities age unpredictably with changing medical technology, and evolving healthcare delivery system rendering some obsolete while relieving others. It has to be acknowledged that what is built for today will not be permanent. Prediction is very difficult, particularly when it concerns the future. It is a Herculean task to visualize hospitals for tomorrow since the impacting dimensions that are and will evolve the future hospitals are multifactorial and not always

predictable. It has been commented that if hospital architecture is restricted to antiquated specifications and cookbook approaches, artistic freedom will be converted into a bureaucratic rigidity. It is highly desirable to make an attempt to preview the hospitals for tomorrow since only then that hospitals constructed at present will be fulfilling the functions of the future.

## **CHANGING PARADIGM - FUTURE ARCHITECTURE**

It is a known fact that the patient's negative and positive experiences in a medical environment have residual effects on the healing and care processes. In patient focused architecture the parameters which define quality of the healing environment are space, privacy, comfort, variety and communication. A study on the design of hospitals had stated that the ill patient is apprehensive and anxious. Stress stimulates a defence mechanism. The patients long for privacy. Physician patient relationship can blossom in privacy. Privacy should not be confused with isolation. Variety should always be provided in the planning and design of the healing environment since everyone benefits from a breath of fresh air, from a change of scene, from going to the outside world and from seeing beyond the confines of the rooms.



*Futuristic Hospital with shuttle bay & helicopter pad*

## **PATIENT WILL BE THE FOCUS**

Hospitals for tomorrow will be planned and designed with patient focused philosophies. The patient centered architecture will facilitate their participation as partners in their care. The architecture will be welcoming to the patient and the hospitals design would value human beings over technology. The living spaces for patients will provide them privacy, comfort, safety, security and enable them to be in touch with nature. The architecture would be a humanizing one, which is a friendlier and a responsive place providing customized care based on patients needs and values. The architecture would respond to the functional requirements of providers of care and technology as well as to the emotional, physical and psychological needs of patients. Adoption, adaptation and implementation of technologies would also be patient focused.

## **LIFE ENHANCING ARCHITECTURE – A SINE-QUA-NON FOR THE FUTURE**

It must be appreciated that there is a difference between good architecture and the mere act of building. The hospitals are differential and highly specialized institutions. Hospital for tomorrow will be places that contribute to the healing process. An appropriate design and architecture has the capability of transforming healthcare facilities into welcoming places to get well. The primeval forces of nature, i.e. sun, wind, water and earth have an effect on health and should be utilized for creating a healing environment. The ambience should blend with functionality to provide healthcare in a comfortable, safe and an aesthetically pleasing environment. It has rightly been said that a hospital needs to be the most wonderful place in the world – it needs to heal.

## **ASSISTED LIVING - A WAY OF LIFE IN THE FUTURE<sup>6</sup>**

Hospitals in the future will be utilized mainly for intensive and critical care. The medical care of other ailments would be provided by ambulatory care

facilities, day care centres, healthcare and home care hotels. Transmural care, i.e. patient tailored care provided on the basis of close collaboration and joint responsibilities between hospitals and healthcare home centers will be adopted for convenience, comfort and cost-effectiveness. The assisting living residences will accommodate residents with a range of cognitive and physical abilities and offer facilities which will maximize the quality of life, independence, autonomy, safety, dignity, choice and privacy.

### **CHANGE – AN ESSENTIAL FEATURE**

Hospitals of the future would require to change their functions and roles frequently. This will be necessitated due to patient needs and expectations, technological and medical advancements as well as change in healthcare norms.

The hospital of the future should thus be designed for flexibility and expandability. Universal/multipurpose/modular design would enable the golden architectural principle of indeterminacy to be followed, i.e. enabling buildings to grow with order and change with calm. Hospital buildings will be adaptable to changing requirements and designed so as to inhibit change of function least.

### **ENVIRONMENT FRIENDLY AND GREEN INSTITUTIONS**

The hospitals of the future would be environment friendly. Solar, wind, energy and biogas would be optimally utilized. Waste disposal would be appropriately done. Essence of environment will be an essential ingredient of hospital planning and design. The hospitals of tomorrow will be green buildings, i.e. they will incorporate excellent features that result in environment protection, water conservation, energy efficiency, usage of recycled products and renewable energy.

### **BARRIER FREE ENVIRONMENT**

A barrier free environment to facilitate the disabled or, differently abled, in facility utilization will be an essential component of all the hospitals. The facilities in the hospitals would be accessible and usable by person with disabilities.

### **BOUNDARY LESS INSTITUTIONS**

In the future, the more common hospital functions will move closer to patients and only a few specific, specialized functions will be concentrated at other places. Telemedicine capabilities would be fully utilized. The hospitals would be a hub in a network serving patients in hospitals and homes. Advancements in information and communication technology will enable healthcare to be provided independent of time and place.

### **EXISTING AND FUTURE NORMS**

In future, the existing norms of hospital construction will be changed. Patient focused operational restructuring will be the guiding principle. It has been rightly commented upon that building codes reflect and perpetuate the technology of some earlier period. They restrict the potential use of new ideas and materials. In the hospitals of the future, hospital norms, grids, schedule of accommodation will change keeping in time with the need, expectations and functionality, e.g. the use of laparoscopic surgery, robotic surgery will make the present norms of OT redundant. Public – private partnerships and outsourcing of facilities would also be a norm rather than an exception and will impact on the planning and designing of hospitals.

### **RELOCATABLE HOSPITALS**

There will be a significant number of modular healthcare buildings built from pre-engineered modules. The shorter period of construction and flexibility of design, ease of deconstruction and alteration for alternative use will make these relocatable hospitals a common feature either as stand alone facilities or docked in facility with existing healthcare facilities.

## **IMPACT OF EMERGING TECHNOLOGIES**

It is envisaged that technologies such as nanotechnology will impact on the hospitals of tomorrow in areas such as infrastructure, staffing, and space programming.

### **AESTHETICS – AN ESSENTIAL REQUISITE**

Though patients give the highest priority to obtaining the best treatment, it has to be considered that they are people with eyes, ears and other senses and deserve to receive pleasure from the environment.

Aesthetics is now considered an essential ingredient of hospital design and planning. Aesthetics, which is the quality of the total experience our surroundings give us as, perceived by our senses and intellect, should be planned for all its dimensions as follows:

- \* Psychological aesthetics which includes happiness, joy and pleasure.
- \* Spiritual aesthetics, which suggests hope, contentment and peace
- \* Physical aesthetics implies well being, ease and convenience
- \* Intellectual aesthetics inspires humour, interest and contemplative delight

### **HEALING ARCHITECTURE**

A hospital needs to be the most wonderful place in the world. It needs to heal. The hospital must have a humanizing architecture that can positively contribute to the healing process. Studies have linked poor healthcare facility design to elevated blood pressure, anxiety and longer hospital stays. The physical environments of the hospital should fulfil the following two conditions: it should do no harm and it should facilitate the healing process. Exposure to nature through interaction or access to view has a positive healing effect. Hospitals should provide a cheerful and inviting ambience and a caring and healing environment.

### **FUTURISTIC HOSPITALS: SPECIAL CONSIDERATIONS**

Initially, the first wave of geriatricians focused on dependent long stay patients. By applying clinical skills, developing inter-disciplinary teams, assessing patients holistically and comprehensively, improving the environment, providing equipment and improving education, geriatricians were able to optimise function and well-being.

The realisation that many of these patients were not suffering from “old age” but had iatrogenic diseases (e.g. contractures, pressure sores) or conditions that were wrongly thought of as “social problems” (e.g. immobility, incontinence, falls) led to the wish to assess ill old people early in the course of their illness. It took many years to progress to elderly care units in district general hospitals. Geriatricians, often working single-handedly in lack-lustre departments some distance from the main hospital, had previously had inadequate staffing levels and few diagnostic resources. Recruitment was difficult, standards of care were patchy and morale was low.

In recent years, the landscape has altered further. Specialisation within geriatrics has helped improve the standards of care for patients with specific conditions. Stroke units, falls clinics, continence promotion clinics, movement disorder clinics, orthopaedic geriatric wards, delirium units, memory clinics are a few examples. Latterly, more geriatricians have developed an interest and expertise in community geriatrics. Geriatricians have always been willing to change if patient care improved in consequence. In many ways, there has never been a better time to be old and ill or disabled.

### **ENVIRONMENTAL MODIFICATION**

An integration of modified built environment that is barrier free and safe, coupled with social, health and other services can allow the older person to remain independent<sup>7</sup>. In this way, the built environment can reinforce the personal environment to support.

Muscle weakness consequent upon aging and other sensory deficits make elderly highly prone to accidents. The fear of falling or hurting themselves makes them less active, especially in the bathrooms, because of floors that become slippery when they are wet. It would be prudent to recommend slip resistant floorings in the bathrooms. These could be textured ceramic tiles. If the existing floor cannot be changed, then mats may be used to cover at least those spaces where water is likely to wet.

The outside path should be smooth, hard & with levelled surface. Irregular surfaces such as cobblestones, coarsely exposed aggregate concrete and bricks should be avoided.



*Anti Slip Bathroom Tiles*

Handrails are must on both sides of the corridors, staircase, in bathrooms and toilets. Bars ought to be round, to facilitate comfortable grabbing, as many elderly people may have arthritic fingers. These bars should be fixed at a height of 900 mm. A 300 mm long extension of the handrail should be provided at the start and end of ramps and stairs. Handrails attached to walls should have a clearance no less than 50 mm from wall.



*Non Slip Tread Cap in Stairs*



*Smooth Textured Pathway*

Steps or sudden level changes in built environment should be avoided, in order to prevent falls. The tread surfaces should have slip resistant material. The steps should be provided with nosings that have slip resistant strips. Slanted nosings are preferred over projecting nosings so as not to pose difficulty for a person using walking stick or walker as these aids may be stuck in the recessed space or projecting nosing. In addition, open risers should be avoided. The stairs should be constructed with regular sizes of tread and riser. Half steps and triangular steps at turnings are to be avoided. Landing at regular and short intervals must be provided to enable the elderly to rest.



*Slanted Nosings for Stairs*

The first and last step both tread and riser, on every stair flight, should be marked with a paint that has a colour in contrast to the gray of the steps to make it more defined. This will enable the elderly person to move around without hesitation. Even lighting of those areas having steps or stairs is necessary to prevent falls.

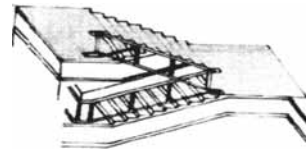
Ramp must have a very gradual slope and must be finished in non-slip material with handrails on both sides. They ought to be accompanied with low riser steps with handrail on both sides for those who prefer to use steps. The built environment in and around should not be cluttered with objects like flower pots, dustbins, etc. in the corridors, passages, pathways in gardens etc. There should be no projecting elements in the passages like pipes, columns etc. It is best to recess all appliances and filling wherever possible. The surface treatments of certain walls where one might come into contact should be as far as possible smooth in finish. This is because the elderly may graze themselves, as their skin is no longer as supple as it used to be when

they were younger. So a slight modification of smoothening the surface will increase the feeling of comfort in elderly people.

The whole idea is to modify the built environment in such a way that access to the movement for elderly becomes barrier free.

## LIGHT & VISION

Majority of the elderly persons have diminished vision. Older eyes are less able to change focus quickly and are more likely to experience blurred vision. An 80 year old, for example requires three times as much light as a 20 year old. The elderly also have more difficulty seeing clearly in shadowy spaces and adapting to different brightness levels when moving from room to room. During these intervals, steps or furniture may be hard to spot, making them hazardous.



*Landing at Regular and Short Intervals*

Carefully planned lighting can help compensate for these limitations. The lights in the entrances should be bright during the day and switch to lower levels during the night to decrease the sharp contrast of light inside and outside of the building. One should plan to have well lit rooms and passages in which the colours of various objects like doors, handles, electrical switches etc. are in contrast to the walls of the house to make them easily visible and identifiable.

If the flooring in passages, long corridors and pathways in the open have defined edges by the use of different colours or textures it will help the short sighted to walk steadily and independently. Similarly, the stairways having contrasting colours at the beginning and end of stairs also help the elderly with weak vision.

## COLOURS & CONTRAST

Glare and extensively bright light worsen impaired vision. Hence, the built environment should have adequate and well-distributed lighting. Using net curtains, can cut off glares from windows. It is advisable to minimize the use of shiny floor finishes and highly polished surfaces to reduce reflections which may hurt the eyes. Electrical switches should be large and piano-type with embossing for differentiation of switches for fan, light and bell etc.

## SOUND & HEARING

Like vision many elderly people suffer from loss of hearing. It would be highly beneficial if the rooms should be provided with sound absorbing materials which will help reduce the reverberations of sound and make normal speech audible to elderly. Many curtains, mats, carpets or fabric wall coverings in the form of paintings or decorations, can achieve this.

## JOINT STIFFNESS & MOBILITY

As many elderly people suffer from arthritic hands causing finger and hand impairments, reduction of strengths and dexterity, it is recommended that all taps, door knobs, hand rails etc. should be of such design that need very little wrist action or finger grip.

Most elderly persons suffer from stiff knee joints. It is ideal to provide western type of water closet which is installed at least 45 cm above ground level. This facilitates minimum bending of knees and the people can get up easily without straining oneself too much.

## USER-CENTERED INTERFACE DESIGN AND ELDERLY

At the clinical department of Oncology at the Medical University Hospital in Graz, a pilot system for an interactive patient communications system

(PACOSY) was examined<sup>8</sup>. The patients were able to retrieve and enter information interactively via a touch screen panel PC connected to the Hospital Intranet. The Interface was designed for patients with little or no computer experience. The results were very encouraging and it helped increase the independence of the patients, improve communication and thereby increasing the level of quality and satisfaction.

## FUTURISTIC HOSPITALS: CLINICAL CONSIDERATIONS

### *Clinical Governance*

Patients seen as out-patients or day patients by an individual consultant or member of his or her team should have at least one recorded assessment of both their mental and functional states in the care records.

### *Care Records*

Introducing a single process for assessing the health and social care needs of older patients, developing personal care plans and sharing this information as people move through the care system is of paramount importance. The Single Assessment Process (SAP) underpins much of the reforms towards delivering personalised care, joined-up services, timely response to identified needs and the promotion of health and active life.

Geriatric health care provisioning ought to be organised in a continuum as discussed below:

### *Day Hospitals*

Day Hospitals (DH) are out-patient healthcare facilities in which multi-professional assessment, treatment and rehabilitation is available on attendance for a full or part-day basis for older people in the community. GDH is an important component of comprehensive services for older people.

Day Hospitals, where they exist, should play an active and effective role at the interface between primary and secondary care as part of the continuum of specialist health services for older people outside an acute hospital setting. DHs have a particular role to play as part of, and supporting, a seamless intermediate care provision through provision of a comprehensive assessment. DHs have an important role in chronic disease management through their partnership with primary care<sup>9</sup>. By regular review of at risk patients, exacerbations, disability and handicap and inappropriate admissions can be reduced by managing the condition, and avoiding iatrogenic disease.

Future Day Hospitals may become part of a hospital without walls containing day surgery, out patient clinics, radiological and pathological investigations, advice centres, assessment rooms for therapists and integration with social services as well as links with community matrons in the management of chronic disease.

### *Acute Assessment and General Hospital Care*

Older people benefit as much from appropriate investigation and treatment as younger people and they are entitled to receive equivalent, efficient, timely and effective services so far as management of acute problem is concerned. Once acute care has been rendered, it becomes imperative that there should be adequately planned provision for Specialist Services (like for - Stroke, Falls, Pressure Sores, Pain, Orthogeriatrics and Continence . . . etc ) thereafter.

### *Non-acute Care*

#### *Intermediate care*

Intermediate Care is conceived as a range of service models aimed at "care closer to home". The two underpinning aims are, firstly, to provide a genuine alternative to hospital admission for some carefully selected patients and, secondly, to provide rehabilitation and supported discharge.

An intermediate care service should have a clear function (admission prevention and/or post-acute care), incorporate comprehensive (multi-disciplinary) assessment.

#### *Community based care*

Hospitals catering to older people should provide comprehensive services in the community also, to support general practitioners and primary care teams caring for older people.

#### *Mental Health Services*

Good mental health underpins the well being of older people. Older people with mental health problems are entitled to have a diagnosis made and

appropriate treatment initiated. Hence, it is a must for any geriatric centre.

### *Rehabilitation*

The WHO defines rehabilitation as a wide range of activities in addition to medical care which includes psycho-social care and occupational therapy. It is a process aimed at enabling people with disabilities to reach and maintain their optimal, physical sensory, intellectual, psychological and or social and functional levels. Adequate provision for this is a must for any geriatric centre.

### *Palliative Care*

All older patients at the end of their life, are entitled to holistic person centred palliative care equivalent to that provided to people suffering from cancer.

### *Abuse of Older People*

Abuse of older people is common, frequently hidden, and insidious in its capacity to deny respect and basic human rights for one of the most vulnerable sectors of society. It is the responsibility of those working in health care of older people to understand risk factors and signs of possible elder abuse, and know the correct way of managing this, when suspected.

### *Dignity in Care*

Older people are more likely than younger people to become seriously ill and to face the prospect of dying. They and their families need to know that they will be treated with respect for their dignity if they become ill and that they will receive good end of life care.

Concerns about lack of respect for the dignity of older people in care settings calls for evolution of a set of standards of care for older people. Standards should be set for mental health care, acute hospital care and for the more general principles of person-centred care.

### *Preferences for Care at the End of Life*

When seriously ill patients are nearing the end of life, they and their families sometimes find it difficult to decide on whether to continue medical treatment and, if so, how much treatment is wanted and for how long. In these instances, patients rely on their physicians or other trusted health professionals for guidance<sup>10</sup>. Frequently, however, such discussions are not held. If the patient becomes incapacitated due to illness, the patient's family and physician must make decisions based on what they think the patient would want.

## CONCLUSION

Hospitals are matrix organization, an amalgam of cultural, social, architectural, technological and economical factors. To enable them fulfil their role pertinent to the times, it is essential that hospitals should be envisioned for the present and the future. Hospital buildings have to be designed taking into consideration the present and futuristic requirements. Patient focused architecture, technology integration with environment, shape optimization, care givers requirements, structural integrity, harmonious convergence of the clinical, diagnostic, therapeutic, administrative and hospitality dimensions are essentials that would be incorporated in building hospitals of the future. Some of existing healthcare hospitals already have a number of facilities incorporated that are perceived as essentials for tomorrow.

The hospitals of tomorrow will be able to strike a balance between the need of the professionals, the wish of the patients and the community and provide an effective, holistic, ethical, standardized, accessible, affordable, acceptable, safe and secure healthcare institute.

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