

# 1 Introduction to Wayfinding

## 1.1 Description

Wayfinding is a concept that describes the dynamic relationship people have to space, incorporating all the cognitive, perceptual, problem-solving and decision-making processes that are required to orientate oneself within and navigate through a space. It also outlines the factors external to us that impact, positively or negatively, on our ability to complete a journey successfully.

In a health care facility the purpose of wayfinding systems is to direct patients, visitors and staff from entryways and carparks to their destinations and back again. Wayfinding elements should complement each other to create and maintain a robust yet clear circulation system to facilitate movement between destinations. Further objectives of wayfinding devices are to:

- Identify the locations of services
- Control vehicle and pedestrian circulation
- Clearly identify public and restricted staff areas
- Help manage risks to consumers due to workplace health and safety, medical and security issues

Successful wayfinding relies on the availability and perception of clues from the space. The wayfinding strategy should take in the complete site environment to help consumers navigate the healthcare facility, including:

- The layout of site and the site's relationship to the community and current methods of transport
- The layout of the building and logical progression of space
- Interior design, differentiation of space and interior landmarks
- Landscaping and exterior landmarks
- Views to outside
- Lighting
- Signage, maps and directories
- Graphic design and colour
- Virtual elements, including websites and smart phone applications
- Floor and room numbering
- Staff knowledge and communication.

The complete journey from home to the facility and back again should be addressed. Information sheets, appointment letters, websites and verbal directions must be coordinated with the physical site and the wayfinding system, ensuring that landmarks, roads and parking signs, building and department names, interior directional signs and other wayfinding tools are up-to-date and consistent in terminology and graphic communication.

## 1.2 Consumer Focus

Consumer focus is a core driver for an effective wayfinding system. The specific needs of each consumer grouping needs to be identified and understood to provide a clear, easy to understand wayfinding system. A well designed wayfinding system will guide a consumer to their destination without inconvenience or adding to the stress and worry they may already be experiencing.

### *Inefficient Wayfinding Systems*

Poor wayfinding may cause stress and frustration, result in inefficient and ineffective use of staff time, reduce accessibility for people with sensory, cognitive or physical impairment or compromise consumer safety, particularly in emergency situations.

### *Stress and Frustration*

Visitors to health care facilities are often worried or anxious to begin with. A poor wayfinding system can increase this anxiety by creating feelings of disorientation and helplessness. This can result in

the consumer becoming stressed and frustrated which may in turn lead to undesirable behaviour that is detrimental to the health and wellbeing of staff, patients and other visitors using the healthcare facility. Stress caused by disorientation can result in raised blood pressure, headaches and fatigue, none of which facilitate healing or produce a favourable work environment.

As stress increases, people are less able to take in information and are often less perceptive of the environment around them. This reduces their ability to scan the environment for cues and prevents them from continuing on their journey. It also reduces their ability to retrace their steps on a return journey.

Consumers often experience feelings of self-blame, for not being able to follow the signs and maps, or resentment towards the facility, for not providing clarity. After experiencing a poor wayfinding system, consumers often arrive at their destination with a negative mind set. This is not desirable for patients attending consultations/ treatment, staff providing care or family and friends visiting patients.

### Inefficiency

An ineffective wayfinding system that leads to people becoming lost wastes staff, patient and visitor time. Many hours of staff time can be lost to the task of redirecting and even escorting patients to their destination if a wayfinding system is poor. While escorting some health facility users, such as frail elderly or those with sensory or cognitive impairment, is encouraged, the need to escort many users is an inefficient use of time and resources that are better directed at patient care. Also, relying on all staff to direct people, not just staff who know the site and have been trained to provide clear directions, can become an issue as it increases the chance of users receiving inaccurate or unclear directions.

If patients become lost in a healthcare facility or have not left enough time to find their way may be late or miss appointments. This can impact the facility financially, when appointments are missed with no time to fill them, as well as impacting the quality of patient care as patients who have arrived late often report that they feel their appointment has been hurried.

### Accessibility Issues

People with varying abilities to negotiate the built environment must be considered when designing a wayfinding system. Healthcare facilities need to accommodate a large number of people with many types of temporary or permanent disabilities. Failure to make a site accessible to everyone, free from physical, cognitive and psychosocial barriers, means people are being discriminated against. A wayfinding system that creates, or does not address barriers experienced by those with physical, sensory or cognitive impairment is considered to be ineffective and may even be against disability discrimination laws in some countries.

Healthcare facilities should be striving to produce an inclusive wayfinding system that can be used equitably by all users. People with disabilities should be able to use the same routes as easily as other users to navigate a building. In general, a building designed with the needs of people with physical, sensory or cognitive impairment in mind is much easier to use by all.

### Safety Issues

Wayfinding, besides helping the consumer to navigate the facility or site, must also be concerned with the reduction of risks to consumers and staff, the nature of which can be wide ranging and often only identified through staff experience and reported cases. Clearly identified restricted access areas can reduce the safety risks for patients and visitors in medical areas, while regulated signage, such as those indicating the storage of flammable chemicals or areas requiring staff to wear protective equipment, reduce workplace health and safety risks. Reducing workplace health and safety issues reduces the financial and human cost of the healthcare facility.

Wayfinding systems not only need to get people in and around a building, they also must get them out again. Egress in an emergency is particularly problematic and wayfinding systems have a vital role to play in fire and evacuation safety. Requirements for exit routes and emergency lighting and signage are often regulated by government bodies and legislation but should also be a key issue for the design team.

A setting is safer if it is well understood by all users, not just those who spend a lot of time in the space. If exits and routes are legible to even those who have never been in that space before, then users are more likely to be able to find their way out and find alternative routes should their exit be barred by hazards. People with physical, cognitive or sensory disabilities should also be considered

when planning for emergency egress. Issues surrounding the evacuation of wheelchair users, alerting those with hearing impairment to the emergency and assisting those with poor vision should all be considered to recognise areas if and where wayfinding devices and systems can address these concerns.

### **Effective Wayfinding Systems**

Effective wayfinding systems can provide benefits beyond making it easier for people to use the space. They can contribute to the healing process and care of patients as well as strengthening the professional image of the health facility.

#### **Promote a Healing Environment**

It has already been said that stress, anxiety and fear caused by disorientation can cause unfavourable physical reactions. These negative reactions can undermine the body's ability to heal. Removing this cause of stress, which is quite often in addition to many other stresses experienced by patients in a healthcare setting, will reduce the load on the patient. Removing the likelihood of patients becoming disoriented is good, but providing more control and understanding of the space through wayfinding devices is even more effective. The sense of control and empowerment that is provided by being able to understand and navigate a space reduces these feelings of stress and anxiety, contributing to the healing process.

#### **Professional Image**

Ensuring users of a space feel comfortable with basic navigation from the beginning of their journey communicates a sense of organisation, professionalism and capability. It tells them that their needs have been considered and that the facility is well-planned and orderly. Patients are more likely to arrive to their appointments on time with a trusting and more optimistic attitude, making them more open to forming a positive impression of the facility and staff.

### **Consumer Categories**

The consumers of a health facility may be generally classified under the following categories:

#### **Patients and Service Users**

Patients are the most recognisable consumers of health facility services and, consequently, the facility's wayfinding information. They are usually classified simply as inpatients or outpatients or more comprehensively as admitted acute care, emergency care, intensive care, mental health care, sub-acute/non-acute care, non-admitted care (outpatients), day of surgery patients etc.

When preparing to design or review a wayfinding system, a comprehensive list of service user categories should be compiled and analysed in relation to their length of stay (e.g. short stay for acute treatment, regular visits for successive treatments, long term stay for residential care, etc.). Such a list should identify:

- The destination of people within the facility
- The movement of people within it
- The point of initial reception
- The point of completion of service
- The time of day such events take place.

This will enable an overview of the wayfinding needs of the service users, strategies for simplifying access to common and disparate services and elements of the operational policies, physical environment and information systems that could contribute to effective wayfinding.

#### **Visitors**

Family and friends are vital to the care and healing of patients and make up most of the visitor group of consumers, accompanying outpatients or visiting inpatients. Evidence is emerging that supports the increased inclusion of family, friends and carers in the healthcare environment, therefore their needs need to be accommodated in the wayfinding system. Their need for information, for respite, for nourishment and for support should be considered. The informational/ wayfinding needs of relatives and friends of people entering the Emergency Department require particular consideration in view of their potentially distressed state.

Other visitors to a facility include commercial or service representatives, deliverers of stores and supplies, ambulance and police officers, fire brigade officers, assorted health and welfare workers and other official representatives. Identify the variety of visitors so that the means and purpose of their access to and navigation of the particular facility can be understood. Not only will such preparation assist in identifying wayfinding needs, the act of review will confirm that appropriate operational policies regarding to security, access and function are in place.

### Staff

Staff are both the most advantaged and most obligated of the consumer groups. They are advantaged in that their frequency of attendance grants them great familiarity with the facility, inevitably reducing their dependence on signage. The obligation of staff is in sharing their knowledge of the facility with service users and visitors and, by virtue of their understanding of intended traffic flow, in recognising when people are lost or in need of assistance. Staff may require training to ensure their communication of directions is clear, comprehensible and consistent with terminology of wayfinding signs.

While, in general, their dependence on directional and locational wayfinding devices is reduced as their familiarity with the facility increases, their need for safety, hygiene, health and safety and other regulation signage is more complex than other consumer groups.

### Consumers with Special Needs

Wayfinding elements should communicate effectively to the broadest group possible, including people with a wide range of sensory, physical, language and intellectual abilities; social and cultural backgrounds; age, gender, and stature differences. Universal and inclusive design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design. To do this, users with varying abilities must be taken into account.

### The Unimpaired User

Impairment can be conceptualised as a spectrum, and where someone lies on the spectrum is determined by the relationship between the environment, the person's physical, cognitive and psychosocial abilities, and the task that is required of them.

An unimpaired user is a user who's physical, cognitive and psychosocial abilities are equal to the task they need to perform in the environment it is to be performed. In regard to wayfinding, the unimpaired user would therefore have no limitation of their sensory abilities (e.g. vision and hearing), no impairment of their physical ability, no impairment of their cognitive ability (e.g. reading, comprehending, problem solving, memory, etc.) and would be able to navigate and orientate themselves in a space. Poorly designed spaces can still impair this user to a certain degree.

At one time or another everyone is "impaired", for example, if someone is upset or distraught their cognitive abilities may be impaired and may no longer be sufficient to navigate their environment. Another example is of a user who may be using a pram, if the environment does not provide level access or lifts then this person's physical mobility is impaired. These examples are of temporary impairment and environmental impairment and can occur to anyone, including those without a diagnosed / formal disability.

### Sensory Impairment

Vision impairment and hearing impairment are the two main sensory impairment that affect a person's ability to find their way.

285 million people are estimated to be visually impaired worldwide; 39 million are blind and 246 million have low vision. The majority of people classified as "visually impaired" are over the age of 50. Those with limited vision rely on strong colour contrast between surfaces, reduced glare, definition of main circulatory routes with tactile and visual cues and large, legible signage. Users who are severely visually impaired rely on auditory and tactile cues (only in rare circumstances do they use olfactory or heat perception). These cues need to be carefully considered when designing for visually impaired users, background noise should be minimised and warning noises should be clear and informative.

360 million people worldwide have disabling hearing loss. Hearing loss may be inherited, caused by complications at birth, exposure to certain infectious diseases, the use of ototoxic drugs, exposure to

excessive noise and ageing. People with hearing impairment rely on written messages, sign language and lip-reading to communicate. The visual legibility of the built environment is the main supportive wayfinding element for people with hearing impairment.

### Cognitive Impairment

Cognitive impairment can range from temporary distress due to becoming overwhelmed by information or a situation (situational impairment) to impairment caused by disease, accident, age or developmental delay (developmental impairment). Cognitive impairment can affect language abilities independently of spatial processing abilities.

In order to facilitate wayfinding for people with cognitive impairment the design of the setting should include clearly defined paths to destinations, striking landmarks and additional reinforcement of the route and destination along the way. Reducing the number of decisions that are required along the route and the simplification of terminology are other ways wayfinding can be supported for people with cognitive impairment.

### Mobility Impairment

Mobility impaired users are those who use wheelchairs, or walking aids such as crutches or walking-frames, as well as those who find movement difficult due to fatigue, frailty and balance. The routes taken by the mobility impaired, if different to their able-bodied peers, should not require more decision points or be more difficult to navigate. Ideally people with mobility impairment should be able to take the same route as everyone else. If a certain portion of a route is inaccessible for a person in a wheelchair, for example, then they should be made aware of it and provided with an alternative before they reach the obstacle.

A common issue for many people with mobility impairment is their lowered field of vision. Wheelchair users have a lower field due to their seated position while those using mobility aids such as frames or crutches often direct their vision downward. For this reason it is recommended that signs are placed between 1200 mm and 1600 mm above the finished floor level, achieving a reasonable compromise.

### Language and Illiteracy

Functional illiteracy is reading and writing skills that are inadequate to manage daily living tasks that require reading skills beyond a basic level. Causes of illiteracy include the influences of the home and family on the need and value of reading during childhood, non-attendance at school or not finishing school and learning disabilities such as dyslexia. Foreigners who cannot read and write in the native language where they live may also be considered functionally illiterate.

Symbols and pictographs are an obvious complement to written signage that can support the wayfinding of people who are functionally illiterate. However, pictorial language should be based on recognisable elements and there are limits to what can be described/ identified.

## 1.3 Factors Affecting Wayfinding

Many factors influence the success of a journey through a health care facility. People factors, environmental factors and information factors can all hinder a person's ability to find their destination and know that they have arrived.

### Person Factors

Factors related to people using the wayfinding system include:

- Prior knowledge of, and familiarity with, the environment
- Prior experiences in other healthcare environments
- Attitude and preconceptions of the environment
- Emotional state
- Choice of mode of transport
- Sensory acuity, such as visual and hearing acuity
- Ability to understand the language used on signs and spoken by staff

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- Mobility – both temporary and permanent limited mobility
- Ability to ‘read’ and comprehend site maps
- Ability to process and remember spoken directions
- Sense of direction and cognitive mapping skills.

### ***Environmental factors***

Factors related to the physical space include:

- Complexity of the site
- Availability of memorable elements of the site
- Ability to see and identify the site entrance from various directions of approach
- Potential to create a simple mental model of the layout of the environment
- Differentiation of architectural style, colour, size, etc. between buildings and areas on the site
- Ability to see and identify the building entrances
- Visibility of the information desk upon entry
- Number of directional changes along routes
- Level of visual clutter detracting from or obscuring entrances and signs
- Definition of public and private areas
- Definition of interior and exterior pathways
- Availability of interior and exterior landmarks
- Lighting of routes, signage and landmarks.

### ***Information factors***

These issues relate to:

- Clarity, accuracy and consistency of information and terminology including written and verbal pre-visit information, en-route information and on-site information
- Legibility of information, particularly in relation to distance from which it is intended to be read.
- Positioning and prominence of information
- Cohesive relationship between the information and what is perceived in the environment.

Generally, person factors are accommodated and ‘designed for’ by controlling and designing the environmental and information factors.

The environmental factor is controlled by the planning and interior design of the facility while the information factors are primarily controlled by signage.