



A STUDY OF WAY FINDING SYSTEM IN A TERTIARY CARE GOVERNMENT HOSPITAL

Management

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ABSTRACT

Aim: A Study of External way finding system in a Tertiary Care Teaching Government Hospital. **Objectives:** To identify the various external signage and ascertain gaps as per guidelines. **Methodology:** The study was conducted in tertiary care government hospital. It was a cross sectional, observational and descriptive type of study. Duration of study was 4 weeks. The data was collected by observational checklist. Parameters taken were identification and gaps in external signage system. **Results:** There was availability of signs at gates (80.55 %), at buildings (86.36%), at nodes (34.48) and edges (20%). Non-availability of signs at majority of nodes causes confusion in way finding. The map of campus was not available at any place. **Conclusion:** The zoning of campus can be planned at top management level. The way finding committee can be formed for feasibility study and implementation of way finding system.

KEYWORDS

Way finding, Signage, Zoning

INTRODUCTION

In a health care facility the purpose of way finding systems is to direct patients, visitors and staff from entryways and car parks to their destinations and back again. Way finding elements should complement each other to create and maintain a robust yet clear circulation system to facilitate movement between destinations. Further objectives of way finding 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 way finding relies on the availability and perception of clues from the space. The way finding 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, 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 color, 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 way finding system, ensuring that landmarks, roads and parking signs, building and department names, interior directional signs and other way finding tools are up-to-date and consistent in terminology and graphic communication.

Consumer focus is a core driver for an effective way finding system. After experiencing a poor way finding 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 [1].

Way finding is a particular challenge in large healthcare complexes with numerous buildings [2], often lacking distinctive appearance, which are linked to one another as the complex grows over time. Early on in the research on way finding, plan configuration was shown to be a correlate of way finding performance [3, 4, 5].

Good way finding means knowing where you are, knowing where you are going to, following the best route to your destination and recognizing it on arrival. Way finding systems are made up of the combined impact of architecture, landscaping, interior design, lighting, art, signs, people, printed and digital information. The development and implementation of a strategy is the key to

consistently good way finding.

AIM

A Study of External way finding system in a Tertiary Care Teaching Government Hospital.

OBJECTIVES

- 1) To identify the various external signage as per guidelines.
- 2) To ascertain the gaps as per guidelines.
- 3) To suggest recommendations, if any.

METHODOLOGY

It was a cross sectional, observational and descriptive type of study. The study was conducted in tertiary care Government teaching hospital Lucknow. The study duration was 4 weeks. The data was collected by an observational checklist. The Parameters taken for way finding were identification of various squares outside the campus, availability of sign outside campus at squares, identification of various zones, identification of various gates, availability of signage's at gates, identification of various nodes, identification of various edges, identification of various landmarks, availability of signage at each node and edge, availability of parking sign, types of signage available and for signage were sign height, multilingual, colour, graphic layout, content, lighting, legibility distance, pictography. The data generated was entered and analysed using Microsoft Excel and Microsoft Word.

OBSERVATIONS

In the light of the objectives, all the gates, buildings, parking's and ways were observed for signage's in a tertiary care government teaching hospital Lucknow. It is a 3400 bedded hospital. It has 58 departments. There is an engineering section for planning and maintaining external signage system. In the light of objectives observation was recorded and are described below.

Squares

There are four squares Medical College Circle, Charka Circle, Teele Wali Masjid Circle and Lal Bahadur Shastri Circle outside the hospital campus. Way finding signage's were absent at all of these circles.

Zones

There were no demarcated zones in the campus. There should be demarcation of zones as per the services like OPD, IPD and Diagnostics. The Map with all zones should be available at the entrance of all gates.

Gates

There were 36 gates for both the hospital and university campus out of

which 21 gates were for the hospital. There was no uniform signage system for all the gates and no proper sequencing of gate numbers.

Availability Of Signage's At Gates

There were two types of signage available at all gates

1. Signage of gate number with name of KGMU
2. Signage of name of campus

Signage Of Gate Number With Name Of KGMU

It was observed that no signs were available at seven gates. Most of signs were at eye level. All the available signs were in English language. The color used was blue for base and letters with white. The observations for signage are given in the table 1

Table 1: Signage Of Gate Number With Name Of KGMU

Parameters	Frequency	Percentage
	f	% N=36
Availability of signage	29	80.55
	f	% N=29
Sign Height (At eye level)	27	93.10
Multilingual	0	0
Colour (Appropriate)	29	100
Graphic layout	29	100
Content (Appropriate)	29	100
Lighting (external)	29	100
Lighting (internal)	0	0
Legibility distance (Appropriate)	0	0
Pictography	0	0
Letterforms (Appropriate)	29	100

Signage Of Name Of Campus

It was observed that no signs were available at twenty gates. Most of signs were not at eye level. The color used was blue and red for base and letters with white. The observations for signage are given in the table 2

Table 2: Signage Of Name Of Campus

Parameters	Frequency	Percentage
	f	% N=36
Availability of signage	16	44.44
	f	% N=16
Sign Height (At eye level)	3	18.75
Multilingual	2	12.5
Colour (Appropriate)	14	87.5
Graphic layout	16	100
Content (Appropriate)	16	100
Lighting (external)	16	100
Lighting (internal)	0	0
Legibility distance (Appropriate)	14	87.5
Pictography	0	0
Letterforms (Appropriate)	16	100

Landmarks

There were 66 buildings in campus which was used as a landmark. Two ATM's are available for landmark in campus.

Buildings

There was as such no division of hospital in zones. Total 66 buildings were identified in the hospital. It was observed that nine buildings have no sign. Name used commonly for buildings was not on sign boards which create confusion for patient, visitor and staff. Colours used for signs were appropriate. Colours used for background was mostly red and blue and letters with white. Observations for external signage's of buildings are given in table 3

Table 3: Building Signage's

Parameters	Frequency	Percentage
	f	% N=66
Availability of signage	57	86.36
	f	% N=57
Sign Height (At eye level)	5	8.77
Multilingual	9	15.78
Colour (Appropriate)	57	100
Graphic layout	0	0
Content (Appropriate)	57	100
Lighting (external)	57	100

Lighting (internal)	0	0
Legibility distance (Appropriate)	56	98.24
Pictography	0	0
Letterforms (Appropriate)	57	100

Nodes

There were total 29 nodes available in the campus. It was observed that nineteen nodes have no sign. No availability of map and directional sign at nodes create confusion for patient, visitor and staff for decision making for way at node. Colours used for signs were appropriate. Colours used for background was mostly blue and letters with white. Observations for signage's at nodes are given in table below

Table 6: Node Signage's

Parameters	Frequency	Percentage
	f	% N=29
Availability of signage	10	34.48
	f	% N=10
Sign Height (At eye level)	10	100
Multilingual	0	0
Colour (Appropriate)	10	100
Graphic layout	10	0
Content (Appropriate)	10	100
Lighting (external)	10	100
Lighting (internal)	0	0
Legibility distance (Appropriate)	10	100
Pictography	0	0
Letterforms (Appropriate)	10	100

Edges

There were total 5 edges available in the campus. There were total five edges available in the campus. It was observed that four edges have no sign. No availability of map and directional sign at edges create confusion for patient, visitor and staff. Colours used for signs were appropriate. Colour used for background was blue and letters with white. Observations for signage's at edges are given in table below

Table 7: Edge Signage's

Parameters	Frequency	Percentage
	f	% N=5
Availability of signage	1	20
	f	% N=1
Sign Height (At eye level)	1	100
Multilingual	0	0
Colour (Appropriate)	1	100
Graphic layout	1	100
Content (Appropriate)	1	100
Lighting (external)	1	100
Lighting (internal)	0	0
Legibility distance (Appropriate)	1	100
Pictography	0	0
Letterforms (Appropriate)	1	100

Parking

There were total 18 parking's in campus out of which 10 for public and 8 for faculty & staff. Signs were available for all parking areas. English language was used in most of signs. Blue base with white letters were used in most of the parking areas.

Table 8: Parking Signage's

Parameters	Frequency	Percentage
	F	% N=18
Availability of signage	16	100
	F	% N=18
Sign Height (At eye level)	17	94.44
Multilingual	4	25
Colour (Appropriate)	18	100
Graphic layout	18	100
Content (Appropriate)	18	100
Lighting (external)	18	100
Lighting (internal)	0	0
Legibility distance (Appropriate)	18	100
Pictography	0	0
Letterforms (Appropriate)	18	100

RESULTS

Overall Compliance Of Available Signs

Total 129 external signs were available at various places the content of signs were appropriate at most of the places. The graphic layout was centrally placed in all signs. The capital letters were used in all signs. The detail of language, color and sign height was presented in figures below.

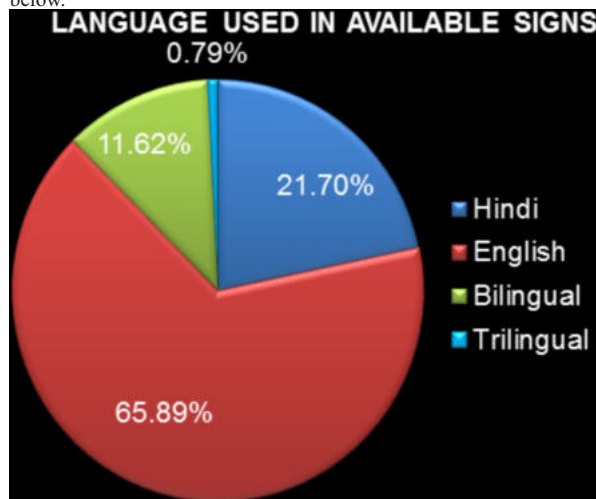


Figure 2: Language Used In Available Signs

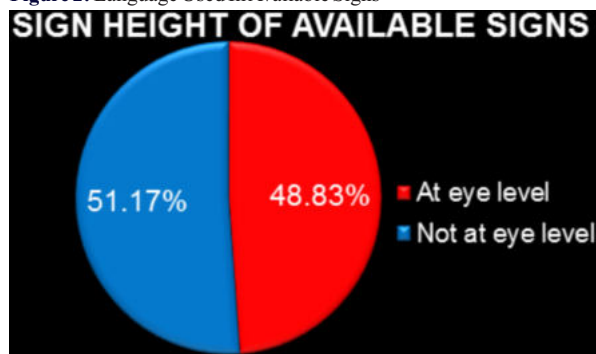


Figure 3: Sign Height Of Available Signs

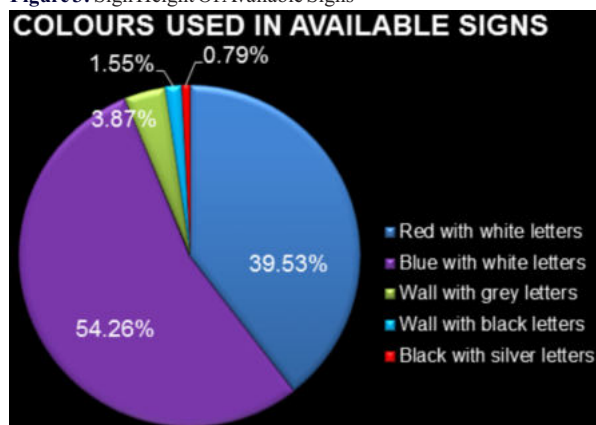


Figure 4: Colours Used In Available Signs

DISCUSSION

Where the facility comprises a number of buildings spread over a large area or where there is more than one entrance it may be necessary to install a map of the site at certain locations such as bus stops and parking lot where consumers began their journey on the site as a pedestrian. Care should be taken that the details depicted are not unnecessarily complex. Wherever possible, group the destinations, such as all Inpatient Units, Outpatients Clinics, Emergency Department, Enquiries, and Administration. More detailed information can be found upon arriving at the designated building or entrance.

Directional signage may be required along major external routes to

provide guidance to the major external points of interest such as car park, main entry and public transport hub. Pending the length of travel required to reach these points of interest a number of signs may be required along the path to assure consumers that they are on the correct path to their destination.

An external sign may be required outside a major entrance and exit point to identify the name of the entrance, if multiple major entrance points are present, or the name of the building, if there are multiple buildings within the campus.

Sign height- In general signage should be located within the 1200mm – 1600mm band

Color- Color for the creation of uniformity and branding of way finding information is restricted by the need for contrast. Any color may be used on a sign provided there is adequate contrast between the background color and any colors used for messages and pictographs.

Graphic layout- Messages can be arranged so that they are aligned left, centered or aligned right. The most effective alignment (for use in countries where the official language is read left to right) is left aligned text.

Content- Signs should be targeted at fulfilling the users' needs. The display of technical names on signage in healthcare facilities, such as 'Otorhinolaryngology' for 'Ear, Nose and Throat' is a major cause of way finding difficulties. Using simplified, everyday language for the content of signs is important as it should reflect the language the consumer uses to make decisions.

Lighting- There are two kinds of artificial illumination; internal and external illumination. The use of internally illuminated signs in health facilities is generally unnecessary. There are, however, specific areas where the use of an internally illuminated sign may be warranted.

Legibility distance- Legibility distance dictates the size that letters in a sign must be if they are to be perceived and recognized from a given distance. This, in turn, dictates how large the sign itself must be. The recommended standard is that a 25mm letter in an efficient typeface is generally legible from 15 meters away. This standard is applicable for ideal circumstances, with good lighting, no angular distortion, no glare and a user with 20/20 vision.

Pictography- Pictographs are symbols or icons that represent a facility, object or service. Through the combination of color and shape, pictographs can communicate a large amount of information in a small amount of space if designed well.

Having established the primary entry point for visitors to the facility it is necessary to determine internal traffic flow. The different consumer groups should be identified and their routes traced to their various destinations. As each route is traced attention should be given to the existence of decision points and the duplication of signs to be visible from different angles of approach.

As this is the huge and complex campus the way finding is difficult for everyone without proper signages. As per the international guidelines signages should be available at all squares outside the campus with directional signs with names of building and gates. The Map with all zones should be available at the entrance of all gates. There should be uniform or according to zone color coding of signage should be used as per guidelines. The signs was placed at suitable areas so that easily visible. Use of common language preferred over technical terms.

The signs should be user friendly. Signs for disabled and illiterate should be available. Pictography should be used for signs. The planning of way finding system is not only the responsibility of engineering department but also of the administration.

Zijlstra et al. (2016), signage is one of the variables that most affect users' wayfinding, and a poor planning of signage systems can lead to navigational difficulties for the users and a bad experience of the service (Devlin, 2014). Poor way finding systems, including the signage, can create difficulties for users and cause individuals to arrival late for medical appointments, visiting times, or inpatient admissions, which can lead to stress in the users (Cooper, 2010). A lack of initial planning together with building expansions leads to

disconnected spaces that pose navigational problems (Rousek & Hallbeck, 2011b). Studies suggest that better way finding systems can benefit the patients, the institutions, and the medical outcomes in general (Zimring et al., 2013), and an efficient layout and signage can positively impact the patients and reduce negative feelings associated with being at the hospital (Chambers & Bowman, 2011; Ulrich & Zimring, 2004) [6].

CONCLUSION

There was availability of signs at gates (80.55 %), at buildings (86.36%), at nodes (34.48) and edges (20%). non-availability of signs at majority of nodes causes confusion in way finding. The map of campus was not available at any place. Only 11.62 % of signs were in bilingual and 0.79 % in trilingual. The sequencing of gate number was not proper. No gate number was allotted to the RALC building gates. The signs system for parking was better in comparison to rest sign. No signs were available for disabled and illiterate persons. The sign height was not proper in 54 % of signs. Color used was proper in most of the signs. There is need of further planning for external signage system of campus. Further study needed for the perception/ satisfaction of user's about way finding system.

RECOMMENDATIONS

The zoning of campus can be planned at top management level. The way finding committee can be formed for feasibility study and implementation of way finding system. There should be allotment of gate numbers to all gates. There should be uniform and availability of sign at all gates with gate number and name of the campus. There should be allotment of building numbers to all buildings. There should be uniform and availability of sign at all buildings with building number and name of the building. The pictograph can be used for identification of buildings. There should be allotment of node numbers to all the ways where road is divided. There should be uniform and availability of directional sign at all nodes with node number and map of the campus with "U ARE HERE". The pictograph can be used for identification of buildings. There should be allotment of parking numbers to all the parking's. There should be uniform and availability of sign at all parking. The pictograph can be used for identification of parking's. All the signs used should be at eye level (1200mm to 1600mm height). All the signs in multilingual English, Hindi and Urdu can be used as it is common local language. All the letters should be in capital and centrally placed. Led lighting can be placed in the sign for illumination in night and in case of power failure at night. All the signs should be legible from at least 15 meter distance and not covered with any structure or tree. Colors like red, green and blue should be used for base and black and white for letters. There could be digital system of mailing/message of map of campus after registration for patients.

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