Circulation Pattern of Hospital Type B in Emergency. (Case Study: Hospital Sumohardjo Urip)

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Abstract. Hospitals are the type of buildings that have a lot of users to be met needs. All users are doing the movement. In performing this movement, the use of the elements of circulation so that more and more users, the more complex circulation occurs.The purpose of this study is to mengetahuai circulation in Urip Sumoharjo hospital in emergencies.The method used is Qualitative. Data was collected by questionnaires, interviews, observation records, documentation / capturing images, the data of the book, the data from the internet. The research instrument guide frame of reference, Laptop, literature book, camera and internet. Data analysis was performed with data reduction, data presentation and conclusion.The results obtained in this study did not meet the standards yaituerbang entry due to lack of separation of access for pedestrians and vehicles, car parking area visitors are not meeting the standard because there is no protection against the weather. Pedestrian circulation does not meet the standards because of the lack of protection against rain and hot sun for pedestrians from the parking area to the hospital building. Urip Sumoharjo; Directions opening the door did not meet the standard; Emergency door and emergency staircase are not available; and the use of the material for the floor does not meet standards because of slippery.**Keywords.**circulation; hospital;emergency

1. Preliminary

Hospital, a public health care system is loaded with a variety of issues, the similarities in the small town. The hospital consists of area residences, offices, workshops, laboratories and many other parts. The main circulation is often described as "the way" in the hospital. The road made intertwined and become a single entity, but from different parts such as urban design, also has a road traffic movement [1].The hospital is the type of buildings that have a lot of users to be met needs. All users are doing the movement. In performing this movement, the use of the elements of circulation so that more and more users, the more complex circulation occurs.Tata circulation is an order of parts of the building which is a groove connecting between one part of the building assigned to other buildings. Based on the function, circulation element is divided into 3 bagianyaitu: Entry openings for entry and exit an area within the hospital; Horizontal circulation is a liaison between the horizontal parts of the building lobby and a pedestrian, for example. The horizontal circulation not only inside the hospital premises but outside hospitals and vertical circulation is a liaison between top and bottom parts of the building such as stairs, elevators and ramps between floors [2]. Users circulation path are the patients, visitors, employees of hospitals, medical and paramedical personnel, servicing [3].Each user has a circulation path different demands. Patients need a short path, yet comfortable and safe. Visitors need a path *accessable,*communicative and Yemen. Service requires a separate track from the path visitors to ensuring visitors [3]. As for the medical staff and paramedics want close track of one part to another. To give satisfaction to the circulatory system is to take two ways to fix the size or physical standards and make this circulation system psychologically satisfying. Fix the size or physical standard hospital circulation system using the International standard size of the elements of circulation while satisfying psychologically by answering the satisfaction of basic human needs. Satisfaction-oriented basic human right, safe, comfortable, and quiet respected. Oriented that means is people become confused and given the ease, while the sense of respect and calm was also covered in a sense of comfort [4]. Besides the standard and criteria of good circulation is also supported by the ease of finding a point in the hospital and a marker in the hospital, the hospital considering underpinning kegiatandan in use by a user who "understress". And also as a public building is required to have an emergency lane in case things are not desirable as natural disasters, especially earthquakes and fire hazards.

1.1 Components Hospital

Hospital component is divided into two parts, namely components inside and outside of the hospital. Components in covering medical and non-medical staff, while the outer covering of the components aik patient outpatient, inpatient and visitors (Visitor patients and visitors to the staff) and keeper of the patient.

1.2 Components In

1. Medical Staff Doing activities that have aktfiitas medical services such as nursing, medical records and doctor. Activities carried out by the medical staff is concerned with patient health care. Besides meeting melakuakan and health record of each patient visit.
2. Non-medical staff
   non-medical staff are permanent employees where they manage systems and hospital management in the long term. The staff consists of:
   a. Part managerial, composed of the heads or head of the hospital (director and his deputy, the head unit or agency), head or hospital administrators in charge of managing the hospital, unit or installation, conduct meetings with a view to the development of the hospital, plan or master plan development of the hospital.
   b. Administration, processing financial section in the hospital.
   c. The service department, maintenance department hospital treatment.

1.3 Beyond components

1. Patients
   Patientscan be classified into two parts, namely inpatient and outpatient care (sick patients), doing medical chec up can be said to control health (patient sejat), in addition to the distribution of the patients can be divided by age and illness. Based on the age of the patients was divided menjadidua "yaitupasien child and adult patients. Patients are children from toddlers up to the age of 13 tahun.Pasien adults were patients aged 13 years and older based on the type of pennakitnya patients divided into 2 patients with a common disease and the patient's mother. Patients common diseases are patients in need of health services drai various types of disease, while the patient's mother was a patient who was pregnant and gave birth, as well as health (medical check-ups) [5]. the conclusion is generally the activities carried out by these groups in the hospital is equipment and pegobatan , consulting and administrative process.
2. visitors
   visitors can be divided into 2 visitor patients and visitors of the staff or it can be said with guests. visitors of the patient is the family or relatives of patients who are conducting inpatient in a hospital, while visitors staff are family or relatives as well as the people yan g has a special importance with the passage of hospitals both medical and non-medical staff. In general the activities undertaken by this group in the hospital is visited and interacted with patients and staff.
3. Watcherpatient
   Watcheris a patient families accompany patients hospitalized in the hospital. In general the activities undertaken by this group is waiting for patients to consult with medical personnel and administrative processes.

1.5 Installation hospital services

Services medic to be met in the hospital are as follows:

1. *Emergency* unit
   Emergency unit or emergency department is functioning hospital treating patients experience pain or in emergencies (mortally wounded) needs to be a quick and accurate in Indonesia there are some a term used by type of hospital [6].
2. The Emergency (IRD) as that term is used for class hospitals, where patients who came to be identified as well cared for so-called emergency care.

3. Emergency Room (ER) as a term applied to hospital grade B and C, in which patients who came to be identified and treated. If adequate meal perlatantidak patient will be referred to a hospital grade A.
4. Emergency Room (ER) as a term applied to a class D hospital, clinic or medical clinics, where patients who come in will be handled in terms of P3K, if necessary further treatment then will be referred to the hospital class A, B, or C. the conclusion is based on the statement above, the emergency unit used in the C class hospital whose patients served by identifying and treated, if necessary, special enanganan it will be taken care of, and when the equipment is not adequate then patients will be referred to the hospital class B or class A.
5. intensive care Unit (ICU)
   to the hospital with a special offer specialist treatment and intensive care.
6. Intensive Coronary Care Unit (ICCU)
   is the home skait with particular specialists that deal with ongoing cardiac or cardinal condition requiring intensive supervision and treatment.
7. Nursing Unit / Nursing Station
   Unit so that paramedics can treat patients usually have been grouped with a specific classification for easy supervision and care for patients.
8. Radiology
   Installation using the technique of x-rays to produce photographs of various parts of the body with the purpose of diagnosis.
9. Physical Therapy
   Management and prevention of disease conditions involving changes in psychiatric therapy - therapy khusu.
10. operating room
    Facilityto perform surgery.
11. Maternity
    care and handling facilities surrounding pregnancy and birth.
12. Outpatient
    facilities supplied outpatient unit for patients who do not stay in the hospital, only a medical examination and treatment of non hospitalization. The facilities were accommodated include general and specialty clinics.
13. Inpatient
    hospitalization facilities that are used to facilitate the patient must stay in the hospital in the stage of curative and rehabilitation with a 24-hour intensive care.
14. laboratories
    Installationprovide laboratory diagnostic services.
15. Sterillisasi instrument
    that serves as a center sterillisasi medical equipment, receiving, sorting and processing equipment - medical devices to be cleaned of things - things that can endanger the patient's condition.
16. Medical Record Department (Non-Medical Department)
    medical record that serves as a repository of data - the data mengetai patient record.
17. Rehabilitation Service
    Providing healing therapy services for patients sepertifisioterapi
18. Laundry
    Receiving, sorting, processing of linen and clothes dirty hospital. To maintain the cleanliness and appropriateness of patient care.

2. Circulation

2.1 Understanding Tatacirculation

Tatacirculationis a structure of the building which is a groove connecting between one part of the building to another part of the building. Based on the function, circulation element is divided memjadi 3 parts, namely:

1. Entry, openings for entry and exit an area within the hospital,
2. namely horizontal Circulation liaison between the horizontal parts of the building lobby and pedestriant.Sirkulasi horizontal for example is not only inside the hospital premises but outside the hospital also
3. is a liaison between the vertical circulation of the building parts up and down like a ladder, elevatordan rampantar floor [2]. Users circulation path are the patients, visitors, employees of hospitals, medical and paramedical personnel, servicing [3].

Rules of good circulation is when:

1. Has entranceyang: looks good, seen as the entry point is protected from all weather and highway traffic, can be reached by all the pedestrians, the disabled and the vehicle. Having a place untuktransisi physically and psychologically from the open area or the highway leading to the building. When you have multiple entrance then one must be distinct and clearly visible [7].
2. Having a large parking area for relatives of patients, visitors and staff. The area is secure and can be reached easily from the entranc egedung and surround the building. Parking Polasirkulasi adults are menjadipertimbangan customers to choose a hospital that will be addressed for treatment and care. There are 16 things that can make the hospital to win the competition, one of which is a good parking [8].
3. Has a lobby, transition area and a circulation path to direct the user to the destination. Warm, inviting and informative memorable. Easy and convenient for users, it looks clean in view, provide orientation at the best time in the room, have adequate lighting, a comfortable floor and ceiling memorable intimate.

2.2 Physical Standards and Criteria forCirculation

1. Physical StandardCirculation Element or measure that has been internationally standardized set of tare circulation, the standards that the intent will be described in Table II.1 Physical Standard Circulation Element [9]

Table 1. Physical Standard Circulation Element

ELEMENT	DESCRIPTION	SIZE
way out	Separation circulation for pedestrians and motor vehicles except stalemate. For roads which shall be used together, given the distinction of textures for terjadisebuahpengurangan speed. The lighting is quite Membatasijumlah how many vehicles entering Non hitch view	Capacity 2 cars 4.1 m - 5, 5 m Capacity 1 car Minimum 3 m
Footpath	Safe, comfortable terlindung from wind and rain	Each hiker 0, 6- 0.75 m With a stroller / wheelchair 1.7 to 1.8 m
Parking	clearly There is free parking area for the play and circulation	to the corner 45, the distance between the car 3.4 m. Car width of 2.4 m and a length of 5.5 m car parking capacity of 1.5 to 2 vehicles / TT

Entrance	can be passed with disabilities in wheelchairs Openingout Carriesthe play area	pintu1,2 width - 1.8 m The area of the play area 1,5 x 1,5 m^2
emergency doors	Protect from fire and smoke touch with the outside world	distance between one track with another track at least 64 m
Stairsemergency	Freefire and smoke	spacing tanggamaksimal 45 m width of at least 2.8 m Width of landing > 1.95 m width of the stairs down to the doors> 1,95 m, width of the stairs of at least 1.2 m Height 2 mbetween the landing of distancethe stairs end to <45
Corridor	angle reduces better view by blunt 1/4 circle or usemirror	a minimum width of 2.4 m
Droppingare	the minimum roofSupplieddipintu	turnfree space 15.25 m

2. Criteria for satisfactory circulation system penggunya

As previously dikemukaan that user satisfaction is the achievement of safety, comfort and easy on the users. What is meant by security are:

a. Hospitals and other health facilities provide and maintain security environment for patients, staff danmasyarakat.
b. The building was built with not a disaster for the community, patients and staff in it. And kapabeluntuk enough to accommodate all the existing load in it.
c. Including for emergency egress should follow some type, such as: door of the building had to meet with the wild, mempunyaitangga inside the building and outside the building and has a ramp (sloping floors).
d. Have a minimum of 2 keluaryang doors opposite each other and are available on each floor.
e. The exit ends in open space (outdoors) the exterior of the building [7].

To satisfy all the users of the building as much as possible the circulation can be divided into two, namely the human circulation drive and circulation of people walking. Human circulation drive is divided into 3 parking, medical and non-medical as well as public transport (passing). While the pedestrian circulation is divided into four, namely: for patients, visitors and families, medical staff and the circulation of non-medical staff (service). Criteria is described in the table II.2 criteria circulation system [10].

Table 2 Criteria Circulation System

User type	Element	Secure	Convenient	
Circulationvehicle	parking	freecollision, Controlled	Quite frankly, views freely,	accesable
	Medical and non-medical	free ofcollisions are not Controlledslippery.	Protected from the weather outside the optimal temperature Pretty bright The extent quite	Jejalursimple accesable without a hitch.
	general	Freeof the collision, not slick Tterkontrol.	quiet This area is fairlyenough.	is simple Jejalur
WalkingCirculation	Patients	Free of collisions, not slick Tterkontrol.	Protected from the weather outside is pretty quiet optimal temperature Freedom from noise-freeview Size of enough.	No confusion accesable simple Jejalur Without barriers
	Visitor	free of collisions, not slippery Tterkontrol.	Protected from the weather outside is pretty quiet optimal temperature Freedom from noise-freeview Size of enough.	No confusion accesable simple Jejalur Without barriers
	Service	Free of collisions, not slippery	Shielded from outsideweather Fairly quiet optimal temperature Freedom from noise-freeview Size of enough.	No confusion accesable simple Jejalur Withoutbarrier
	Medical	free from collisions, not slippery Tterkontrol.	Protected from the weather outside is pretty quiet optimal temperature Freedom from noise-freeview Size of enough.	No confusion accesable simple Jejalur Without barriers

2.3 Hospital Building Component Design

Based on the regulation of health minister of Republic of Indonesia No. 24, 2016 concerning the technical requirements of the hospital buildings and infrastructure.

1. Roof
   roof must be strong, do not leak, durable and do not become breeding places of insects, rodents and other vermin.
2. Ceiling
   a. The ceiling must be strong, bright, and easy to clean, do not contain elements that could

harm the patient, not moldy.

b. Framework of the ceiling must be strong.
c. Ceiling height in the room of at least 2.80 m, and height in the hallway (corridor) of at least 2.40 m.
d. High ceilings in the operating room at least 3.00 m.
e. In the operating room and the intensive care room, ceiling materials must have a fire resistance level (TKA) at least 2 hours.
f. In places that require a certain level of cleanliness of the room, the room lighting lamps embedded in ceiling mounted(recessed).

3. Walls and partition
   a. walls must be hard, flat, non-porous, waterproof, fireproof, rustproof, it should be easy to clean, weatherproof and not moldy.
   b. The wall color bright but not blinding.
   c. Lodging in rooms that are related to the activities of children's services, wallcoverings may include images to stimulate the child's activity.
   d. In the area traversed the patient, the walls should be equipped with handrails (handrail) continuous with the height ranging from 80-100 cm from the floor surface. The handles should be able to withstand loads of people with a minimum weight of 75 kg, holding with one hand on the handle to the hand.
   e. Materials Handrails should be made of fire-resistant materials, easy to clean and has a surface layer of a non-porosit.
   f. Room using a special x-ray equipment, the walls must meet the technical requirements of ionizing radiation protection.
   g. Especially for areas that are often associated with the chemical, which is easily triggered fire area, the walls must be of a material that has a Fire resistance (TKA) at least 2 hours, resistant to chemicals and impact.
   h. In the room there is equipment which uses electromagnetic waves (EM), such as *Short Wave Diathermy* or *Micro Wave*Diathermy,may not use wallcoverings that contain elements of metal or steel.
   i. The space has a noise level high (misalkanruang engine generator, pump room, boiler room, ruangkompressor, space chiller, space AHU, etc.) makabahan wall using materials soundproof ataumenggunakan a material that can absorb sound
4. Flooring
   a. should be made of materials strong, waterproof, surface, not smooth, bright colors, and mudahdibersihkan.
   b. Not made of a material that has a layer of high porosity permukaandengan to keep the dust.
   c. Easy to clean and resistant to friction.
   d. Floor coverings should be brightly colored and not menyilaukanmata.
   e. Ram must have a slope of less than 70, bahanpenutup floor must be of non-slip surface layer (albeit in wet conditions).
   f. Especially for space often interact with bahankimia and flammable, the floor covering materials must be of a material that has a Fire resistance (TKA) at least 2 hours, resistant to chemicals.
   g. Especially for patient care area (quiet area) bahanlantai use materials that do not cause noise.
   h. In high-risk areas that require tingkatkebersihan particular room, the meeting between lantaidengan walls must be sloped to memudahkanpembersihan floor (hospital Plint)
   i. at room contained medical equipment, floor harusdapat eliminate static electrical charge from peralatansehingga not endanger personnel from electric shock.
5. The door andwindows
   a. the main doorand doors through which the stretcher / tempattidur patients have openings of at least 120 cm wide, danpintu-door which was not a bed pasienmemiliki access aperture

width of at least 90cm.

b. In the area around the entrance there should be no perbedaanketinggian floor may not use the ram.
c. door Darura
d. Eachstoried hospital building over 3 floors must be equipped with an emergency door.
e. The width of at least 100 cm emergency exit stairs open kearahruang rescue (emergency) except in lantaidasar opens to the outside (yard).
f. The distance between the emergency door in one block bangunangedung maximum of 25 m from all directions.
g. The door to the bathroom in the room danpintu patient care to accessible toilets, should be open to the outside, and the door lebardaun a minimum of 85 cm.
h. The doors giving access harusdilapisi patient bed-absorbing material.
i. The room care patients must have openings jendelayang can open up for air kepentinganpertukaran.
j. In the multi-storey hospital building, wide openings jendelaharus safe from the possibility of the patient can escape / escape.
k. The window also serves as a medium of natural lighting during the day.

6. corridor

The size of the corridor as abetween the horizontal access space considered by function hall, function room, danjumlah users. Corridor accessibility size of at least 2.40 m tidurpasien place.

7. ladder
   a. Must have a foothold dimensionaland climb uniform size. Height of each ground / ramp is 15-17 cm.
   b. Must have a slope of less than 600. stairs
   c. at least 120 cm width ladder to bring usungandalam emergency, to evacuate In such patients to a fire or other emergency situations.
   d. There are no hollow climbs stairs that can harm users.
   e. Must be equipped with handles propagation *(handrail).*
   f. Vines should be easy grip handle with ketinggian65-80 cm from the floor, free from disturbing elements of construction, and the edges should be rounded or deflected properly towards the floor, wall or pole.
   g. Creepage grip must be increased in length in bagianujung edges by 30 cm.
   h. For stairs located on the outside of the building should be designed so that no rain water menggenangpada floor.
8. Ram
   a. Ram is a circulation path has a certain slope, as an alternative for people who can not menggunakantangga.
   b. The slope of a ram in the building are not bolehmelebihi 70 °, the slope calculation does not include the prefix and suffix ram (curb ramps / landing).
   c. The length of a single ram horizontal (with a slope of 70 °) can not be more than 900 cm. Long ram with the lower slope can be longer.
   d. The minimum width of 2.40 m with a ram is tepipengaman
   e. flat face*(landing)*on a prefix or suffix of a ram to be free and flat making it possible at least to play a wheelchair and a stretcher / patient bed with a size of 160 cm.
   f. Flat surface prefix or suffix of a ram harusmemiliki slippery texture so it's not a good time when it rains.
   g. The width of the seat edge ram (low curb) a maximum of 10 cmsehingga can secure the wheels of the wheelchair atauankar / bed patients not to fall ataukeluar ram.
   h. When the ram lies directly adjacent to the common lintasjalan or intersection, the ram must be made tidakmengganggu public roads.
   i. Lighting should be sufficient to help penggunaanram at night. Lighting is provided on the

ram which has a height of the surrounding ground surface and the dangerous parts.

j. Equipped with a handle propagation *(handrail)* guaranteed strength with the appropriate height.

2.4 Markers (Signage)

Markers*(signage)*should constitute a graphic system yangefektif strung together with the help of visual and alatuntuk series providing information, direction, orientation, identification, restricted areas, warnings, and POINTS TO payed for optimal performance of the operationalization of the house sakit.Penanda / signagedi the hospital is well-known hospital komplek.Rumah things difficult to find a destination by the user, create a negative perception for it, reduce confidence in the ability of a hospital to deal with a kasus.Pasien and visitors who come to the hospital are the ones who are under tekanan.Sehingga ability to read a tagging system decreases. A building can reduce "stress" or even add "stress" of its users. Users need direction of them came in the hospital environment, leading to dalamgedung hospital, heading to their destination, and back again to where he came to later he was out. This directive was obtained from the appropriate tagging and baik.Terdapat 9 things that can be achieved in order for this designation to facilitate its users, namely:

1. Markers intended for external users,
2. Waking from a clean system (communicative and clear meaning),
3. Little marker at a crossroads,
4. Separation sign for pedestrians and motorists with the right size and location,
5. the letters are clean and easy to read,
6. There is light at night,
7. avoid unofficial markers,
8. if using a color code then do not happen equation with the color of the building,
9. consider using another language.

Markers (Signage) can be divided into two categories namely:

1. Directional orwayfindingyang describe directions to somewhere

2. Locational signsyang signify an end in itself, which can be a building, landscape or form of writing.

2.5 Emergency lanes

In each hospital circulation time of the disaster must be planned and implemented into bangunan.Bencana in question is a catastrophic disaster that led to the building users must exit to leave the building. Among others, the earthquake and kebakaran.Dibutuhkan up to 2 hours untukmenyelamatkan 600 patients from 2-story structures in and takes 4 hours to save the patient from many berlanatai buildings [9]. To menghidarai their fall victim at the time of the disaster in every area has been set building regulations that promote the safety of users of the building during a disaster. To mengihdari natural disasters such as earthquakes usually recommended to strengthen the structure of the building, deminikan also by catastrophic fires by selecting materials that ground fire. In terms of circulation then in the evaluation path or paths provide emergency dilenkapi with signs or signage that is easily understood by the use of the building's evacuation panik.Elemensirkulasi users when there is a disaster that is a special line in direct contact with the outside world or stairs darurat.Untuk evacuations vertically using a landline or ramp date. The recommended distance for two pieces of emergency stairs is not more than 45 m, whereas much of the space inhabited by tanggaldarurat or exit is not more than 32 m [9]. However, the Guidelines for Hospital Services, MOH RI 2008 set the distance of which no more than 25 m.

Determining which usually bigger evacuation in write on Hospital Disaster Plan been the easiest path in jangjau and is a straight line so as not to make the user more and more panic. Emergency exit road layout settings as follows:

1. All of the bedroom patient should have immediate emergency exit emergency kelorong width at least 2.44 m
2. For a room that has more than 93 m² must have two emergency exit
3. aisle While emergency least two directions exit

4. If the hallway which one end is a dead-end length should not exceed 90 m.

Another requirement is an emergency road disetiapujung of emergency road ends in the outside world (free air), has a staircase inside and outside of the building and has a ramp [7]. To keep the casualties were not more during a fire then the lobby is not made in one end of a dead end. And also to make an emergency ladder watertight asapdapat pressing secarasignifican victims of the fire. Most hospitals in Indonesia still occupies a vast area of land yangsangat it is advisable to make an emergency lane around the hospital with the aim to facilitate the evacuation process when a disaster occurs. And open access sufficient in some parts of the hospital [11].

3. Methods

Descriptive method can be interpreted as a troubleshooting procedure investigated by describing the situation in the research subject or object can be a person, institution, community and others which are now based on the facts that appear or what it is.Descriptive Mmetode is a method in researching the status of a group of people, an object, a set of conditions, a system of thought or a class of events in the present. The purpose of this descriptive study was to create a description, picture, or painting in asystematic, factual and accurate information on the facts, properties and relationships antarfenomena investigated.

Briefly can be seen there are some steps in descriptive research method that is as follows:

1. Identify significant problems to be solved through descriptive methods
2. Limit and formulate the problem clearly
3. Determine the purpose and benefits of research
4. Conduct literature study related to the problem
5. Determining the framework of thinking and research questions and / or research hypotheses
6. Designing research methods to be used include determining population, sampling, sampling techniques, data collection instruments, and analyzing data
7. Collect, organize, and analyze data using relevant statistical techniques
8. Creating a research report [12]

3.1Research Approach

The method approach used in this research is qualitative method. Qualitative method is data collection whose data is descriptive meaning data is in the form of symptoms - the symptoms are categorized or in other forms such as photographs, documents, artifacts, and field notes when the study was conducted [13]. Qualitative research is a new method because of its popularity not long ago, this method is also called postpositivistic because it is based on post positiveism philosophy, as well as artistic method because the research process is more artistic (less patterned), and is called interpretive method because the data of research is more related to interpretation data found in the field

3.2Research design

Based on the description of the type of research methods and research approaches that use descriptive method and qualitative approach. So has designed research method to get good alalisis about circulation of class B hospital building in emergency situation Design research will be described in figure.1 Research Design Framework below.

3.3Data collection technique

Data obtained from questionnaires, interviews, observation records, documentation / photo taking, data from books, data from internet.

3.4 Research Instruments

The research instrument is a tool that is chosen and used by the researcher in his activities to gather for the activity to be systematic and facilitated by it. Data collection instruments are ways that researchers can use to collect data. The research instruments used in this study are as follows:

1. Guidelines reference framework of research writing, to facilitate the authors make research reports. 2. Laptops, laptops are tools for making research reports after we do research that passes through several stages.

3. Books of literature, literature books are used to add insight to the author of the topic to be studied.
4. Report of architectural seminars, architectural seminar reports as reference authors make research reports.
5. Camera, cameras are used when the authors conduct surveys to obtain research data.
6. Internet, the authors also need an internet network in order to assist the authors in translating things that are felt foreign in their knowledge in the process penelitain.
7. Assistance, assistance is done to lecturers seminar to facilitate the authors make research reports and get maximum results.

Data analysis technique Qualitative analysis techniques is the process of processing and manganalisis data that is collected into data that is systematic, organized and have meaning. There are three techniques of qualitative data analisisi namely data reduction, data presentation and conclusion. This process persisted throughout the study [14].

4. Results

4.1 Physical Element Circulation RS. Urip Sumoharjo Exit Sign In :

1. Separation of Circulation Separation between the circulation of pedestrians and the circulation of vehicles is very important to provide comfort for all building users. Urip Sumoharjo hospital has 1 access entrance and 2 exit access, where access for pedestrians becomes one with vehicle access. The entrance is located at the front of the site while the exit is located in front of the site and at the back of the site. The front exit door is dedicated to doctors and ambulances. While the exit on the back is used for the public.If compared to the standard then this does not meet the standards.

Figure 1.eparation of Circulation Line [15]

2. Texture Differences

For the road used together must be given texture differences to direct the vehicle to reduce the speed.But at the entrance of RS.Urip Sumoharjo not given texture difference.It is not in accordance with the standards.

Figure 1. Tekstur Jalan [15]

3. Lighting

Sufficient lighting on the circulation path is necessary either natural lighting or artificial lighting. The circulation path in RSUU Sumoharjo has excellent comprehensiveness.

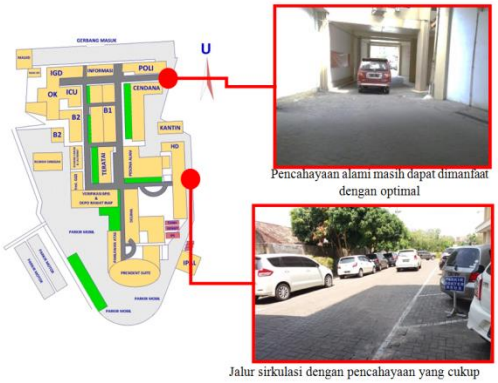

Figure 3. Lighting on the Circulation Line [15]

Figure 4. Restrictions on Number of Vehicles [15]

4. Restrictions on Number of Vehicles

The number of vehicles entering must be limited so as not to exceed the capacity of the parking lot. Pakrir in RS.Urip Sumoharjo applied ticket system in addition to the withdrawal of parking ticket ticket box also serves to control the number of incoming and outgoing vehicles.

5. Free Halang Pandang

Circulation path in RS.Urip Sumoharjo is open and free of view so that the user can freely through the circulation path.

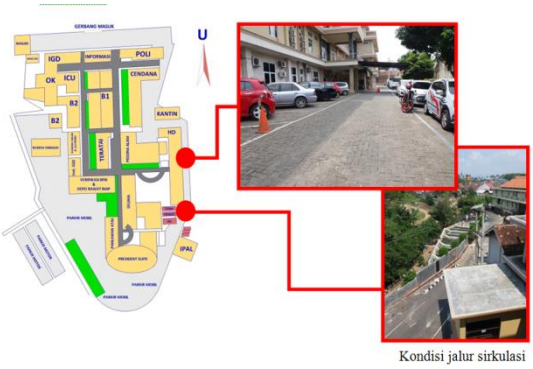

Figure 5. Free Halang Pandang [15]

Figure 6. Dimensions of Incoming and Outgoing Access [15]

6. Dimensions

Urip Sumoharjo hospital has 1 access and 2 access exits where each access has dimensions as shown in the following figure.

4.2 Footpath

1. Security and comfort

   The safety and comfort conditions of the footpath at RS.Urip Sumoharjo do not meet the standards because there is no protection from angina and rain.

2. Dimensions

   The path at RS. Urip Sumoharjo is dimension 60 cm - 100 cm, this is not in accordance with setandar because the path is only enough one person and can not be in the stroller.

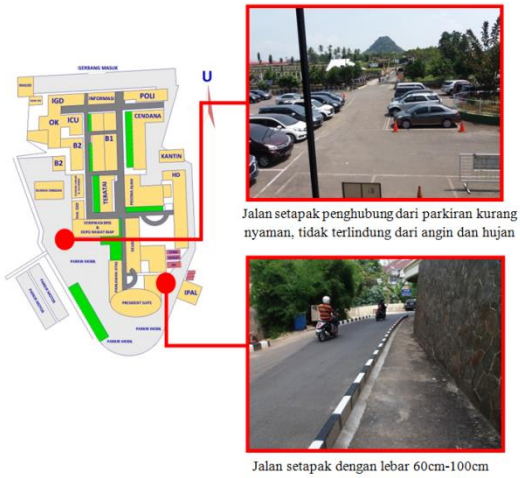

Figure 7. Dimensions Footpath [15]

Figure 8. Parking Area [15]

A. Parking

1. Looks clear Parking in RSUU Sumoharjo is clearly visible and can easily be found. Visitors are directed to the park. This has met the standards.
2. There is a free parking area In the parking lot of RS.Urip Sumoharjo there is a free parking area for rotary and circulation areas that meet the standards.
3. Dimensions Space parking for one car in RS parking lot. Urip Sumoharjo is 2.4 mx 5m. This is standard.

B. Entrance

1. Can be passed by people with disabilities Condition of entrance in RS.Urip Sumoharjo already meet the standards, can be easily reached by disabled wheelchair.
2. Opening outwards In the building RS.Urip Sumoharjo some already meet the standards but some are still there are not standard.
3. Has a play area Every entrance in RS.Urip Sumoharjo has a free area as a rotary area.
4. Dimensions The door at RS.Urip Sumoharjo has size 120cm - 180cm.

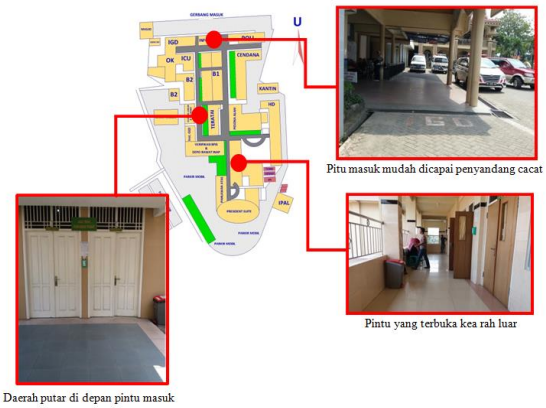

Figure 9. Entrance [15]

Figure 10. Corridor[15]

C. Emergency Staircase

There is no Emergency Door in this building.

D. Corridor

1. Corner of corridor The corridor angle at Sumoharjo Hospital does not meet the standard, because it has 900 angles at every turn. The fault angle can reduce the view
2. Dimensions The corridor of Sumoharjo Hospital is 2.5m - 3m wide. the size is already standar.

Figure 11. Droping Area [15]

E. Droping Area

1. Roof as a protection against the weather Droping area on RS.Urip Sumoharjo already meet the standards with the roof as a protection against the weather in every droping area.
2. Turn-free space Droping Area RS.Urip Sumoharjo with width 15 m. This measure meets the standards.

Table 3. Table Analysis of Physical Elements of Circulation Elements

ELEMEN	URAIAN	KONDISI LAPANGAN
Jalan keluar masuk	Pemisahan sirkulasi untuk pejalan kaki dan kendaraan bermotor kecuali jalan buntu.	Tidak Sesuai
	Untuk jalan yangakan digunakan bersama, diberi pembeda tekstur agar terjadipengurangan kecepatan.	Tidak Sesuai
	Pencahayaan cukup	Sesuai
	Membatasijumlah berapa kendaraan yang masuk	Sesuai
	Bebas halangan pandangan	Sesuai
	Kapasitas 2 mobil 4,1 m – 5, 5 m	Sesuai
	Kapasitas 1 mobil minimal 3 m	Sesuai
Jalan setapak	Aman, nyaman terlindung dari angin dan hujan	Tidak Sesuai
	Tiap pejalan kaki 0,6- 0,75 m Dengan kereta dorong/kursi roda 1,7 – 1,8 m	Tidak Sesuai
Parkir	Terlihat jelas	Sesuai
	Ada daerah bebas parkir untuk putar dan sirkulasi	Sesuai
	Lebar mobil 2,4 m dan panjang mobil 5 m	Sesuai
Pintu	Bisa di lalui penyandang cacat	Sesuai

masuk	berkursi roda	
	Lebar pintu1,2–1,8 m	Sesuai
	Membuka ke luar	Sebagian Sesuai Dan Sebagian Tidak Sesuai
	Mempunyai area putar Luasan area putar 1,5x1,5 m2	Sesuai
Pintu darurat	Melindungi dari api dan asap Berhubungan dengan dunia luar Jarak antara 1 jalur dengan jalur yang lain minimal64m	Tidak Ada
Tangga darurat	Bebas api dan asap Jarak antar tangga maksimal 45 m Lebar minimal 2,8 m Lebar bordes > 1,95 m Lebar anak tangga bawah dengan pintu >1,95 m, Leba r anak tangga minimal 1,2 m Tinggi antar bordes 2 m	Tidak Ada
Koridor	Sudut mengurangi pandangan lebih baik diberi tumpul 1/4 lingkaran atau digunakan cermin	Tidak Sesuai
	Lebar minimal 2,4 m	Sesuai
Dropping area	Disediakan atap minimal dipintu	Sesuai
	Ruang bebas belok 15,25 m	Kurang Sesuai

D. Kriteria Tata Sirkulasi

Sirkulasi pada bangunan rumah sakit harus ditata sedemikin rupa agar terciptanya rasa aman nyaman dan mudah dari penggunya, berikut adalah analisa kreteria sirkulasi pada RS. Urip Sumoharjo

E. Sirkulasi kendaraan

1. Medis dan non medis

   Sirkulasi kendaraan medis dan non medis pada RS.Urip Sumoharjo telah memenuhi standar keamanan kenyamanan dan kemudahan.Perkerasan jalur sirkulasi menggunakan paving block sehingga tidak licin,jalur terbuka dan bebas tabrakan, adanya vegetasi di area parkir karyawan dan dokter dapat mengurangi panas matahari, jalur sirkulasi dengan lebar 6 m – 8 m sangat aman untuk jalur sirkulasi, jalur yang sederhana dan tanpa hambatan.

Figure 12. Sirkulasi Kendaraan Medis dan Non Medis [15]

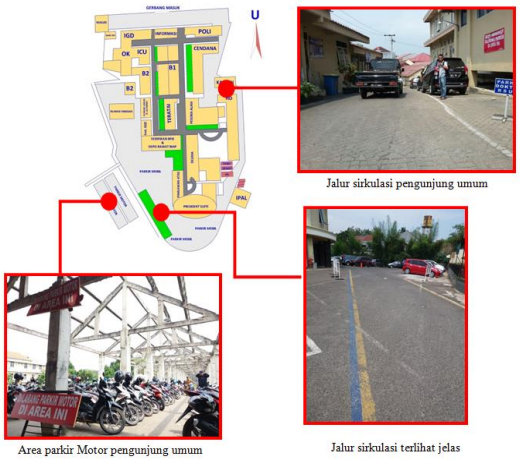

Figure 13. Sirkulasi Kendaraan Umum [15]

2. Pengunjung Umum
   Sirkulasi kendaraan pengunjung umum pada RS.Urip Sumoharjo telah memenuhi standar keamanan kenyamanan dan kemudahan.Perkerasan jalur sirkulasi menggunakan paving block sehingga tidak licin.Bebas dari tabrakan, terkontrol, cukup tenang dan cukup luas serta jalur yang sederhana.

F. Sirkulasi Pejalan Kaki

1. Pasien
   Material penutup lantai untuk jalur surkulasi pasien sudah memenuhi standar, menggunakan keramik doft dan kesat.Untuk lebar jalur sirkulasi RS. Urip Sumoharjo memiliki lebar selasar 2,5 m – 3 m hal ini sudah memenuhi standar.Jalur yang jelas dan ada petunjuk arah di setiap persimpangan sehingga tidak menimbulkan kebingungan.

Figure 14. Sirkulasi Pasien [15]

Figure 15. Sirkulasi Pengunjung [15]

2. Pengunjung
   Material penutup lantai untuk jalur surkulasi pengunjung kurang memenuhi standar karena menggunakan keramik yang licin (tidak bertekstur), keramik kasar hanya dipasang pada jalan yang menanjak atau menurun saja. Untuk lebar jalur sirkulasi RS. Urip Sumoharjo memiliki lebar selasar 2,5 m – 3 m hal ini sudah memenuhi standar. Jalur yang jelas dan ada petunjuk arah di setiap persimpangan sehingga tidak menimbulkan kebingungan.
3. Service

Jalur servis untuk pejalan kaki sudah memenuhi standar, bebas tabrakan, tidak licin, terlindung dari cuaca, cukup terang, bebas bising, dan tidak menimbulkan kebingungan.

Figure 16. Sirkulasi Service [15]

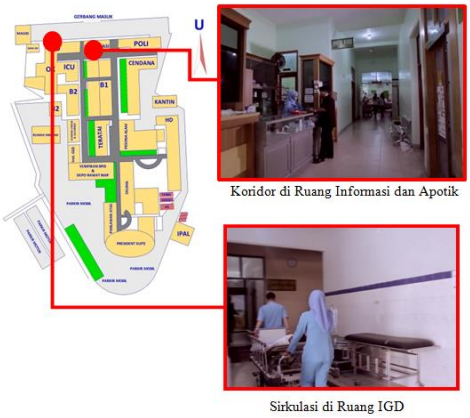

Figure 17. Sirkulasi Medis

4. Medis

Jalur sirkulasi pejalan kaki untuk medis sudah baik, bebas tabrakan, tidak licin, terlindung dari cuaca, cukup terang, bebas bising, tidak menimbulkan kebingungan.

G. Signage

Kondisi penanda (*signage*) di RS.Urip Sumoharjo masih sangat baik dan dapat terlihat jelas dan mudah dimengerti.

Figure 18. Signage [15]

Figure 19. Lokasi Signage [16]

H. *Directional orwayfinding*

Seperti yang telah dijelaskan di bab sebelumnya bahwa *Directional orwayfinding*yang menggambarkan arah ke suatu tempat Seperti penunjuk arah jalur evakuasi ataupun petunjuk arah menuju ruang-ruang rumah sakit untuk memudahkan pengguna rumah sakit. Kondisi *Directional orwayfinding*di RS.Urip Sumoharjo masih sangat baik dan ditempat pada titik-titik yang mudah terlihat.Penanda berwara hijau dan biru dengan tulisan berwarna putih.

I. *Locational signs*

*Locational signs*adalah penanda yang menandakan tujuan itu sendiri, yang dapat berupa bangunan, landscape maupun berupa tulisan seperti penanda titik kumpul, penanda nama ruang, papan

peringatan. *Locational signs*di RS. Urip Sumoharjo kondisinya masih cukup baik.Penanda berwara hijau dan biru dengan tulisan berwarna putih.

J. Jalur Darurat

Gambar 5.20*Jalur Evakuasi*
Sumber: Dokumentasi Pribadi

Figure 20. Jalur Evakuasi [15]

Pada RS.Urip Sumoharjo tidak terdapat pintu ataupun tangga yang hanya khusus digunakan pada kondisi darurat.Adapun jalur evakuasi pada RS.Urip Sumoharjo memanfaatkan jalur umum yang diarahkan untuk melalu jarak terdekat menuju titik kumpul.Ada 5 titik kumpul yang dipersiapkan khusus untuk keadaan darurat.Jalur evakuasi di RS.Urip Sumoharjo dapat dilihat pada gambar berikut. Dari hasil pengamatan analisa didapat bahwa jalur darurat di RS. Urip Sumoharjo tidak memenuhi Standar.

5. Kesimpulan

Pada penelitian ini, hasil yang didapat adalah mengindentifikasi standar kenyamanan ruangan dan sirkulasi pada Stasiun Gambir Jakarta dan Stasiun Hall Bandung.

1. Gerbang masuk tidak memenuhi standar karena tidak adanya pemisahan akses bagi pejalan kaki dan kendaraan.
2. Area Parkir mobil pengunjung tidak memenuhi standar karena tidak ada perlindungan terhadap cuaca.
3. Sirkulasi pejalan kaki tidak memenuhi standar karena tidak adanya perlindungan terhadap hujan dan panas matahari bagi pejalan kaki dari area parker menuju gedung RS. UripSumoharjo.
4. Arah bukaan pintu tidak memenuhi standar.
5. Pintu darurat dan tangga darurat tidak tersedia.
6. Penggunaan material untuk lantai tidak memenuhi standar karena licin.

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