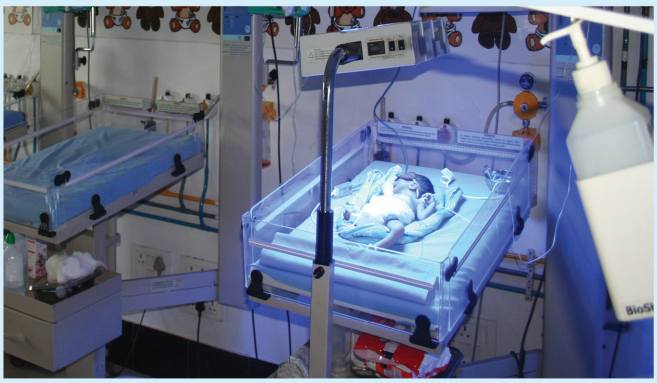
AUDIT OF NON STRUCTURAL SAFETY ASPECTS OF 15 HOSPITALS IN ASSAM

A Final Report



October 2014

Assam State Disaster Management Authority

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A Final Report

Submitted To

Assam State Disaster Management Authority

Submitted By

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Contents

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AIDMI

October 2014

Abbreviations

ANM	Auxiliary Nurse Midwife
AIDMI	All India Disaster Mitigation Institute
ASDMA	Assam State Disaster Management Authority
DRR	Disaster Risk Reduction
DPO	District Project Officer
GNM	General Nursing & Midwifery
FRU	First Referral Unit
LHS	Lady Health Supervisors
OPD	Outpatient Department
SPO	State Project Officer
SDCH	Sub Divisional Civil Hospital
UNISDR	UN International Strategy for Disaster Reduction
WHO	World Health Organisation

Preface (To be attached by ASDMA)

Executive Summary

‘Assessing Hospital Safety in 3 districts of Assam’ describes the audit which was conducted in fifteen government and private hospitals in the three districts of the Indian state of Assam. The audit focused on Non-structural safety aspects in health facilities.

The first part of the report discusses the problem followed by the explanation of the ‘Objectives’ of the audit and the ‘Methodology’ and approach used to conduct safety audit exercise.This is followed by a brief introduction of the district s and list offifteen hospitals in which the audit was conducted.

The next chapter of the report provides details of various aspects of non-structural safety which were analyzed viz General Safety, Command& Control, Communication, Security, Triage, Logistics & Supply Management, Anchoring, Fire, Evacuation, Heating-Cooling & Ventilation, Electricity, Surge Capacity, Lighting, Water & Food, Medical Gases, Waste Treatment, Hygiene and Human Resources.

The last chapters of the report is on ‘Conclusion’ and ‘Recommendations’ of the safety audit.

The main findings were that all the aspects of non-structural hospital safety are given differential importance in the audited hospitals and health facilities in Assam. Aspects which were researched upon can be categorized in two types: General Safety aspects and disaster/ emergency preparedness aspects. In the hospitals which were audited the aspects of General safety was addressed in different ways but it can be said that in most hospitals the aspect of Disaster/Emergency preparedness was partly or entirely neglected. The key findings therefore are that:

- Functional Evacuation Plan and Procedure was not in place in all the surveyed Hospitals
- TRIAGE is not perceived as a necessary procedure across all the surveyed hospitals
- Even though fire safety is perceived as an important aspect
- Training, mock-drills and periodic monitoring of fire preparedness plans and equipment was missing in all the surveyed hospitals.
- In none of the hospitals, earthquakeis not included in the list of hazards, hence doesn’t have any plan to address risks arising from probable earthquakes. .

- Security teams and entrance checks in hospitals during disasters and accordingly in many of the hospitals there are no security teams/ staff and not properly trained
- In most of the audited government hospitals Hygiene was a concern

The ways the hospitals can cope with the difficulties and gaps they face and with which they can appropriately mitigate the impacts of disasters are on different levels. Based on safety guidelines and the experience, expertise and knowledge of the All India Disaster Mitigation Institute the following actions are recommended to be taken by the hospitals in order to make the hospitals safer for their employees, patients and visitors:

- **Sensitize and Educate the hospitals staff about underlying risk factors**
- **Design appropriate mitigation measures for the different hazards**
- **Regularly Train personnel on implementation of the preparedness plans**
- **Conduct regular mock drills to test the effectiveness of hospital preparedness to various threats**
- **Ensure periodic review of preparedness plan and re-orientation of all concerned**
- **Design, document and display a National Policy for Safe Hospitals and Safe Hospitals in Emergencies to stakeholders**
- **Design and Implement State Level Strategies to improve the safety in Indian states**
- **Establish a dialogue on Hospital Safety between districts in order to foster experience and knowledge as well as sharing of best practices**
- **ASDMA would be the leading authority for the coordination of hospitals in Assam and implement a State wide policy on safe hospitals and safe hospitals in emergencies**

1.Introduction

Hospitals play a central role in a society. During normal times and in emergencies hospitals are the places where populations seek help and sometimes even shelter.

Especially during a disaster the role and importance of hospitals is even higher. During emergencies the demand for the services of the hospital can increase dramatically and hospitals may face issues related to the safety of the patients as well as the overall safety of the hospital and its staff.

The risks to which a hospital is exposed are unlimited but can generally be classified as 'structural' and 'non-structural' risks. With structural risks the aspects which are fixed and cannot be removed are meant, namely the walls of the building and fixtures. Non-structural aspects cover everything from machineries, furnitures, inventory, medicines, fire extinguishers and even staff, patients and visitors of a hospital.

UN Survey reveals that health is one of the top 3 priorities for communities. In order to ensure an efficient functioning of the hospital during emergencies, all the above mentioned safety aspects must be considered and organized in a way to avoid risks. An efficient management of the safety aspects and disaster preparedness of a hospital can be made using 'Hospital safety & Disaster Management Plans'.

Hospital safety & Disaster Management Plans explain all the threats to which a hospital is exposed and detail plan for mitigating the identified risks/ threats.

1.1: National and International Initiatives

1.1.1 Hospital Safety Initiatives at International Level

Hospital Safety has gained momentum over the years with the rise in the incident of disasters all over the world .Hospitals being the most critical lifesaving facility, hospitals have the dual responsibility of saving the lives of inmates as well as providing services to the affected population in the event of any disaster. A number of initiatives have been taken in this regard at different levels to ensure hospitals safety from disasters. Some of the initiatives are highlighted below:

1. ***People's health : A central component of the Post-2015 framework for disaster risk management (HFA 2):***

   An effective post-2015 framework should focus on community and country priorities for disaster risk management (DRM), such as people's health. To reduce risks to public health and build community resilience, it is proposed that the post-2015 framework for DRM should:

   - Make people's health and well-being an explicit outcome of the new global framework on DRM.
   - Include health targets and indicators for the monitoring and reporting on DRM.
   - Emphasize sectors which are vital for managing disaster risks, including health, education, agriculture.
   - Establish the Safe Hospital Initiative as a global priority for action to ensure that new and existing health facilities remain operational in emergencies and disasters.

2. ***Global campaign on Hospitals Safe from Disasters: Reduce Risk, Protect Health Facilities, Save Lives. 2008-2009 under World DRR Campaign***[1]: This Campaign addresses Hospitals Safe from Disasters in line with the UNISDR's mandated focus on natural hazards. It does not address broader issues of hospital or medical safety, such as patient and staff infections, reduction in medical errors or the capacity to deal with mass epidemics; all of which are important in their own right and contribute to the overall safety of hospitals, but which fall beyond the primary scope of the Campaign. This campaign aims to raise awareness and effect change that will:

[1]http://www.safehospitals.info/index.php?option=com_content&view=article&id=104&Itemid=166&lang=en

- Protect the lives of patients and health workers by ensuring the structural resilience of health facilities.
- Ensure health facilities and health services are able to function in the aftermath of emergencies and disasters, when they are most needed.
- Improve the risk reduction capacity of health workers and institutions, including emergency management.

3. ***One Million Safe Schools and Hospitals Campaign of UNISDR:*** The One Million Safe Schools and Hospitals Campaign encourages an individual, a family, a community, an organization, a government, a business or any other entity to make a pledge for a school or hospital and make them safer now to survive disasters. Schools refer to all educational institutions and hospitals refer to all health facilities. This initiative is part of the Resilient Cities Global Campaign of UNISDR for 2010 and 2011, and builds upon the 2006-2007 Global Campaign on Safe Schools, and the 2008-2009 Global Campaign on Safe Hospitals[2]. It is sponsored by the UN International Strategy for Disaster Reduction (UNISDR), and aims to raise public awareness and mobilize resources for a host of tasks ranging from repairing and retrofitting buildings to relocating to safer sites and constructing new safe ones where necessary, to purchasing safety equipment such as fire extinguishers and first aid kits.[3]
4. ***Kathmandu Declaration on Protecting Health Facilities from Disasters[4]***: Health Ministers from WHO's 11 Member States in South-East Asia have committed themselves to making health facilities more resilient by adopting the Kathmandu Declaration on Protecting Health Facilities from Disasters. This declaration was adopted at the conclusion of the Twenty-seventh Health Minister's Meeting in Kathmandu in September 2009.
5. ***Thematic Platform: Disaster Risk Reduction for Health[5]:*** At the 2009 Global Platform for Disaster Risk Reduction, participants supported a proposal to establish a Thematic Platform for Disaster Risk Reduction for Health. The launch of this platform, dedicated to protecting public health through disaster risk reduction, coincides with the International Day for Disaster Reduction on 14 October 2009. The World Health Organization (WHO) and the United Nations Secretariat for

[2]http://www.eird.org/escuelas-hospitales/ejemplo/en/about-us.php
[3] http://www.un.org/apps/news/story.asp?NewsID=34321&Cr=quake&Cr1=#.U9dAepR2wiM
[4]http://www.safehospitals.info/index.php?limitstart=5&lang=en
5 http://www.safehospitals.info/index.php?option=com_content&view=article&id=201&catid=56%3Aresearch-and-development&Itemid=194&lang=en

International Strategy for Disaster Reduction (UNISDR) have committed to establish the platform, through which local, national and international partners will collaborate on actions to reduce deaths, injuries and illness from emergencies, disasters and other crises. A key goal of the platform is to improve the health and well-being of millions of people at risk through enhanced risk reduction and emergency preparedness, and by integrating risk reduction in disaster recovery and reconstruction for health.

6. ***WHO-CDC Bibliography on Safe Health Facilities***: WHO has partnered with the United States Centres for Disease Control and Prevention (US CDC) for the development of an extensive bibliography on Safe Health Facilities? The database of more than 500 citations from many sources and in multiple languages has been refined from over 6000 original citations. CRID (Panama), US National Library of Medicine (NLM) and PAHO have provided guidance on the project. The bibliography complements CRID's collection of about 50 full-text articles on Safe Hospitals. A search engine will be provided to enable searching of the bibliographic database.
7. ***Enhancement of Emergency Response (PEER 3) from 2009 – 2014***: Asian Disaster Preparedness Centre has undertaken the 60 months project on Enhancement of Emergency Response from 2009 – 2014. The key objectives of the project are to enhance disaster response capacity, reduce mortality, and increase the survival rate of disaster victims at all levels in nine Asian countries, namely, Bangladesh, India, Indonesia, Nepal, Pakistan, Philippines, Cambodia, Lao PDR, Vietnam; to establish system for enhancing community-level first responder capacity in disaster-prone communities in the six PEER program countries and to improve the capacity of hospitals and medical facilities to be prepared to manage emergencies and mass casualty events in non-PEER countries in Asia.[6]

1.1.2 Safer Hospital Initiatives in India

1. ***Guideline (Draft) for Hospital Safety by NDMA:*** The guidelines on Hospital Safety have been developed with the vision that all hospitals in India will be structurally and functionally safe from disasters, such that the risks to human life and infrastructure are minimized. The overall aim of the guidelines is to mainstream disaster prevention, mitigation, preparedness and response activities into the health sector in our country, with specific focus on hospitals; such that hospitals are not just better prepared but

[6]http://www.adpc.net/igo/category/ID306/doc/2013-eiy4DP-ADPC-FINAL_PEERQR_USAID_JAN-MAR_2012.pdf

fully functional even during disasters and are able to respond without any delay to the medical requirements of the affected communities[7].

2. ***Program for Enhancement of Emergency Response in India by Asian Disaster Preparedness Centre***: The Government of India has institutionalized the PEER program in India, and is using the PEER program to support development of a "state of the art" capacity and equipment within India for urban search and rescue and medical first response, including hospital preparedness. PEER implements activities in India under the coordinating authority of the Ministry of Home Affairs and National Disaster management Authority. The designated training institutions for Medical First Responder (MFR) and Collapsed Structure Search and Rescue (CSSR) courses are the National Industrial Security Academy (NISA) at Hyderabad and Indo-Tibetan Border Police (ITBP) at Chandigarh.[8]
3. ***Delhi Earthquake Safety Initiative for Life Line Buildings***: The project aims at developing an approach towards identifying and reducing the earthquake risk of lifeline buildings by capacity building on earthquake evaluation and Retrofitting. It is expected that this initiative, would form the precursor to a larger nation-wide movement to reduce earthquake risk in India. The project is preparing design for retrofit of these life-line buildings which includes Guru Tegh Bahadur Hospital as one of the life line building. [9]
4. ***Revised guidelines on District Hospitals:*** The overall objective of IPHS is to provide health care that is quality oriented and sensitive to the needs of the people of the district. The guideline does maintain a very comprehensive link with overall safety issues in the hospitals at district level. This document contains the standards to bring the District Hospitals to a minimum acceptable functional grade (indicated as Essential) with scope for further improvement (indicated as Desirable) in it[10]

[7]http://www.ndma.gov.in/images/pdf/NDMAhospitalsafety.pdf
[8]Asian Disaster Preparedness Centre-PEER Project http://www.adpc.net/blog/?page_id=77
[9]National Institute of Disaster Management-http://nidm.gov.in/PDF/safety/public/link2.pdf
[10]http://health.bih.nic.in/Rules/District-Hospital-2012-Revised.pdf

1.1.3 Hospital Safety Initiatives in Assam

1. ***Status Survey of Hospitals and School Buildings of Guwahati City and Retrofitting Solutions***: In order to ensure that schools & hospital buildings are safer, ASDMA has taken up this project with Civil Engineering Department of Assam Engineering College for assessing existing schools & hospital buildings of Guwahati. The project activities includes
    - Rapid Visual Screening of all School & Hospital Buildings of Guwahati
    - Collate and quantify the parameters to map risk index from field data,
    - Detailed engineering analysis of identified vulnerable buildings,
    - Generate vulnerability map of school & hospital buildings &
    - Suggest Retrofitting Solutions for highly vulnerable buildings

    The survey broadly reflected that most of the hospitals have - ; Irregular Planning which are Inadequate bracings in both building directions; Heavy masses on top of buildings; Susceptibility to develop strong beam-weak column effect; Missing shear walls; Missing strengthening measures etc[11].

2. ***Training and Capacity building of Hospital Stakeholders on DRR***: The ASDMA also conducted training and capacity building events for Doctors, Para-medics, Nurses and Hospital Management on the following issues:
    - Preparation of Emergency Health Management & Hospital DM Plan
    - Mass Casualty management training for Paramedics and Response Force
    - Basic & Advanced Disaster Life Support
    - Comprehensive Trauma Life Support (Nurses & Doctors)

    Till 2013 a total of 1400 participants were trained on the above issues in 34 different programs organized in different parts of the State.[12]

1.1.4 Key findings and recommendations of National and International initiatives

- Non-Structural safety aspects are as important as Structural indicators and must therefore be addressed appropriately.

[11] http://asdma.gov.in/project_survey.html
[12] http://asdma.gov.in/training.html

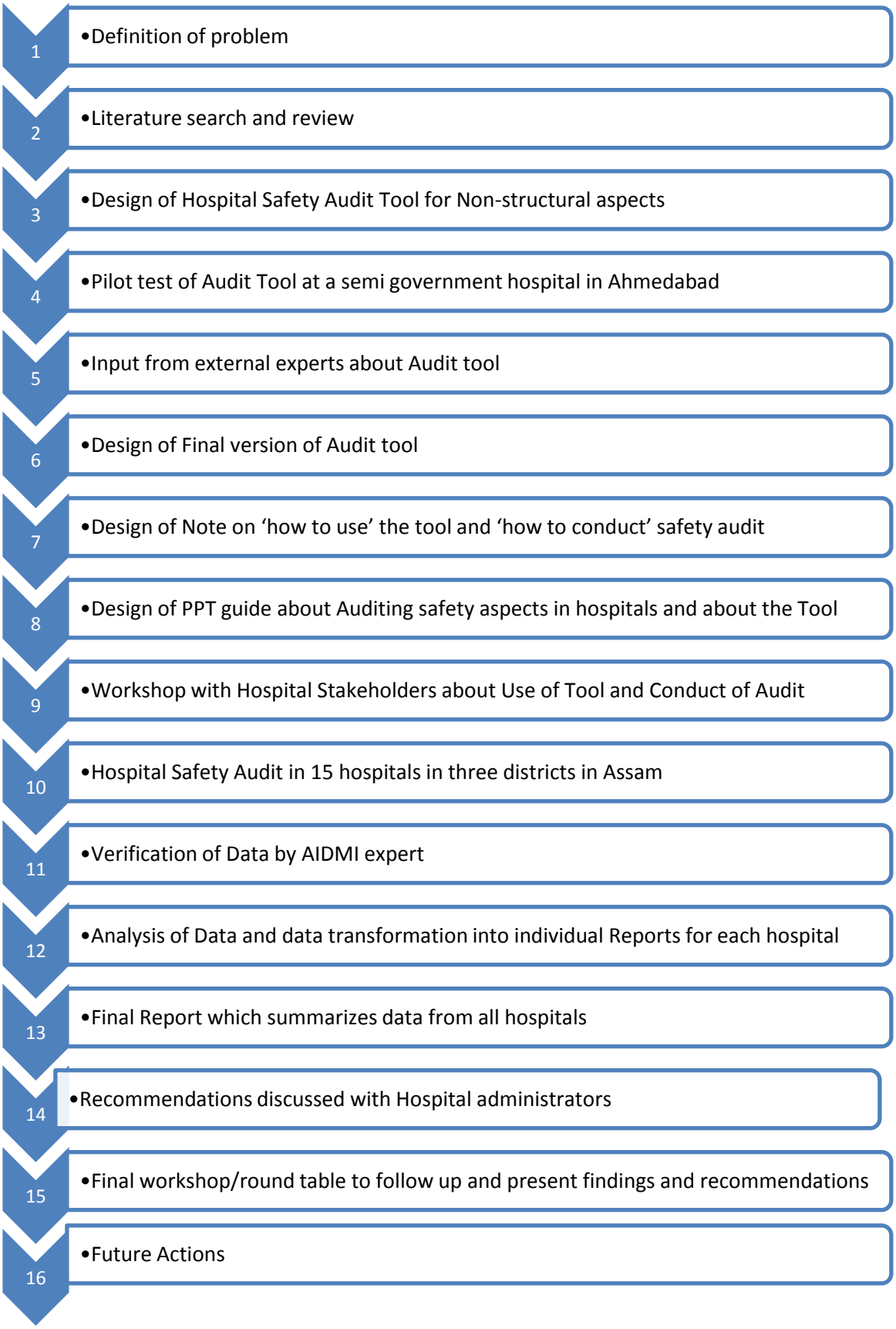
- The most important aspects of non-structural safety are to ‘ensure the safety of people and equipment and the continuity of the delivery of services of the hospital or health facility.
- In order to be categorized as ‘safe’, hospitals must not only be structurally sound but also well organized and fully operational in emergencies and disasters (UNISDR).
- Non-structural threats and mitigations measures are not limited to Fire Safety and Evacuation but cover a wide range of aspects and indicators.
- People are an important aspect of non-structural safety. In order to guarantee safe hospitals not only the material aspects but especially the human assets must be informed, trained and prepared accordingly. Investing in human capacity is therefore essential in order to guarantee safe hospitals.
- Hospital planning must be done AFTER risk assessment.
- National Policies can help to implement safety measures in hospitals but local level actions are needed to guarantee guidelines and funds for safe hospitals.
- In order to build resilient hospitals which remains functional even during emergencies and disasters, all stakeholders must work together and are of the same importance.

2.Objectives and Methodology

The objective of the project are :

- To assess the vulnerability of Hospitals/Health facilities from Non-structural elements.
- To assess the preparedness of Hospitals/Health facilities to prevent or minimise the loss of lives during emergencies and disasters in respective Town/Districts.
- To recommend non-structural mitigation measures foreach Hospitals/Health facilities to respond to the need of communities especially during emergencies.

The Process Flow Chart below shows steps taken in order to successfully implement the project.



A hospital safety audit Tool was designed, in order to conduct a Hospital Safety Audit. The Tool covered 18 topics and had a total of 183 questions. (See Annexure I)

We did a literature search and review various guidelines and National and International reports to design the safety audit tool. We mainly follow the NDMA guidelines on Medical Preparedness & Mass causality management.

The tool was designed using the knowledge and lessons of existing audit tools of the United Nations and many other international and national agencies and organizations.

The AIDMI reviewed 38 documents and reports which were designed by Indian and international government and non-government agencies as well as United Nations agenciesin order to design the audit tool (List of Reports used in Annexure 1)

AIDMI itself has already conducted a Fire Safety Audit of 5 hospitals in Assam and many of lessons learnt and background information was incorporated in this audit.

Apart from these, relevant Assam State Disaster Management Authority documents and existing audits conducted by ASDMA such as the audit of the 'Down Town Hospital' in Guwahati were used.

A step by step process outline was designed to come up with the Audit Tool. Audit was conducted by –

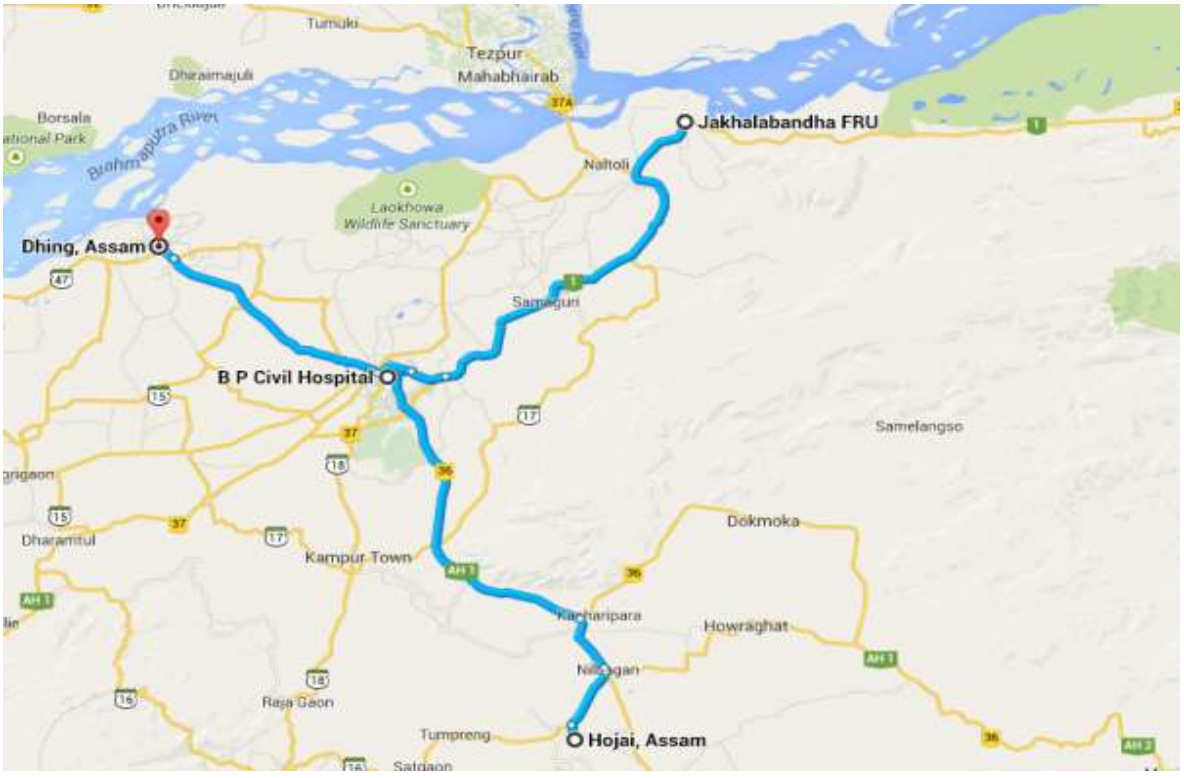
1) Inputs from hospital administrators and staff by answering questions
2) Observation and inspection by AIDMI team
   Before giving questions all informants were explained about the purpose of audit and method of answering the questions.

2. Observations

Safety Audit was conducted in following three districts:Nagaon,Dibrugarh and Jorhat

3.1 NAGAON DISTRICT

Nagaon, known as the rice bowl of Assam, is situated at 123 km from Guwahati. The district lies between 25o 45/ and 26 o 45/ North Latitudes and 91o 50/ and 93 o 20/ East Longitudes. On the north it is bounded by the River Brahmaputra, on the east by Golaghat and Karbi Anglong district and by portions of Meghalaya State and North Cachar Hills and on the west by the district Kamrup and portions of Meghalaya State.In 2011, Nagaon had population of 2,823,768 of which male and female were 1,439,112 and 1,384,656 respectively. Agriculture is the backbone of Nagaon's economy providing livelihood to about 78% population[13]. Nagaon district is divided into three subdivisions: Nagaon, Kaliabor and Hojai.Ithas been identified as multi hazard prone district by Assam State Disaster Management Authority (ASDMA). It has been affected by flash floods in Brahmputra river. In 2004, at least 5 lakh people affected by floods.[14] The district was also affected by urban floods in past. On 14th March, 2014, at least 40 people, including children, were affected by food poisoning in Chaparmukh of Nagaon district on Friday.



[13]http://www.assaminfo.com/districts/20/nagaon.htm
[14]District Disaster Management Plan, Nagaon

AUDITED HOSPITALS DETAILS

3.1.1 Hospital Profile

The five hospitals in the Nagaon district in which the audit was conducted are the following:

Hojai FRU

Sr.No.	General Information about Hospital	
1	Date of Survey	29th June 2014
2	Hospital Name	Hojai FRU
3	Hospital ID no/Registration no.	NA
4	Date of construction	New FRU and OPD buildings constructed in 2002. Age of old buildings is not known
5	Address	Natun Bazar, Hojai, Dist-Nagaon
6	Contact Details	Dr. Sanjib Baruah, Deputy Superintendent, Hojai FRU, Mobile- 9425061098
7	Total number of beds	43
8	occupancy rate in normal situation	35/day
9	Total number of staff:	
	a. Doctors	9 (Including one dentist)
	b. Nurses	GNM-9, ANM-8, LHS-2
	c. Consultants	1 ENT specialist 1 day in a week
	d. Paramedics	Lab technician-2, Radiographer-1, Phermacist-1, Health Educator

	e. Secretaries	0
	f. Security staff	0
	g. House keepers	Ward boy-4, Cleaners-3
	h. others	1 Block Accounts Manager
10	How many storeys	1
11	List of all departments	1. Out patients Department, 2. Emergency 3. Indoor Ward 4. Post Natal Ward 5. General Ward 6. Operation Theatre 7. MCH (with cold chain) 8. Laboratory 9. X-Ray Room 10. ICTC 11. NBSU (New Born Sterilisation Unit) 12. New Born Care Corner 13. Staff Training Room

Jokhlabanda FRU

Sr.No.	**General Information about Hospital**	
1	Date of Survey	1st July 2014
2	Hospital Name	Jokhlabanda FRU
3	Hospital ID no/Registration no.	NO RS/NG/254/G/57 of 2007
4	Date of construction	B1- 1960, B2-1986 and B3-2009

5	Address	Jokhlabanda FRU, Nagaon, Assam
6	Contact Details	Dr. Phani Pathak, Dy Superintendent- Mobile-94351-60985
7	Total number of beds	47
8	occupancy rate in normal situation	80%
9	Total number of staff:	60
	a. Doctors	10
	b. Nurses	6
	c. Consultants	4
	d. Paramedics	38
	e. Secretaries	0
	f. Security staff	0
	g. House keepers	1
	h. others	BPM-1, BAM-1
10	How many storeys	Single (One Doctors quarter is two storied)
11	List of all departments	1. Medicine 2. Meternity & Child Care 3. Dental Surgery 4. General Surgery 5. Eye (Vision care) 6. Emergency and OPD (24*7) 7. Xray and Laboratory

Dhing FRU

Sr.No.	General Information about Hospital	
1	Date of Survey	28th June 2014
2	Hospital Name	Dhing FRU
3	Hospital ID no/Registration no.	NA
4	Date of construction	Not known
5	Address	FRU Dhing, P.O.Dhing
6	Contact Details	Dr.G.K.Bora (094351 60427)
7	Total number of beds	30 (50 Maximum)
8	occupancy rate in normal situation	30 per day
9	Total number of staff:	
	a. Doctors	14
	b. Nurses	GNM-16, ANM-4
	c. Consultants	1 ENT specialist 1 day in a week
	d. Paramedics	8
	e. Secretaries	0
	f. Security staff	0
	g. House keepers	5
	h. others	Peons (Grade 4) – 6
10	How many storeys	Single (Operation theatre is one storey building)

11	List of all departments	1. General 2. Meternity & Gynocology 3. Intigrated counciling & testing center 4. Revised National Tuberculosis Control Program

B.P Civil Hospital

Sr.No.	General Information about Hospital	
1	Date of Survey	30th June 2014
2	Hospital Name	B.P Civil Hospital
3	Hospital ID no/Registration no.	NA
4	Date of construction	Not Known as different buildings have been constructed
5	Address	Nagaon, 782001
6	Contact Details	Dr. Bhabendra Bordoloi Superintendent, B.P Civil Hospital, Nagaon Mobile- 9435710125
7	Total number of beds	281
8	occupancy rate in normal situation	98%
9	Total number of staff:	
	a. Doctors	36
	b. Nurses	Staff Nurse-64, Auxiliary Nurshing Midwife-7,WS-6, Matron-1

	c. Consultants	36
	d. Paramedics	LT-15, Pharmacist-7, Radiographer-4
	e. Secretaries	0
	f. Security staff	Homeguard-18
	g. House keepers	Mapuna (outsourced)-14, Sweeper (Rregular)-13
	h. others	Hospital Administrator-1, Block Accounts Manager-1, Office Staff-11, Superintendent-1, Deputy Superintendent
10	How many storeys	Administrative Building-G+1 MRG Building- G+1+1 Surgical Ward- G+1+1
11	List of all departments	1. Male Medical 2. Female Medical 3. DDC 4. Surgical I,II and III 5. OT (General), OT (Eye) 6. Blood Bank 7. Laboratory 8. X-Ray Room and USG 9. OPD 10. Maternity Ward 11. Gynae Ward 12. Children Ward 13. ENT and EYE 14. Emergency 15. Pharmacy 16. RTI/STI Clinic 17. AYUSH

Kapili Hospital and Research Centre Pvt. Limited

Sr.No.	General Information about Hospital	
1	Date of Survey	28th June 2014
2	Hospital Name	M/SKapili Hospital and Research Centre Pvt. Limited
3	Hospital ID no/Registration no.	SHA/197
4	Date of construction	Jun-07
5	Address	Panigaon, PO-Hachati, Dist- Nagaon, 782003
6	Contact Details	03672-233905
7	Total number of beds	30
8	occupancy rate in normal situation	20-22/day
9	Total number of staff:	**45**
	a. Doctors	**6**
	b. Nurses	**17**
	c. Consultants	**6**
	d. Paramedics	**3**
	e. Secretaries	**0**
	f. Security staff	**3**
	g. House keepers	**5**
	h. others	**5**
10	How many storeys	**2**

Sr.No.	General Information about Hospital	
11	List of all departments	1. Medicine 2. Meternity & Gynocology 3. Surgical 4. Ophtermology 5. Radiology 6. Clinical Laboratory

3.1.2 Section wise findings

GENERAL SAFETY

Accessibility:

It was observed that 4 of the 5 hospitals of the Nagaon district were easily accessible as they were placed at well maintained city roads and therefore accessible to all kinds of vehicles.

Obstruction of important areas:

In all five hospitals it was found that important and vital areas such as corridors were often obstructed. The corridors were obstructed with beds, animals or people.

It is extremely important that all important areas are accessible, especially in emergency situations when inflow of huge number of people are expected inthe hospital.

(*Entrance to the X-ray room obstructed by clutter at the Jakhalabanda FRU hospital)*

Storage of heavy items

In the storage areas of 4 out of 5 hospitals heavier items were not stored at waist level but were stored at too high or too low level. Storage of heavy items at waist level is a very important risk reduction factor. There is a potential risk of injury to get them down of lift them up too high or too low. It also prevents chances of injury and \/or damage at the time of certain disasters like earthquake or floods. Waist level storage is also easy in regular cleaning and maintenance of equipments.

(Too many items stored at a high risk level in such a way that they might fall down on people easily- Nagaon Civil Hospital)

Uniforms/Physical recognition of staff

In all 5 audited hospitals it was found that nurses and doctors were often not wearing uniforms. The reason for not wearing uniforms was the heat within the hospital.

The risk which arises when hospital staff, especially the medical staff does not wear appropriate clothing is of various natures.
Uniforms are important since hospitals staffs would be identifiable in order to act in a coordinated manner especially in any emergency/ disaster situation which may lead to chaos in the hospital.

Restriction of areas

In 4 out of 5 hospitals important areas were restricted by signs specifying that the entrance to those areas was allowed only for hospital staff. In hospitals one of the main threats can be the lack of control, therefore it is of importance that such areas are safe and controlled Entry Check

Restriction to enter certain areas like emergency ward, operation theatre is also essential for smooth management of patients and prevention of spread of infection and stress to staff. For reasons such as terrorism, epidemics, theft, violence and general overview it is important to have check at each entry of the hospital where entrants are labeled according to their role and made recognizable as such (for instance with different tags for visitors, patients, in-patients, staff, doctors)

General Safety					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	AVERAGE	

COMMAND AND CONTROL IN EMERGENCIES

The importance of a specifically designed and installed Incident Command Group (ICG) has been proven significant in health facilities all over the world.

Personswith different roles in the hospital can be part of the ICG. The role of the ICGis to maintain the health facility operational in case of emergencies or disasters.

In none of the hospitals such a group was in place which means that in case of a sudden emergency, the decisions could not be taken in order to keep the hospital operational

Command and Control					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	POOR	

COMMUNICATION

Communication can be sub-divided into Internal and External Communication. Internal communication is the aims two-way communication between hospital staff, different sections and departments of the hospitals and a one-way communication from the hospital to inpatients, patients and visitors.

External communication is about the capacity of the hospital to communicate with authorities, hospitals, emergency services, suppliers etc. outside of the hospital.

While external communication plays a major role during large scale disasters.
In 4 out of 5 hospitals where the audit was conducted the hospital staff communicates mainly with phones and cell phones among each other. In none of the hospitals there was a system of speakers installed for internal communication. Thiskind of situation will lead to chaos and create unmanageable situation during emergencies since hospital staffs would not be able to communicate and transfer message across the all hospital staffs.

Furthermore there is no back up communication system in place. cell phones may not work during disasters. One of the positive aspect noted was that **in 4 of the 5 hospitals,person has**

been nominated to communicate with the external agencies, authorities, media and other hospitals.

Communication					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	AVERAGE	

SECURITY

For an ongoing and safe operation of the hospital there must be a security team in place. The task of the security team is to protect hospital staff and patients, limit the accessibility of restricted areas and keep order and control inthe hospital in normal and emergency situations. The numberof security staff must be according to the size of the hospital but even a small hospital must have security staff in place.

In 4 out of 5 visited hospitals there was no security team or insufficient security staff were in place.

This situation exposes all living and nonliving aspects of the hospital at risk.

Security					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	POOR	

TRIAGE

Triage is a procedure for segregation of patients at the site of the incident in the event of mass causality and for giving priority to patients in case of a sudden increase in patients in the hospital .In all the 5 hospitals no training had been conducted on TRIAGE procedure. Some nurses and doctors were aware of the procedure but did not have a deeper knowledge about the specific procedure in emergency situations.

The risk of not having personnel trained with the TRIAGE procedure is that in case of a sudden increase of patients, there may be delay in treating seriously injured patient leading to loss of life or damage of vital organs.

Triage					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				

1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	POOR	

LOGISTICS AND SUPPLY MANAGEMENT

For ensuringa safe environment of the hospital and best working and healing conditions for staff and patients respectively, it is important that aspects such as logistics and availability medicines and chemicals are handled appropriately.

In all the 5 hospitals in which the survey was conducted there was an updated inventory of equipment and supplies and pharmaceuticals.

Chemicals and hazardous substances were stored by trained personnel and stored according to a rotating inventory list but in none of the hospitals an actual plan was prepared which specifies the procedures. A plan is important in order to keep the same procedures over time when employees might change.

(Stored medicines at the Jakhalabanda FRU hospital)

Logistics and Supply Management					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	GOOD	

ANCHORING

Earthquakes are a major threat to hospitals. Though the biggest threat is damage to hospital

structure such as the walls and ceiling collapse but the non- structural risks (like falling/ displacement of equipment, falls ceiling, etc.) can't be overlooked.

It is therefore important that all nonstructuralitems of the hospital which has potential risk to life and injuriesin case of earthquake are well attached and anchored to walls and ceilings. Loose switchboards and hanging electric wires are also another important concern to be taken care of.

In the hospitals which were visited no such anchoring of any assets was in place, exposing the staff, patients and visitors to an increased risk.

(un-anchored new born beds in the Nagaon Civil Hospital)

Anchorage					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				

3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	Poor	

FIRE

Fire can cause extensive damage to hospital and may also result in casualty. Its smoke and flames can kill people, destroy assets and make the hospital partly or entirely out of operation. The danger of Fire is that a small flame can result in a major fire outburst if not handled immediately and appropriately.

It is therefore important that all kinds of fire prevention should be in place and all the staffs are trained to handle the equipment in case of emergencies.

Fire Alarms

In none of the hospitals fire alarm was in place which would turn on automatically in case of smoke or fire

Sprinkler Mechanism

A sprinkler mechanism is a system which is attached to the ceiling and releases a fountain of water which can extinct fires. Ideally the sprinkler mechanism is connected to the fire alarm and turns on automatically in case a fire is detected.
In the five hospitals audited in the Nagoya district no sprinkler alarm system were in place. Sprinkler alarms are important in situations where bigger areas are on fire and especially at night when the visibility is reduced.

Fire Extinguishers

In 4 of the 5 hospitals there were at least 5 working fire extinguishers in place.

The downside is that in most of the cases the staff was not trained on the use of the fire

extinguishers which gives a false impression of security because there are fire extinguishers but no one is trained to use them at the time of need.

(Working fire extinguisher at the Jakhalabanda FRU hospital)

Mock Drills

Mock Drills are practice/ rehearsals which are held in order to test the emergency plan and prepare employees for emergency situations. Mock Drills simulate a real life situation where a hospital needs to be evacuated or a fire extinct.

In none of the hospital Mock drills are held on a regular basis, leaving the staff unprepared in case of an emergency related to fire.

Fire					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				

5	Kapili hospital and research center				
			Overall:	AVERAGE	

EVACUATION

Evacuations are complex procedures. Parts of a structure or the entire structure can be evacuated and often mistakes can bring serious fatalities. In order to be able to conduct successful evacuations; evacuation plans must be designed. Evacuation plans must not only cover the evacuation procedure but also aspects such as the decision whether to evacuate or not and the procedure to relocate the evacuated people. Such evacuation procedures must be tested in mock drills on a regular basis. Evacuations can save lives but can augment danger if not done properly. In case of an emergency when people from inside the hospital would have to be evacuated the risk of stampede and further injuries are more inhospitals.

None of the hospitals in which the audit was conducted had an evacuation plan and no personnel was trained in evacuation procedures.

Evacuation					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	POOR	

HEATING, COOLING, VENTILATION SYSTEM

Adequate ventilation and controlled temperature are essential in creating healthy environment for efficient working of staff and rapid & smooth recovery of patients.

In general the temperature in the audited hospitals was comfortable and there was sufficient air ventilation. On the other hand it must be said that it was found that hospital staff did not wear their uniforms due to high temperatures during summer which leads to the conclusion that the temperature is not adequate for an efficient functioning of the hospital.

Heating, cooling and ventilation system					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	AVERAGE	

ELECTRICITY

Different functions and machines of a hospital depend on a constant and continuous supply of electricity. In small and large scale disasters the electricity supply can go off. In order to guarantee the smooth functioning of the hospital a constant power supply must be assured, meaning that in case of a power failure, alternative arrangements in form of the emergency generators or inverters must be available.

Furthermore electrical panels and wires which are not installed properly can create a risk to people in the hospitals as they can create injuries due to electrical shocks and fires.

In most of the visited hospitals no exposed wires which could create danger were found. Most hospitals did have an emergency power generator in place which could at least provide the essential aspects of the hospital with electricity.

(Electricity wires in unsafe conditions at the Jakhalabanda FRU hospital)

Electricity					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	VERY GOOD	

SURGE CAPACITY

Surge Capacity is the capacity of a hospital to cope with a sudden increase in no. of patients. It is important that a hospitals designed with coping methods beforehand in order to be prepared when the above mentioned situation occurs.

One of the most important aspects of Surge Capacity is to design an area which can rapidly be converted into a space where patients can be treated. Furthermore methods to augment patient transport systems and increase hospital staff must be planned.

In all hospitals which were audited it was found that hospitals have not designated any areas/ portion of the hospital for accommodating patients in case of sudden increase in number of patients which would exceed the regular hospital capacity.

The risk of not having such an area is that in case of a sudden increase not all patients can be treated which can lead to an aggravation of injuries and lead to death.

Surge Capacity					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	AVERAGE	

LIGHTING

The section 'Lighting' refers to aspects of luminosity, visibility and Emergency lighting.

It is important that all important transit areas of the hospital are constantly illuminated for the people who are in the hospital. Reduced visibility can lead to injuries. In case of a power cut the exits must be indicated with florscent signs. All lamps in the hospital must be working and someone must be responsible for checking them and replacing them if necessary.

None of the five hospitals in Nagoda had illuminated EXIT signs which can be a risk in case of an evacuation during a situation of reduced luminosity such especially in night.

In the audited hospitals all lamps were working and one person was responsible for checking and replacing them.

(*Working lamp at night at the Jakhalabanda FRU hospital)*

Lighting					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	GOOD	

WATER&FOOD

Constant supply of clean water and food is always necessary to assure the safety and wellbeing of hospital inmates.

Even in emergency situations a constant water supply must be granted.

In all hospitals it was found that there was enough water supply for the inmates and that there was a reserve. In 4 of 5 hospitals there was an alternative water supply.

Water & food					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	VERY GOOD	

MEDICAL GASES

Medical gases such as compressed oxygen are necessary for treatment and are common assets in hospitals. Therefore it is necessary that regular supply and reserve of medical gases is maintained.

Medical gases can also be a threat when not stored and handled properly, it is therefore necessary that aspects such as handling, storage and supply of medical gases are efficiently planned.

In all hospital there was sufficient amount of medical gases stored which would be able to supply the hospital for at least 15 days. In all cases the medical gases were stored in safe dry

rooms but were never anchored and mostly kept on the floor, which in case of an earthquake may roll around and can be a potential threat.

Furthermore it was found that the hospitals have no alternative source of medical gases available in case there would be a shortage in supply of medical gases due to a large scale emergency.

(Medical gases which were not stored appropriately at the Nagon Civil Hospital)

Medical Gases					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				

Overall:	AVERAGE

WASTE TREATMENT

In a hospital different kinds of waste are created each day by patients, visitors, housekeeping staff, doctors. One of the waste is called medical waste which has to be handled appropriately due to safety reasons. In order to manage hospital waste Waste Management Manual must be followed.

Fortunately in all 5 hospitals which were checked there was a manual for waste management which was followed by the hospital staff.

(Garbage bins for separated types of waste in the Hojai FRU hospital)

Waste Treatment					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	VERY GOOD	

HYGIENE

Hygiene is one of the major challenges but most important aspects of each health facility. It is extremely important that all areas of the hospital are as sterile as possible in order to create the best possible working and healing environment for patients. This is a major challenge as large number of sick people visit the hospital everyday creating an unhygienic environment.

It is therefore necessary that hospital should take all the measures to ensure hygiene in the hospital.

Even though the staff members of all hospitals knows about and uses the right procedure for decontamination; the hygiene conditions in the hospitals were alarming.

Animals were found roaming in the hospitals corridors and roads as there is no check on the movements of entry of animals in the hospitals.

Wash rooms were found unhygienic and dirty and in most of the cases there was no soap in place.

Even though there are dust bins in many places but were dusty, unclean and full.

(Toilet in unhygienic conditions at the Dhing FRU hospital)

(Wash room sink without hand wash liquid at Nagaon Civil Hospital)

(Dogs inside the Dhing FRU Hospital)

Hygiene					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	AVERAGE	

HUMAN RESOURCES

In order to keep the hospital efficient and operating even under extreme situations it is essential that the human resources of the hospital are well organized and supervised accordingly.

It was found that the organization and supervision of the human resources is well organized in all hospitals.

One aspects which requires to be considered is lack of immunization procedure for staff members in 2 out of 5 hospitals.

Human Resources					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	District Civil Hospital				
2	Jakhalabandha FRU				
3	Hojai FRU				
4	Dhing FRU				
5	Kapili hospital and research center				
			Overall:	GOOD	

3.1.3 Best aspects of each hospital

Kapili Hospital & Research Center:

- Good practice of Bio-medical waste management found in existence (Tie-up with 'Fresh Air', Guwahati)
- Hospital administrators were found with willingness to co-operate
- Sufficient space for emergency surge capacity.
- Multiple accessible exits.

B.P. Civil Hospital:

- Hospital Administrators were found pro-active and co-operating
- Good number of human resource trained in Disaster Management
- Multiple accessible exits
- Well placed ramps with the stairs in alternate exit
- Signage and banners with prohibitory guidelines (e.g. No smoking, Restricted Entry, Do not Spit etc.) were found in place in different locations.

Dhing FRU:

- Multiple accessible exits
- Well connected to main road.
- Signage and banners with prohibitory guidelines (e.g. No smoking, Do not Spit etc.) were found in place in different locations.
- Sufficient space for emergency surge capacity.

Jokholabandha FRU:

- Good Co-ordination found with Fire and Police Department
- Sufficient space for emergency surge capacity.
- Multiple accessible exits
- Well connected to main road.

Hojai FRU:

- Well connected to main road
- Multiple accessible exits
- Signage and banners with prohibitory guidelines (e.g. No smoking, Do not Spit etc.) were found in place in different locations.
- Alternate arrangement for water supply found in existence (Hand Pumps)

3.1.4Conclusion and Recommendations

From the analysis of the data which was collected in the five hospitals in the Nagaon district in Assam several considerations at different levels can be made on non-structural safety aspects.
From the data analysis it was found that there are positive and negative aspects in all the five hospitals.

Most of the issues identified are due to a mindset and not due to lack of resources. Aspects such as hygiene for instance are often not very costly to address but are in most cases not given enough attention to due to reasons not related to financial means.

Another aspect which seems to have been neglected in the government hospitals in Assam is the efficient supervision of everything which happens in the hospital. In order to do so the hospital must keep all patients, staff and visitors supervised at all times in order to know who is doing what inside the hospital. This is especially necessary in situations of increased stress such as disaster scenarios and emergencies. Security staff is one of the aspects of control. Even in smaller, one story building hospitals it is necessary to have adequate security staff in place. Security staff assures that human life and hospital assets are protected against threats of destruction and damage. Furthermore security staff is necessary to guarantee law and order especially in emergency situations or mass causalities.

The problem in many health facilities is that the staff is not properly trained to recognize underlying risk factors. It is important that the people who work in the hospital are able to recognize threats which might not seem very serious but which might turn into catastrophic factors in emergency situations. Obstructed corridors which were a common sight in the hospitals are examples of this kind of indirect threat as they might only be perceived as reduced space but in case of an emergency where the life of a patient depends on the time it take to bring him from one hospital department to another might be a major threat.

Another important aspect of Nonstructural safety which has been widely neglected in the hospitals in Assam is the aspect of ‘Evacuation’. Evacuating is a procedure which is done in case of immediate threat but must be planned in order to be conducted efficiently without exposing people to increased threats. In none of the five hospitals in which the audit was conducted there was a planned evacuation procedure in place which includes the different aspects of evacuation such as evacuation decision and evacuation relocation and is regularly tested with the conduction of mock drills.

Main general issues of hospitals the Nagaon district

- Hygiene
- Security
- Obstructionsin important areas
- Entry control
- Anchorage
- Fire safety
- Evacuation preparedness
- Triage

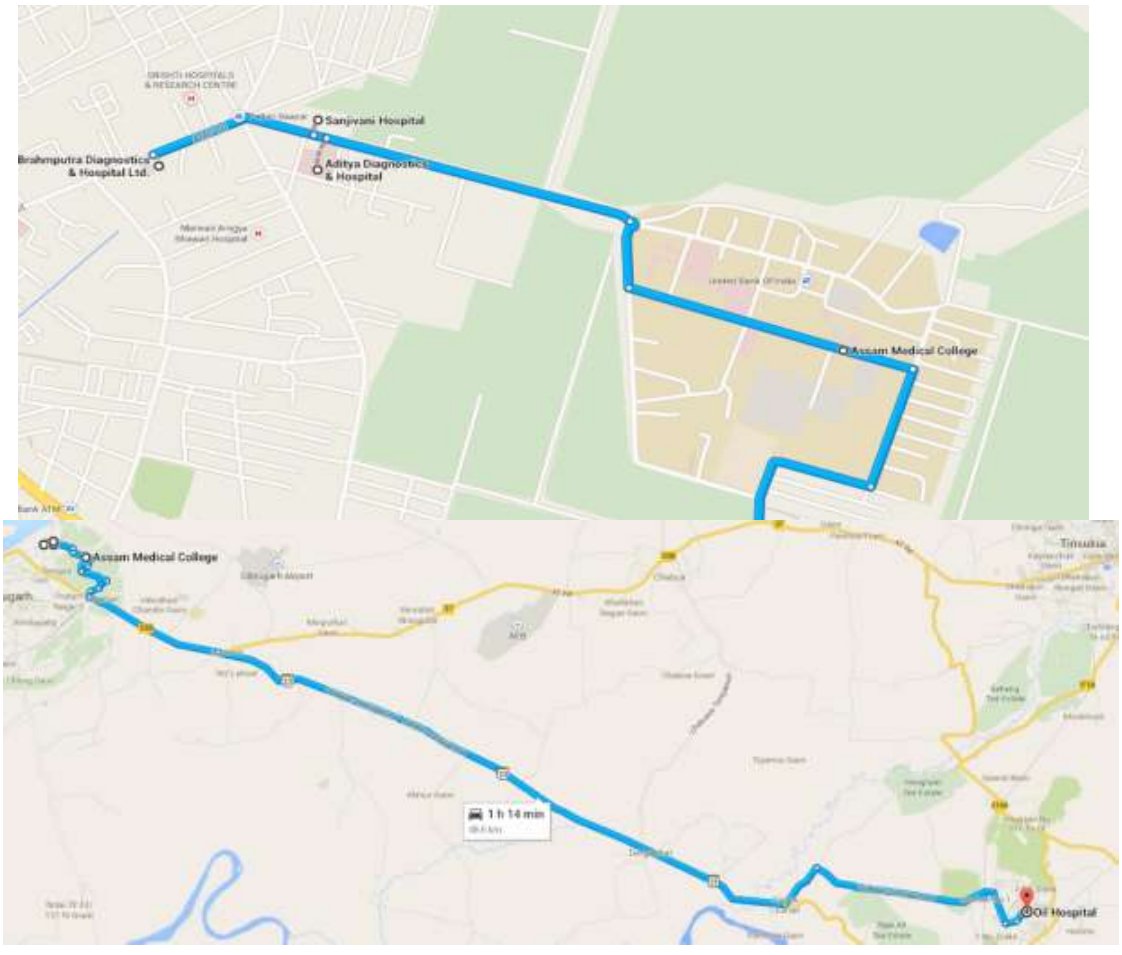
RECCOMMENDED ACTION POINTS

- Educate staff about problems/Benefits of Hygiene and initiate regular Hygiene checks
- Install enough security systems and train and equip security staff appropriately especially focusing on disasters/emergencies
- Clear areas from obstruction and nominate a person to regularly check these obstructions
- Install an entry check and method for tagging visitors and making them identifiable and distinguishable from staff and patients
- Attach/anchor all critical items to walls and ceilings
- Prepare evacuation plans and conduct trainings. Training of hospital administrators on mass causality management and triage can be organized.

3.2 DIBRUGARH DISTRICT

Dibrugarhis a city, and the headquarters of Dibrugarh district, in Assam India. It is the second largest city of Assam. It is the one of the largest cities of Assam. The district of Dibrugarh, having only one sub-division, is situated in the eastern part of Assam. Dibrugarh is an important city of Assam along with Guwahati, Jorhat, and Silchar, and it is one of the more affluent districts of Assam. Dibrugarh district is surrounded by Dhemaji district in the north and a part of Lakhimpur district in the north-west, part of Sivasagar district to the west and Tinsukia district in the East. As per 2011 census, Dibrugarh had population of 1,327,748 of which male were 680,114 and female were 647,634 .According to 2001 census, Dibrugarh had a population of 1,185,072 of which males were 613,555 and remaining 571,517 were females[15].

Dibrugarh is also known as the medical town of Assam. The first medical college of Assam, ASSAM MEDICAL COLLEGE AND HOSPITAL was established in Dibrugarh during British era. Formerly it was known as Berry White Medical College. Also, there is a proposal to establish a nursing college in the AMCH premises. There are large number of nursing homes and diagnostic centres offering ultra-modern facilities.



[15] http://www.census2011.co.in/census/district/149-dibrugarh.html

3.2.1 Hospital Profiles

The five hospitals in the Dibrugarh district in which the audit was conducted are the following:

Brahmputra Diagnostics& Hospitals Ltd.

Sr.No.	General Information about Hospital	
1	Date of Survey	5th July 2014
2	Hospital Name	Brahmputra Diagnostics& Hospitals Ltd.
3	Hospital ID no/Registration no.	SHA/159
4	Date of construction	Not known
5	Address	Paltan Bazar, P.O.Jalan Nagar, Dibrugarh
6	Contact Details	Dr.Mridul Hazarika
7	Total number of beds	110
8	occupancy rate in normal situation	90%
9	Total number of staff:	286
	a. Doctors	20
	b. Nurses	133
	c. Consultants	5
	d. Paramedics	3
	e. Secretaries	0
	f. Security staff	6
	g. House keepers	1
	h. others	118
10	How many storeys	5
11	List of all departments	1.Medicine 2.General Surgery 3.ENT 4.Orthalmology 5.Urology 6.Neuro surgery 7.ICU 8.Pediatrics 9.Obst. & Gynac

Oil India Limited Hospitals

Sr.No.	General Information about Hospital	
1	Date of Survey	10th July
2	Hospital Name	Oil India Limited Hospitals
3	Hospital ID no/Registration no.	
4	Date of construction	Establishment 1963
5	Address	PO-Duliajan, Oil India Limited, Dibrugarh, 786602
6	Contact Details	0374-2806361. 2800505
7	Total number of beds	190
8	occupancy rate in normal situation	150
9	Total number of staff:	
	a. Doctors	
	b. Nurses	45
	c. Consultants	
	d. Paramedics	46
	e. Secretaries	
	f. Security staff	70
	g. House keepers	18 (Sanitary Cleaners)
	h. others	50 on pay roll, ward boy-11, cook-5, Pharmacist-8, Office Staff-11
10	How many storeys	Assam Type (only OT and OPD are G+1)
11	List of all departments	1. Medicine 2. Surgery 3. Obstratic and Gynaecology 4. Opthalmology 5. ENT 6. Radiology 7. Pathology 8. Paediatrics 9. Physiotherapy 10. Dentist 11. Occupational Health 12. Department of visiting consultants

Assam Medical College and Hospitals

Sr.No.	General Information about Hospital	
1	Date of Survey	7th & 9th July 2014
2	Hospital Name	Assam Medical College and Hospitals
3	Hospital ID no/Registration no.	
4	Date of construction	11-03-1947
5	Address	ASSAM MEDICAL COLLEGE, Barbari, Dibrugarh, Assam, PIN - 786 002
6	Contact Details	0373- 2300080, 2300352
7	Total number of beds	1365
8	occupancy rate in normal situation	1200
9	Total number of staff:	
	a. Doctors	1150
	b. Nurses	298
	c. Consultants	227 (General), 111 (NRHM)
	d. Paramedics	Laboratory Technician-15, Radiographer-8
	e. Secretaries	0
	f. Security staff	74
	g. House keepers	101
	h. others	316 (Ward Boy-275 and Ward Girls-41)
10	How many storeys	3
11	List of all departments	1. Medicine, 2. Cardiology, 3. TB and Chest Diseases, 4. Dermatology, 5. Psychiatry, 6. Paediatrics, 7. Surgery, 8. Orthopaedics, 9. Plastic Surgery, 10. ENT, 11. Ophthalmology, 12. Obsttratics and Gynaecology, 13. Anaesthesiology, 14. Dentistry, 15. Radio-Diagnosis, 16. Radio Therapy, 17. Neurology. 18. Physical Medicine Rehabilitation, 19. Anatomy, 20. Physiology, 21. Micro Biology, 22. Pathology, 23. Pharmacology, 24. FSM, 25. SPM, 26. Causality,

		27. Medical Record Department

Aditya Diagnostics and Hospitals

Sr.No.	General Information about Hospital	
1	Date of Survey	8th July 2014
2	Hospital Name	Aditya Diagnostics and Hospitals
3	Hospital ID no/Registration no.	SHA 51
4	Date of construction	1998
5	Address	Bordoloi Avenue, Paltan Bazar, AMC Road, Dibrugarh, 786005
6	Contact Details	0373-2302219, 2302227
7	Total number of beds	190
8	occupancy rate in normal situation	60%
9	Total number of staff:	
	a. Doctors	49
	b. Nurses	134
	c. Consultants	19
	d. Paramedics	12
	e. Secretaries	0
	f. Security staff	20
	g. House keepers	9
	h. others	270
10	How many storeys	G+3 (Main Building), G+5 Annex building
11	List of all departments	1. Medicine 2. General Surgery 3. Neurology 4. Neurosurgery 5. Paediatrics 6. Obstetrics and Gynaecology 7. Ophthalmology 8. ENT 9. Dermatology 10. Obstetrics and Gynaecology 11. Clinical laboratory 12. X-Ray 13. USG 14. CT Scan 15. MRI 16. Physiotherapy

Sanjivani Diagnostics and Hospitals

Sr.No.	General Information about Hospital	
1	Date of Survey	4th July 2014
2	Hospital Name	Sanjivani Diagnostics and Hospitals Mobile-9706358043
3	Hospital ID no/Registration no.	SHA 156
4	Date of construction	2005
5	Address	Bordoloi Avenue, Paltan Bazar, AMC Road, Dibrugarh, 786005
6	Contact Details	0373-2303448
7	Total number of beds	75 (110 operational based on need)
8	occupancy rate in normal situation	60
9	Total number of staff:	
	a. Doctors	8
	b. Nurses	27
	c. Consultants	26
	d. Paramedics	132
	e. Secretaries	0
	f. Security staff	15
	g. House keepers	5
	h. others	18 including office and reception staff
10	How many storeys	G+5

11	List of all departments	1. Medicine 2. General Surgery 3. Ophthalmology 4. ENT 5. Paediatrics 6. Dermatology 7. Psychiatry 8. Neurology 9. Neurosurgery 10. Obstetrics and Gynaecology 11. Urology 12. Orthopaedics 13. Radiology 14. Pathology 15. Physiotherapy 16. ICU

3.2.2 Section wise findings

GENERAL SAFETY

Accessibility:

It was observed that all 5 hospitals of the Dibrugarh district were easily accessible as they were placed at well maintained city roads and therefore accessible to all kinds of vehicles.

Obstruction of important areas:

In 3 of the 5 hospitals it was found that important and vital areas such as corridors leading to various departments were often obstructed. The corridors were obstructed with different kinds of clutter including hospital beds and or people and animals.

It is extremely important that all such areas are easily accessible, especially in emergency situations when a rapid displacement of patients or hospital staff is necessary and vital for hospital and people of the hospital.

(Assam Medical College)

Uniforms/Physical recognition of staff

In all 5 audited hospitals, nurses and doctors always wearing uniforms.

Ina hospital, uniform is important since staff is clearly identifiable in emergencysituation.

Restriction of areas

In all the five audited hospitals important areas were restricted by signs specifying that the entrance to those areas was allowed only for hospital staff. In hospitals one of the main threats can be the lack of unrestricted movement; therefore it is importance that important areas are safe and movement is restricted for strangers.

Restriction to enter certain areas like emergency ward, operation theatre is also essential for smooth management of patients and prevention of spread of infection and stress to staff. For reasons such as terrorism, epidemics, theft, violence and general overview it is important to have check at each entry of the hospital where entrants are labeled according to their role and made recognizable as such (for instance with different tags for visitors, patients, in-patients,

staff, doctors)

General Safety					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	AVERAGE	

COMMAND AND CONTROL IN EMERGENCIES

The importance of a specifically designed and installed Incident Command Group (ICG) has been proven significant in health facilities all over the world.

Persons with different roles in the hospital can be part of the ICG. The role of the ICG is to maintain the health facility operational in case of emergencies or disasters.
In none of the hospitals such a group was in place which means that in case of a sudden emergency the decisions could not be taken in order to keep the hospital operational.

Command and Control					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	POOR	

COMMUNICATION

Communication can be sub-divided into Internal and External Communication. Intercommunication is the aims two-way communication between hospital staff, different sections and departments of the hospitals and a one-way communication from the hospital to inpatients, patients and visitors.

External communication is about the capacity of the hospital to communicate with authorities, hospitals, emergency services, suppliers etc. outside of the hospital.

While external communication plays a major role during large scale disasters.

In all the five hospitals different communication channels such as phones and speakers were used.Hospitals in the Dibrugarh district use different communication channels to inform different areas of the hospitals at all times for different reasons.

Furthermore most of the hospitals which were audited in that district have a backup communication system in form of walkie-talkies which can be used in emergency situations when other communication systems collapse.

In 4 of the 5 hospitals, a person has been designated to communicate with the external agencies, authorities, media and other hospitals. Communication					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	VERY GOOD	

SECURITY

For an ongoing and safe operation of the hospital there must be a security team in place. The task of the security team is to protect hospital staff and patients, limit the accessibility of restricted areas and keep order and control of the hospital in normal and emergency situations.

The number of security staff must be according to the size of the hospital but even a small hospital must have security staff in place.

In all five audited hospitals there was a security team in charge. In four of the five hospitals the number of security guards was sufficient to ensure the safety and security of staff, patients and hospital assets.

(Security staff at OIL hospital)

Security					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	GOOD	

TRIAGE

Triage is a procedure for segregation of patients at the site of the incident and for giving priority to patients in emergency situations. In case of a sudden increase in inpatients in the hospital for instance due to a terrorist attack the medics must decide upon whom to treat first and be able to segregate patients using identification tags accordingly medical services would

be provided.

In 3 of the five hospitals TRIAGE training was conducted in 2013 while in the rest2 hospitals training was conducted only once. Even though Triage training was conducted there were no designed procedures related to triage such as identification/ tagging and a hospital area which was designed for the triage procedure.

The risk of not having personnel trained with the TRIAGE procedure is that in case of a sudden increase of patients, the wrong patients are treated first which can lead to an increase of injuries and loss of life.

Triage					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	GOOD	

LOGISTICS AND SUPPLY MANAGEMENT

For ensuring a safe environment of the hospital and best working and healing conditions for staff and patients it is important that aspects such as medicines and chemicals are handled appropriately.

In all the 5 hospitals in which the survey was conducted there was an updated inventory of equipment and supplies and pharmaceuticals.

Chemicals and hazardous substances were stored by trained personnel and stored according to a rotating inventory list.

Logistics and Supply Management					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	VERY GOOD	

ANCHORING

Earthquakes are a major threat to hospitals. Though the biggest threat is damage to hospital structure such as the walls and ceiling collapse but the non- structural risks (like falling/ displacement of equipment, falls ceiling, etc.) can’t be overlooked.
It is therefore important that all nonstructuralitems of the hospital which has potential risk to life and injuriesin case of earthquake are well attached and anchored to walls and ceilings.

In the hospitals which were visited no such anchoring of any assets was in place, exposing the staff, patients and visitors to an increased risk of being hit by objects which could fall

down in normal and emergency situations such as earthquakes.

Anchorage					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	POOR	

FIRE

Fire can cause extensive damage to hospital and may also result in casualty. Its smoke and flames can kill people, destroy assets and make the hospital partly or entirely out of operation. The danger of Fire is that a small flame can result in a major fire outburst if not handled immediately and appropriately.

It is therefore important that all kinds of fire prevention should be in place and all the staffs are trained to handle the equipment in case of emergencies.

Fire Alarms

In 3 of the 5 hospitals there was an automatic fire sensor connected to an alarm was in place. The other two hospitals which are government hospitals have no such smoke detector and fire alarm in place. They are though relatively closely located to fire stations.

Sprinkler Mechanism

A sprinkler mechanism is a system which is attached to the ceiling and releases a fountain of water which can extinct fires. Ideally the sprinkler mechanism is connected to the fire alarm and turns on automatically in case a fire is detected.

In the five hospitals audited in the district no sprinkler alarm system were in place. Sprinkler alarms are important in situations where bigger areas are on fire and especially at night when the visibility is reduced.

Fire Extinguishers

In 5 of the 5 hospitals there were at least 5 working fire extinguishers in place.

The downside is that in most of the cases the staff was not trained on the use of the fire extinguishers which gives a false impression of security because there are fire extinguishers but no one is trained to use them. In fact only in 1 of the 5 hospitals training had been conducted in the past in which staff were taught how to use fire extinguishers.

Mock Drills

Mock Drills are practice/ rehearsals which are held in order to test the emergency plan and prepare employees for emergency situations. Mock Drills simulate a real life situation where a hospital needs to be evacuated or a fire extinct.

In only one of the five hospitals such a fire mock drill was held on a regular basis by the fire department. In the other hospitals the staff was left unprepared

Fire					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	AVERAGE	

EVACUATION

Evacuations are complex procedures. Parts of a structure or the entire structure can be evacuated and often mistakes can cause serious fatalities. In order to be able to conduct successful evacuations evacuation plans must be designed. Evacuation plans must not only cover the evacuation procedure but also aspects such as the decision whether to evacuate or not and the procedure to relocate the evacuated people. Such evacuation procedures must be tested in mock drills on a regular basis. Evacuations can save lives but can augment danger if not done properly.

None of the hospitals in which the audit was conducted had an evacuation plan and no personnel were trained in evacuation procedures.

In case of an emergency when people from inside the hospital would have to evacuate the risk of stampede and increased injuries can increase in these hospitals.

Evacuation					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	POOR	

HEATING, COOLING, VENTILATION SYSTEM

In order to create a good environment in which hospital staff can work efficiently and sick patients can heal rapidly it is important that there is enough clean air in the hospital and that the temperature is comfortable. In case those situation is not met there will be an environment in which healing processes are slowed down and even aggravate.

In the hospitals in the Dibrugarh district which were audited in summer 2014 it was found that the temperature was stable and permitted a favorable healing and working environment.

Heating, cooling and ventilation system					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	VERY GOOD	

ELECTRICITY

Different functions and machines of a hospital depend on a constant and continuous supply of electricity. In small and large scale disasters the electricity supply can go off. In order to guarantee the operation of the hospital a constant power supply must be assured, meaning that in case of a power cut of the regular supply, emergency generators must be in place.

Furthermore electrical panels and wires which are not installed properly can create a risk to people in the hospitals as they can cause injuries due to electrical shocks and fires.

In all the visited hospitals, no exposed wires which could create danger were found.
The hospitals have an emergency power generator in place which cancan run

lifesavingmachines. The emergency generators had to be turned on manually in case of need.

Electricity					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	VERY GOOD	

SURGE CAPACITY

Surge Capacity is the capacity of a hospital to cope with a sudden increase of patients. It is important that a hospital designed coping methods beforehand in order to be prepared when the above mentioned situation occurs.
One of the most important aspects of Surge Capacity is to design an area which can rapidly be converted into a space where patients can be treated. Furthermore methods to augment patient transport systems and increase hospital staff must be planned.

In all hospitals which were audited it was found that hospitals have not designated any areas/ portion of the hospital for accommodating patients in case of a sudden increase in number of patients which would exceed the regular hospital capacity. Some of the hospitals are in contact which other health facilities which are located nearby on the same street ad can therefore partially cope with an increase of patients even though there is no defined plan and therefore coordination will not be smooth.

The risk of not having such an area designed in a plan is that in case of a sudden increase not all patients can be treated which can lead to an aggravation of injuries and lead to death.

Surge Capacity					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	POOR	

LIGHTING

The section 'Lighting' refers to aspects of luminosity, visibility and Emergency lighting. It is important that all important transit areas of the hospital are constantly illuminated for the people who are in the hospital. Reduced visibility can lead to injuries. In case of a power cut the exits must be indicated with florescent signs. All lamps in the hospital must be working and someone must be responsible for checking them and replacing them if necessary.

None of the five hospitals in Dibrugarh had illuminated EXIT signs which can be a risk in case of an evacuation during a situation of reduced luminosity in night.

In the audited hospitals all lamps were working and one person was responsible for checking and replacing them.

Overall the hospital was well illuminated but lacked important lighted assets such as luminous exit signs.

Lighting					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	AVERAGE	

WATER&FOOD

Constant supply of clean water and food is often necessary to assure the safety and wellbeing of hospital inmates.

Even in emergency situations a constant water supply must be ensured.

In all hospitals it was found that there was enough water supply for the hospital inmates and that there was a reserve. In 4 of 5 hospitals there was an alternative water supply.
In the hospitals which were audited in the Dibrugarh district it was observed that the water supply was sufficient and in most cases there was an alternative to water supply but it was not always clear how and when the maintenance was carried out.

Water & food					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	VERY GOOD	

MEDICAL GASES

Medical gases such as compressed oxygen are necessary for treatment and are common assets in hospitals. Therefore it is necessary that regular supply and reserve of medical gases is maintained. Medical gases can also be a threat when not stored and handled properly, it is therefore necessary that aspects such as handling, storage and supply of medical gases are planned.

In all hospital there was sufficient amount of medical gases stored which would be able to supply the hospital for at least 15 days. In all cases the medical gases were stored in safe dry rooms but were never anchored and mostly kept on the floor which in case of an earthquake may roll around and can be a potential threat.

Furthermore it was found that the hospitals have no alternative source of medical gases available in case of shortage in supply of medical gases due to large scale emergency.

(Brahmaputra Hospital)

Medical Gases					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	AVERAGE	

WASTE TREATMENT

In a hospital different kinds of waste are created each day by patients, visitors, housekeeping staff, doctors. One of the waste is medical waste which has to be handled appropriately due to safety reasons. In order to manage hospital waste a Waste Management Manual must be followed.

In all 5 hospitals which were checked there was a manual for waste management which was followed by the hospital staff.

Waste Treatment					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	VERY GOOD	

HYGIENE

Hygiene is one of the major challenges but most important aspects of each health facility. It is extremely important that all areas of the hospital are as sterile as possible in order to create the best possible working and healing environment for patients. This is a major challenge as large number of sick people visit the hospital everyday creating an unhygienic environment.

It is therefore necessary that hospital should take all the measures to ensure hygiene in the hospital.

Even though the staff of all the hospitals knows about and uses the right procedure for decontamination the hygiene conditions in the hospitals were alarming.

Wash rooms were found unhygienic and dirty and in most of the cases there was no soap for hand washing.

(Assam Medical Hospital)

Hygiene					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	AVERAGE-GOOD	

HUMAN RESOURCES

In order to keep the hospital efficient and operating even under extreme situations it is essential that the human resources of the hospital are well organized and supervised accordingly.It was found that the organization and supervision of the human resources is well organized in all hospitals.

Human Resources					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Sanjivani Diagnostic Hospital, Dibrugarh				
2	Brahmaputra Diagnostic Hospital, Dibrugarh				
3	Aditya Diagnostic Hospital, Dibrugarh				
4	OIL Hospital, Duliajan				
5	Assam Medical Collage and Hospital (AMCH), Dibrugarh				
			Overall:	VERY GOOD	

3.2.3 Best Aspects of each Hospitals

OIL India Hospital

1. It is an ISO 9001:2000, ISO 14001-2004 & OHSAS 18001-2007 Certified and maintains standard as per certification in many fields.
2. The Hospital has multiple evacuation options and plenty of open space.
3. There are OIL engineering and fire fighting facilities within 200 meters of the hospital
4. The team of Doctors and Paramedics are pro-active and interested for safety of the hospital
5. There is a Hospital evacuation map in the entrance for information of all
6. All directions and locations are distinctly and visibly marked
7. The Hospital has regular refilling of fire extinguishers and dates are mentioned on each cylinder

Assam Medical College& Hospital

1. A huge medical facility with good physical infrastructure.
2. Trained and qualified manpower for emergency requirement.
3. Decentralized facilities and scope of work.
4. Sufficient available medicine and other resources for dealing with emergency situations.

Sanjivani Diagnostics and Hospital

1. Adequate fire safety measures with hose pipes installed floor-wise
2. Multiple accessible exits
3. Well placed ramps with the main staircase
4. Good practice of Bio-medical waste management found in existence
5. Sufficient space for emergency surge capacity.

Aditya Diagnostics & Hospital

1. Pro-active Hospital administrators.
2. Practice of Mock drill found with record keeping and maintaining liaison with fire department.
3. Adequate fire safety measures with water hose pipes installed floor-wise.
4. Fire alarm installed floor-wise.
5. Multiple accessible exits.
6. Good practice of Bio-medical waste management found in existence.
7. Signage and banners with prohibitory guidelines (e.g. No smoking, Restricted Entry, Do not Spit etc.) were found in place in different locations.

Brahmaputra Diagnostics & Hospital

1. Hospital administrators were found with willingness to co-operate.
2. Adequate fire safety measures with water hose pipes installed floor-wise.
3. Good practice of Bio-medical waste management found in existence.
4. Fire alarm installed floor-wise.
5. Multiple accessible exits.
6. Signage and banners with prohibitory guidelines (e.g. No smoking, Restricted Entry, Do not Spit etc.) were found in place in different locations.

3.2.4 Conclusion and Recommendations

From the data analysis of the five hospitals in the Dibrugarh district in Assam it was found that there are positive and negative aspects in all the five hospitals.

Most of the issues identified are due to a mindset and not due to lack of resources. Aspects such as hygiene for instance are often not very costly to address but are in most cases not given enough attention to due to reasons not related to financial means.

Another aspect which seems to have been neglected in the hospitals in Assam is supervision of everything which happens in the hospital. In order to do so the hospital must keep all patients, staff and visitors supervised at all times in order to know who is doing what inside the hospital. This is especially necessary in situations of increased stress such as disaster scenarios and emergencies. Security staff is one of the aspects of control. Even in smaller, one story building hospitals it is necessary to have enough security staff in place. Security staff assures that human life and hospital assets of the hospitals are protected against threats of destruction and violence. Furthermore security staff is necessary to guarantee law and order especially in emergencies situations or sudden increases of patients due to external factors.

The problem in many health facilities is that the staff is not properly trained to recognize underlying risk factors. It is important that the people who work in the hospital are able to recognize threats which might not seem very serious but which might turn into catastrophic factors in emergency situations. Obstructed corridors which were a common sight in the hospitals are examples of this kind of indirect threat as they might only be perceived as reduced space but in case of an emergency where the life of a patient depends on the time it take to bring him from one hospital department to another might be a major threat.

Another important aspect of Nonstructural safety which has been widely neglected in the hospitals in Assam is the aspect of 'Evacuation'. Evacuating is a procedure which is done in case of immediate threat but must be planned in order to be conducted efficiently without exposing people to increased threats. In none of the five hospitals in which the audit was conducted there was a planned evacuation procedure in place which includes the different aspects of evacuation such as evacuation decision and evacuation relocation and is regularly tested with the conduction of mock drills.

MAIN GENERAL ISSUES OF HOSPITALS THE NAGAON DISTRICT

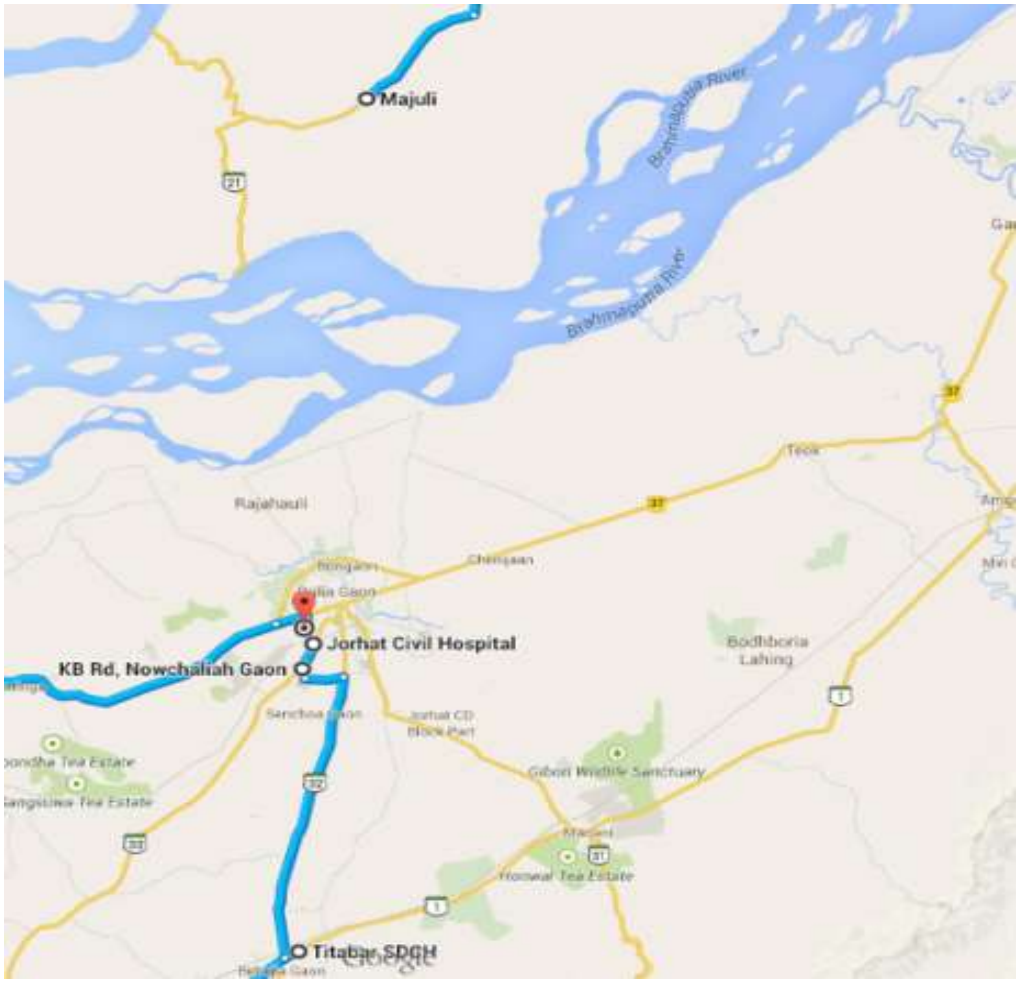
- HYGIENE
- OBSTRUCITON OF IMPORTANT AREAS
- ANCHORAGE
- FIRE SAFETY
- EVACUATION PREPARDNESS
- TRIAGE

MAIN RECCOMMENDED ACTION POINTS

- Educate staff about problems/Benefits of Hygiene and initiate regular Hygiene checks
- Clear areas from obstruction and nominate a person to regularly check these obstructions
- Attach/anchor all critical items to walls and ceilings
- Prepare evacuation plans and conduct trainings
- Prepare Triage Plans, training and mock drills

3.3 JORHAT DISTRICT

Jorhat is located between the Brahmaputra on the north and Nagaland on the south at 26 degree 46 minutes north latitude and 96 degree 16 minute's longitude in the central part of Brahmaputra Valley. As per the official declaration made by the Directorate of Census operations, Assam, in 2011, Jorhat had population of 1,091,295 of which male and female were 557,944 and 533,351 respectively.The health and family welfare scenario of the district has improved over the years due to improvement in the service delivery of health sector in Assam. With rapid urbanization and economic growth, Jorhat has been exposed to various risks like flash floods, urban floods, earthquake and many more. Having a sound health infrastructure, hospitals in Jorhat needs safety assessments to be done to strengthen disaster preparedness.



Hospitals in Jorhat Map

3.3.1 Hospital Profiles

The five hospitals in the Dibrugarh district in which the audit was conducted are the following:

Majuli Sub-divisional Civil Hospital

Sr.No.	General Information about Hospital	
1	Date of Survey	15th July 2014
2	Hospital Name	Majuli Sub-divisional Civil Hospital
3	Hospital ID no/Registration no.	JOR/238/F/130An As10002880
4	Date of construction	Est-1990
5	Address	PO-Garamur, Borsatra, Majuli, Jorhat-785104
6	Contact Details	03775-274645
7	Total number of beds	100
8	occupancy rate in normal situation	15
9	Total number of staff:	46
	a. Doctors	12
	b. Nurses	12
	c. Consultants	7
	d. Paramedics	15
	e. Secretaries	4
	f. Security staff	0
	g. House keepers	0
	h. others	2
10	How many storeys	Single
11	List of all departments	1. Medicine 2. General Surgery 3. Obs &Gynaecology 4. ENT 5. Paediatrics 6. Anaesthesiology 7. Pathology including Blood Storage 8. X-Ray and Ultrasound

Sanjivani Hospital

Sr.No.	General Information about Hospital	
1	Date of Survey	12th July 2014
2	Hospital Name	Sanjivani Hospital
3	Hospital ID no/Registration no.	SHA/157 dated 23-8-2005
4	Date of construction	Old building-1986 and New building 2008-09
5	Address	AT Road, Tarajan, Jorhat, 785001
6	Contact Details	Superintendent-94350-51041 Administrator-7896645936
7	Total number of beds	65
8	occupancy rate in normal situation	50
9	Total number of staff:	96
	a. Doctors	8
	b. Nurses	22
	c. Consultants	11
	d. Paramedics	22
	e. Secretaries	1
	f. Security staff	3
	g. House keepers	10
	h. others	16
10	How many storeys	3

Titabar Sub-divisional Civil Hospital

Sr.No.	General Information about Hospital	
1	Date of Survey	14th July 2014
2	Hospital Name	Titabar Sub-divisional Civil Hospital
3	Hospital ID no/Registration no.	RS/JOR/238/F/100 of 2013-14
4	Date of construction	Est-1985
5	Address	PO- Titabar, Dist- Jorhat, Assam, 785630
6	Contact Details	09435514760 (Superintendent) 09435051590 (SDMHO)
7	Total number of beds	36 (On paper upgraded as 100 bedded)
8	occupancy rate in normal situation	20-25
9	Total number of staff:	
	a. Doctors	15 including SDMHOs and Superintendent
	b. Nurses	SDCH-6 (Regular), 6 (NHM) Total -12
	c. Consultants	12
	d. Paramedics	5
	e. Secretaries	2
	f. Security staff	Nil
	g. House keepers	5
	h. others	6
10	How many storeys	G+1 (only 1 small part) and rest Single storied
11	List of all departments	1. Medicine 2. General Surgery 3. Obs &Gynaecology 4. Eye 5. ENT 6. Paediatrics 7. Anaesthesiology 8. Dentistry 9. Pathology including Blood Storage 10. ICTC 11. RNTCP 12. X-Ray and Ultrasound

Jorhat Christian Medical Centre

Sr.No.	General Information about Hospital	
1	Date of Survey	12th July 2014
2	Hospital Name	Jorhat Christian Medical Centre
3	Hospital ID no/Registration no.	SHA/296
4	Date of construction	Est-1924
5	Address	Jail Road, Barbheta, Jorhat-785004
6	Contact Details	0376-2340104 jcmc.care@gmail.com
7	Total number of beds	100
8	occupancy rate in normal situation	54% (2013-14)
9	Total number of staff:	127
	a. Doctors	9
	b. Nurses	52
	c. Consultants	12
	d. Paramedics	7
	e. Secretaries	0
	f. Security staff	14 (outsourced)
	g. House keepers	17
	h. others	42
10	How many storeys	Single Storied
11	List of all departments	1. OPD 2. X-Ray 3. Clinical Laboratory 4. Ultrasound 5. ICU 6. High Dependency Unit 7. Operation Theatre (2) 8. Pharmacy 9. Medicine 10. Orbs&Gynaecology 11. Paediatrics 12. Surgery

Jorhat Medical College and Hospitals

Sr.No.	General Information about Hospital	
1	Date of Survey	11th July 2014
2	Hospital Name	Jorhat Medical College and Hospitals
3	Hospital ID no/Registration no.	No. RS/JOR/238/6/38 of 2005-06
4	Date of construction	12-08-2008
5	Address	Kushal Konwar Path, Jail Road, PO- Jorhat, PS-Jorhat, Dist-Jorhat, 785001
6	Contact Details	0376-2370109, 9435013139 (Principal-cum-Chief Superintendent), 9864022132 (Superintendent) website-www.jmch.org.in
7	Total number of beds	500
8	occupancy rate in normal situation	85%
9	Total number of staff:	
	a. Doctors	Health 'B' Deppt-122, Health 'A'-8
	b. Nurses	259
	c. Consultants	0
	d. Paramedics	162
	e. Secretaries	2 (Vacant)
	f. Security staff	75 (outsourced)
	g. House keepers	Outsourced
	h. others	354 (contractual grade IV as well as cleaning)
10	How many storeys	G+3

11	List of all departments	1. Anatomy 2. Physiology, 3. Bio-chemistry, 4. Pathology, 5. Pharmacology, 7. Forensic Medicine, 8. Community Medicine, 9. Medicine. 10. TB & Chest, 11. Dermatology, 12. Psychiatry, 13. Paediatrics, 14. Surgery, 15. Orthopaedics, 16. PM& R, 17. ENT, 18. Ophthalmology, 19. Obstetrics and Gynaecology, 20. Radiology, 21. Anaesthesiology, 22. Dentistry

3.3.2 Section wise findings

GENERAL SAFETY

Accessibility:

It was observed in all 5 hospitals of the Jorhatdistrict were easily accessible as they were placed at well maintained city roads and therefore accessible to all kinds of vehicles.

Obstruction of important areas:

In 2 of the 5 hospitals it was found that important and vital areas such as corridors were often obstructed. The corridors were obstructed with hospital beds, animals or people.

It is extremely important that all important areas are accessible, especially in emergency situations when inflow of huge number of people are expected in the hospital.

Uniforms/Physical recognition of staff

In 4 of 5 audited hospitals it was found that nurses and doctors were not wearing uniforms.

Uniforms are important since hospitals staff would be identifiable in order to act in a coordinated manner especially in any emergency/ disaster situation which may lead to chaos in the hospital.

(Water tank at Jorhat Christian Medical (Pvt))

Restriction of areas

In all the five audited hospitals important areas were restricted by signs specifying that the entrance to those areas was allowed only for hospital staff. In hospitals one of the main threats can be the lack of control, therefore it is of importance that such areas are safe and controlled.

Restriction to enter certain areas like emergency ward, operation theatre is also essential for smooth management of patients and prevention of spread of infection and stress to staff. For reasons such as terrorism, epidemics, theft, violence and general overview it is important to have check at each entry of the hospital where entrants are labeled according to their role and made recognizable as such (for instance with different tags for visitors, patients, in-patients, staff, doctors)

In the audited hospitals in the Jorhat district there was an entry check in place in 3 of 5 hospitals.

COMMAND AND CONTROL IN EMERGENCIES

The importance of a specifically designed and installed Incident Command Group (ICG) has been proven significant in health facilities all over the world.
Persons with different roles in the hospital can be part of the ICG. The role of the ICG is to maintain the health facility operational in case of emergencies or disasters.
In 3 of the hospitals such a group was in place but no training had been conducted since the formation of the group which means that in case of a sudden emergency the decisions could not be taken in order to keep the hospital operational

Command and Control					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				

2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	AVERAGE	

COMMUNICATION

Communication can be sub-divided into Internal and External Communication. Inter communication aims two-way communication between hospital staff, different sections and departments of the hospitals and a one-way communication from the hospital to inpatients, patients and visitors.

External communication is about the capacity of the hospital to communicate with authorities, hospitals, emergency services, suppliers etc. outside of the hospital.

While external communication plays a major role during large scale disasters.

In most of the hospitals audited in Jorhat different communication channels such as phones and loud speakers were used.
Hospitals in the Jorhat district uses different communication channels, hence are able to communicate uninterrupted with all the sections of the hospitals.

Furthermore most of the hospitals which were audited in that district have a backup communication system in form of walkie-talkies which can be used in emergency situations when other communication systems collapse.

In 4 of the 5 hospitals, person has been designated to communicate with the external agencies, authorities, media and other hospitals.

Communication					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	GOOD	

SECURITY

For an ongoing and safe operation of the hospital there must be a security team in place. The task of the security team is to protect hospital staff and patients, limit the accessibility of restricted areas and keep order and control in the hospital in normal and emergency situations.

The number of security staff must be according to the size of the hospital but even a small hospital must have security staff in place.

In most of the hospitals the number of security guards was not sufficient to ensure the safety and security of staff, patients and hospital assets.

Security					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				

2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	AVERAGE	

TRIAGE

Triage is a procedure for segregation of patients at the site of the incident and for giving priority to patients in emergency situations. In case of a sudden increase in inpatients in the hospital for instance due to a terrorist attack the medics must decide upon whom to treat first and be able to segregate patients using identification tags accordingly medical services would be provided .

In all of the five hospitals TRIAGE training was conducted.

The risk of not having personnel trained with the TRIAGE procedure is that in case of a sudden increase of patients, the wrong patients are treated first which can lead to an increase of injuries and loss of life.

Triage					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				

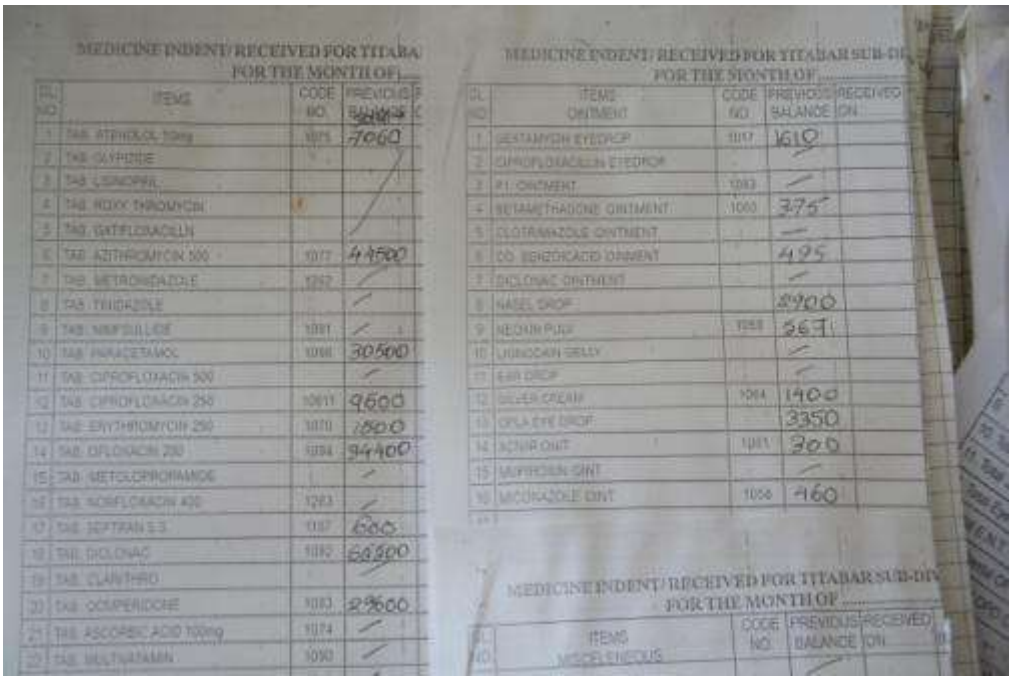
5	Sanjivani Hospital, Jorhat				
			Overall:	VERY GOOD	

LOGISTICS AND SUPPLY MANAGEMENT

For ensuring safe environment of the hospital and best working and healing conditions for staff and patients it is important that aspects such as medicines and chemicals are handled appropriately.

In all the 5 hospitals in which the survey was conducted there was an updated inventory of equipment and supplies and pharmaceuticals.

Chemicals and hazardous substances were stored by trained personnel and stored according to a rotating inventory list.



(Medicines list Sanjivani Hospital, Jorhat)

Logistics and Supply Management					
	Scale	**Poor**	**Average**	**Good**	**Very Good**

Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	VERY GOOD	

ANCHORING

Earthquakes are a major threat to hospitals. Though the biggest threat is damage to hospital structure such as the walls and ceiling collapse but the non- structural risks (like falling/ displacement of equipment's, falls ceiling, etc.) can't be overlooked...

It is therefore important that all nonstructuralitems of the hospital which has potential risk to life and injuriesin case of earthquake are well attached and anchored to walls and ceilings.

In the hospitals which were visited no such anchoring of any assets was in place, exposing the staff, patients and visitors to an increased risk of being hit by objects which could fall down in normal and emergency situations such as for instance earthquakes.

Anchorage					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				

Overall:	Poor

FIRE

Fire can cause extensive damage to hospital and may also result in casualty. Its smoke and flames can kill people, destroy assets and make the hospital partly or entirely out of operation. The danger of Fire is that a small flame can result in a major fire outburst if not handled immediately and appropriately.

It is therefore important that all kinds of fire prevention should be in place and all the staffs are trained to handle the equipment in case of emergencies.

Fire Alarms

Only in 2 of the 5 hospitals there was an automatic fire sensor was connected to an alarm in place.
The other 3 hospitals have no such smoke detector fire alarm in place.

Sprinkler Mechanism

A sprinkler mechanism is a system which is attached to the ceiling and releases a fountain of water which can extinct fires. Ideally the sprinkler mechanism is connected to the fire alarm and turns on automatically in case a fire is detected.
In the five hospitals audited in the district no sprinkler alarm system was in place. Sprinkler alarms are important in situations where bigger areas are on fire and especially at night when the visibility is reduced.

Fire Extinguishers

The situation which was encountered was that in only 2 of the 5 hospitals there were fire extinguishers in place.

A further downside is that in most of the cases the staff was not trained on the use of the fire extinguishers which gives a false impression of security because there are fire extinguishers but no one is trained to use them at the time of need.

Mock Drills

Mock Drills are practice/ rehearsals which are held in order to test the emergency plan and prepare employees for emergency situations. Mock Drills simulate a real life situation where a hospital needs to be evacuated or a fire extinct.

In none of the five hospitals a fire mock drill was held on a regular basis by the fire department. In the other hospitals the staff was left unprepared in case of an emergency related to fire.

Fire					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	POOR	

EVACUATION

Evacuations are complex procedures. Parts of a structure or the entire structure can be evacuated and often mistakes can cause serious fatalities. In order to be able to conduct successful evacuations evacuation plans must be designed. Evacuation plans must not only cover the evacuation procedure but also aspects such as the decision whether to evacuate or not and the procedure to relocate the evacuated people. Such evacuation procedures must be tested in mock drills on a regular basis. Evacuations can save lives but can augment danger if not done properly.

None of the hospitals in which the audit was conducted had an evacuation plan which was

fully operational and no personnel were trained in evacuation procedures.

In case of an emergency when people from inside the hospital would have to evacuate the risk of stampede and increased injuries can increase in these hospitals.

Evacuation					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	POOR	

HEATING, COOLING, VENTILATION SYSTEM

In order to create a good environment in which hospital staff can work efficiently and sick patients can heal rapidly it is important that there is enough clean air in the hospital and that the temperature is comfortable. In case those situation is not met there will be an environment in which healing processes are slowed down and even aggravate.

In the hospitals in the Jorhat district which were audited in summer 2014 it was found that the temperature was stable and permitted a favorable healing and working environment.

Heating, cooling and ventilation system					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	VERY GOOD	

ELECTRICITY

Different functions and machines of a hospital depend on a constant and continuous supply of electricity. In small and large scale disasters the electricity supply can go off. In order to guarantee the operation of the hospital a constant power supply must be assured, meaning that in case of a power cut of the regular supply emergency generators must be in place.

Furthermore electrical panels and wires which are not installed properly can create a risk to people in the hospitals as they can cause injuries due to electrical shocks and fires.

In all the visited hospitals no exposed wires which could create danger were found.
The hospitals have an emergency power generator in place which could at least provide the essential aspects of the hospital with electricity. The emergency generators had to be turned on manually in case of need.

Electricity					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				

1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	VERY GOOD	

SURGE CAPACITY

Surge Capacity is the capacity of a hospital to cope with a sudden increase of patients. It is important that a hospital designed coping methods beforehand in order to be prepared when the above mentioned situation occurs.

One of the most important aspects of Surge Capacity is to design an area which can rapidly be converted into a space where patients can be treated. Furthermore methods to augment patient transport systems and increase hospital staff must be planned.

In all hospitals which were audited it was found that hospitals have not designated any areas/ portion of the hospital foraccommodating patients in case of a sudden increase in number of patients which would exceed the regular hospital capacity. Some of the hospitals are in contact which other health facilities which are located nearby on the same street and can therefore partially cope with an increase of patients even though there is no defined plan and therefore coordination will not be smooth.

The risk of not having such an area designed in a plan is that in case of a sudden increase not all patients can be treated which can lead to an aggravation of injuries and lead to death.

Surge Capacity					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				

2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	AVERAGE	

LIGHTING

The section 'Lighting' refers to aspects of luminosity, visibility and Emergency lighting. It is important that all important transit areas of the hospital are constantly illuminated for the people who are in the hospital. Reduced visibility can lead to injuries. In case of a power cut the exits must be indicated with florescent signs. All lamps in the hospital must be working and someone must be responsible for checking them and replacing them if necessary.

None of the five hospitals in Jorhat had illuminated EXIT signs which can be a risk in case of an evacuation during a situation of reduced luminosity especiallyin night.

In the audited hospitals all lamps were working and one person was responsible for checking and replacing them.

Overall the hospital was well illuminated but lacked important lighted assets such as luminous exit signs.

Lighting					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				

5	Sanjivani Hospital, Jorhat				
			Overall:	AVERAGE	

WATER&FOOD

Constant supply of clean water and food is often necessary to assure the safety and wellbeing of hospital inmates.

Even in emergency situations a constant water supply must be granted.

In all hospitals it was found that there was enough water supply for the inmates and that there was a reserve. In 4 of 5 hospitals there was an alternative water supply.
In the hospitals which were audited in the Dibrugarh district it was observed that the water supply was sufficient and that in most cases there was an alternative to water supply but that it was not always clear, when the maintenance was carried out is not known.

(Water tank at Jorhat Christian Medical (Pvt))

Water & food					
	Scale	**Poor**	**Average**	**Good**	**Very Good**

Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	VERY GOOD	

MEDICAL GASES

Medical gases such as compressed oxygen are necessary for treatment and are common assets in hospitals. Therefore it is necessary that regular supply and reserve of medical gases is maintained.

Medical gases can also be a threat when not stored and handled properly, it is therefore necessary that aspects such as handling, storage and supply of medical gases are planned.

In all hospital there was sufficient amount of medical gases stored which would be able to supply the hospital for at least 15 days. In all cases the medical gases were stored in safe dry rooms but only in two cases they were anchored. Mostly kept on the floor which in case of an earthquake may roll around and can be a potential threat.

Furthermore it was found that the hospitals have no alternative source of medical gases available in case there would be a shortage in supply of medical gases due to a large scale emergency.

(Anchored Medical gases Sanjivani Hospital, Jorhat)

Medical Gases					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	GOOD	

WASTE TREATMENT

In a hospital different waste are created each day by patients, visitors, housekeeping staff,

doctors. One of the kinds of waste is medical waste which has to be handled appropriately due to safety reasons. In order to manage hospital waste - a Waste Management Manual must be followed.

Fortunately in all 5 hospitals which were checked there was a manual for waste management which was followed by the hospital staff.

Waste Treatment					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	VERY GOOD	

HYGIENE

Hygiene is one of the major challenges but most important aspects of each health facility. It is extremely important that all areas of the hospital are as sterile as possible in order to create the best possible working and healing environment for patients. This is a major challenge as there is large number of sick people visit the hospital everyday creating an unhygienic environment.

It is therefore necessary that hospital should take all the measures to ensure hygiene in the hospital.

Even though the staff of all hospitals knows about and uses the right procedure for decontamination the hygiene conditions in the hospitals were alarming.
Wash rooms were found unhygienic and dirty and in most of the cases there was no

appropriate hand wash soap in place.

(Sink at Titabor)

Hygiene					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	AVERAGE	

HUMAN RESOURCES

In order to keep the hospital efficient and operating even under extreme situations it is essential that the human resources of the hospital are well organized and supervised accordingly.

It was found that the organization and supervision of the human resources is well organized in all hospitals.

Human Resources					
	Scale	**Poor**	**Average**	**Good**	**Very Good**
Sr.No.	Hospital				
1	Jorhat Medical Collage & Hospital				
2	Garamur SDCH, Majuli				
3	Titabor SDCH, Titabor				
4	Jorhat Christian Medical Centre				
5	Sanjivani Hospital, Jorhat				
			Overall:	VERY GOOD	

3.3.3 Best aspects of each hospital

Jorhat Medical College and Hospital

5. Very pro-active and dynamic leadership by Deputy Superintendent I and interest to ensure best possible safety standards.
6. A comprehensive Disaster Management Plan with elaborative information package.
7. Praiseworthy efforts for non-structural mitigation through anchorage of storage equipment.
8. A huge medical facility with large physical infrastructure under development.
9. Huge volume of trained and qualified manpower for emergency requirement.
10. Decentralized facilities and scope of work.
11. Sufficient available medicine and other resources for dealing with emergency situation.

Sanjivani Hospital

1. There is good and visible fires safety arrangement in the Hospital.
2. The Hospital has an Incident Command structure.
3. Good and visible Bio-Medical Waste Management.
4. Active and Interested Administration for promoting and enhancing safety standards in the Hospital.
5. Few trained staff on Triage procedure with possibility of covering all.

Jorhat Christian Medical Centre

1. The Hospital has good system of administration and has open space and other infrastructures for emergency relocation.
2. It has placed sufficient fire extinguishers in place and there is good system of entry check/control through security.
3. Has the provision to enhance intake/surge capacity for emergency needs.
4. Good, co-operative and interested leadership and management for disaster risk reduction.
5. Sufficient staff both medical and para-medical.

Majuli SDCH

1. The Doctors are respected and people have a great faith and trust among the service providers.
2. Very good and involved leadership for promoting overall safety of the hospital.
3. The structure is old but the land is high and plinth of the hospital is also high.
4. Emergency lighting in place in all critical locations.
5. A command structure for emergency is in place.

Titabor SDCH

1. There is a Pond/water tank in place in front of the hospital.
2. There is a good amount staff trained on Triage and Mock Drills have also been conducted before.
3. The administration is good, supportive and interested for emergency preparedness activities.
4. Cattle bridge in place for preventing animals from getting inside the hospital.
5. Good record keeping in general and well established coordination among the staff.

3.3.4 Conclusion and recommendation

From the data analysis it was found that there are positive and negative aspects in all five hospitals. Most of the issues identified are due to a mindset and not due to lack of resources. Aspects such as hygiene for instance are often not very costly to address but are in most cases not given enough attention to due to reasons not related to financial means.

Another aspect which seems to have been neglected in the hospitals in Assam is the supervision of everything which happens inside the hospital. In order to do so the hospital must keep all patients, staff and visitors supervised at all times in order to know who is doing what inside the hospital. This is especially necessary in situations of increased stress such as disaster scenarios and emergencies. Security staff is one of the aspects of control. Even in smaller, one story building hospitals it is necessary to have enough security staff in place. Security staff assures that human life and hospital assets are protected against threats of destruction and violence. Furthermore security staff is necessary to guarantee law and order especially in stress situations like emergencies or sudden increases of patients due to external factors.

The problem in many health facilities is that the staff is not properly trained to recognize underlying risk factors. It is important that the people who work in the hospital are able to recognize threats which might not seem very serious but which might turn into catastrophic factors in emergency situations. Obstructed corridors which were a common sight in the hospitals are examples of this kind of indirect threat as they might only be perceived as reduced space but in case of an emergency where the life of a patient depends on the time it take to bring him from one hospital department to another might be a major threat.

Another important aspect of Nonstructural safety which has been widely neglected in the hospitals in Assam is the aspect of 'Evacuation'. Evacuating is a procedure which is done in case of immediate threat but must be planned in order to be conducted efficiently without exposing people to increased threats. In none of the five hospitals in which the audit was conducted there was a planned evacuation procedure in place which includes the different aspects of evacuation such as evacuation decision and evacuation relocation and is regularly tested with the conduction of mock drills.

Main General Issues Of Hospitals the Jorhat District

- Hygiene
- Obstruction Of Important Areas
- Anchorage
- Fire Safety
- Evacuation Preparedness
- Triage

MAIN RECCOMMENDED ACTION POINTS

- Educate staff about problems/Benefits of Hygiene and initiate regular Hygiene checks
- Clear areas from obstruction and nominate a person to regularly check these obstructions
- Attach/anchor all critical items to walls and ceilings
- Prepare evacuation plans and conduct trainings
- Prepare Triage Plans, training and mock drills

4.Conclusion

The main findings were that all the aspects of non-structural hospital safety are given differential importance in the audited hospitals and health facilities in Assam.
Aspects which were researched upon can be categorized in two types: General Safety aspects and Disaster/emergency Preparedness aspects.
In the hospitals which were audited the aspect of General Safety was addressed in different ways but it can be said that in most hospitals the aspect of Disaster/Emergency preparedness was party or entirely neglected.

The risk profiles of Hospitals are listed here:-

No	Name of the Hospitals	Hazard Risk Profile				
		Earthquake	Flood	Fire	Storms	Stampede
Risk Profile of Hospitals visited at Nagaon						
1	Kapili Hospital and Research Centre Pvt. Ltd					
2	BP Civil Hospital					
3	Dhing First Referal Unit					
4	Hojai First Referal Unit					
5	Jokhlabandha First Referal Unit					
Risk Profile of Hospitals visited at Dibrugarh						
1	Assam Medical College & Hospital, Dibrugarh					
2	Sanjivani Diagnostic and Hospital, Dibrugarh					
3	Brhamaputra Diagnostic and Hospital, Dibrugarh					
4	Aditya Diagnostic and Hospital, Dibrugarh					
5	Oil India Limited Hospital, Duliajan					
Risk Profile of Hospitals visited at Jorhat						
1	Jorhat Medical College & Hospital, Jorhat					
2	Sanjivani Hospital, Jorhat					
3	Christian Medical Centre, Jorhat					
4	Titabor Sub-Divisional Civil Hospital, Titabor					
5	Majuli Sub-Divisional Civil Hospital, Majuli					
	Note- Colour codes	*High*	*Medium*	*Low*	*Not Applicable*	

The risk assessment was done based on hospital's existing capacity to cop up with disasters.

The key findings therefore are that:

- Functional Evacuation Plan and Procedure was not in place in all the surveyed Hospitals
- TRIAGE is not perceived as a necessary procedure across all the surveyed hospitals
- Even though fire safety is perceived as an important aspect; training, mock-drills and periodic monitoring of fire preparedness plans and equipment was missing in all the surveyed hospitals.
- In none of the hospitals, theearthquakes not included in the list of hazards, hence doesn't have any plan to address risks arising from probable earthquakes. .
- Security teams and entrance checks in hospitals during disasters and accordingly in many of the hospitals there are no security teams/ staff and not properly trained
- In most of the audited government hospitals Hygiene was a concern

The ways the hospitals can cope with the difficulties and gaps they face and with which they can appropriately mitigate the impacts of disasters are on different levels.

5. Recommendations

Based on safety guideline and the experience, expertise and knowledge of the All India Disaster Mitigation Institute the following actions are recommended to be taken by the hospitals in order to make the hospitals safer for their employees, patients and visitors:

- Educate hospitals staff about underlying risk factors.
- Design appropriate mitigation measures for the different hazards.
- Regularly train personnel on implementation of the preparedness plans
- Conduct mock drills to test the effectiveness of hospital preparednessto various threats.
- Include all hospitals in Assam in similar assessments and share the findings with all.
- Design a Policy for Safe Hospitals and Safe Hospitals in Emergencies.
- Design and Implement State Level Strategies to improve the safety in Indian states.
- Establish a dialogue on Hospital Safety between districts in order to foster experience and knowledge as well as sharing of best practices.
- ASDMA would be the leading authority for the coordination of hospitals in Assam and implement a State wide policy on safe hospitals and safe hospitals in emergencies.

Annexure

1.List of Literature Review

Introduction

The following is a list of relevant literature about hospital safety which is freely available on the internet. The criteria for choosing the following articles in the literature were the relevance and the ease of accessibility of them.
The list is divided in the sections: **INDIA** (Documents which are directly related to hospital safety in India), **GENERAL** (Documents which cover multiple aspects of hospital safety) and **SPECIFIC** (which includes documents which cover a specific aspect of hospital safety).

It can be that documents are mentioned in different areas in case they focus on more than one specification.

The Documents are listed according to their importance.

INDIA

1. Tools for the assessment of school and hospital safety for multi hazards in South Asia 1+2 -United Nations Human Settlements Programme (UN-Habitat) and United Nations Office For Disaster Risk Reduction (UNISDR), 2012, 1+2
   (Document of major importance about how to assess the safety of hospitals in South Asia)
2. Quality and Safety in Indian Hospitals, FD Dastur – Association of physicians India
   (short article on the topic of Hospital safety in India) Guidelines for hospital emergency preparedness planning- GOI-UNDP DRM Programme
   (Guidelines about how to plan emergency preparedness in Indian hospitals)
3. National disaster management guidelines hospital safety- NDMA India
4. The importance of hospital safety in Indian scenario - M. Ahmad*, J. S. Murli
   (An extended introduction about the topic of hospital safety including some of the most common hazards to which hospitals are exposed)
5. Checklist for Fire Safety in hospitals - Directorate of Maharshtra Fire Services
   (A safety audit check list covering all aspects of hospital safety in a hospital which is higher than 15 meters or has more than 100 beds)
6. Hospital Safety Audit Report-West Champaran
   (The final report of a conducted Fire safety Audit in Hospitals)
7. Down Town Hospital evaluation report- ASDMA
   (Conducted assessment of the safety of a Hospital in Guwahati, India)

GENERAL

1. Safe Hospitals in Emergencies and Disasters Structural, Non-structural and Functional Indicators-UNISDR
   (Flagship document for creating audit tools for safe hospitals)
2. The 2014 safety management plan for management of the environment of care- Duke University Hospital and Clinics, the Private Diagnostic Clinics., and the Duke Primary Care practices
   (Plan covering seven major topics of importance in safety in care facilities)
3. Hospitals Safe from Disasters- UN
   (United Nations report on the importance of safety in hospitals during disasters)
4. Hospital emergency response checklist- World Health Organisation
   (Document of major importance covering the assessment in hospitals of the vulnerability to all hazards)
5. Field Manual for capacity assessment of health facilities in responding to emergencies- World Health Organization
   (Document of major importance about shelter in place and capacity assessment)
6. Advocacy Guide-UNISDR Asia and the Pacific 2010
   (Document covering the aspects of UNISDR's " 1 million safe Schools and Hospitals campaign)
7. Hospitals Safe from Disasters Reduce Risk, Protect Health Facilities, Save Lives- Elisaveta Stikova, Ronald LaPorte, Faina Linkov, Margaret Potter, David Piposzar, Sam Stebbins
   (Power point presentation initiated by the UNIDR about general aspects of Hospital Safety)
8. Hospital Incident Action Plan (IAP) Checklist –California hospital association
   (Document of major importance providing all aspects of hospital safety and a check list which can be used in order to design own hospital safety audit tools)
9. Audit of disaster preparedness: Guidance for Supreme Audit Institutions- Arife COSKUN – 16042012 version the draft guide for audit of disaster preparedness (0II.04) Turkish Court of Accounts (TCA) Inonu Bulvarı
   (A guide on how to conduct a general audit about Disaster Prepardness)
10. Quality and safety programme: Audit of acute hospitals-London Health programmes
    (The final report about a conducted Hospital safety audit)
11. Preparing a Hospital and Community for Disaster-Lauren Ford
    (Article on aspects which have to be considered when planning emergency plans for hospitals)
12. Hospital Assessment and Recovery Guide- Agency for Healthcare Research and Quality U.S. Department of Health and Human Services
    (A tool which includes valuable information on how to conduct a safety audit)
13. The audit of disaster risk reduction-Intosai
    (Document which covers all aspects and gives information on how to conduct a audit of Disaster Risk Reduction)
14. Statutory safety & Health audit of Kenyatta National Hospital
    (Safety audit which was conducted by the Kenyatta National Hospital about the hospital's safety situation)
15. Hospital Safety Index Evaluation Forms for Safe Hospitals- Pan American health organization , World Health Organization

(Extremely valuable document for creating tools for evaluating the safety of Hospitals)

SPECIFIC

1. FIRE- Hospital Fire Plan - Louisiana state university health sciences centre
   (The code red fire plan of Louisiana Health sciences centre which explains the procedures in case of fire)
2. FIRE-Hospitality Safety Audit Report-West Champaran
   (The final report of a conducted Fire safety Audit in an Indian Hospital)
3. EVACTUATION-Hospital Evacuation Decision Guide- Agency for Healthcare Research and Quality U.S. Department of Health and Human Services
   (Document which is part of a general evacuation plan explain the mechanism of deciding upon whether or not to evacuate a Hospital)
4. EVACUATION-Hospital Evacuation Plan (Checklist) –California hospital association
   (guidance in the development or update of a hospital evacuation plan containing detailed information, instructions, and procedures that can be engaged in any emergency situation necessitating either full or partial hospital evacuation)
5. EVACUATION-MDPH hospital evacuation Toolkit -Harvard school of public health
   (Document valuable for designing effective evacuation plans)
6. EVACUATION-Hospital Repopulation after Evacuation Guidelines and Checklist-California Hospital association
   (Tool for efficient repopulation after evacuation)
7. EVACUATION-Evacuation and shelter in place guidance for healthcare facilities- Los Angeles County Emergency Medical Services Agency Parts 1, 2, 3
   (All three documents are the plan to conduct an efficient Evacuation and Shelter in place operation in a hospital)
8. TRIAGE-Triage- Sharon E. Mace, MD and Thom A. Mayer, MD
   (Document treating the topic of conducting TRIAGE, separating and grouping patients in groups with the same vulnerabilities, characteristics and needs)
9. EARTHQUAKE-Seismic Safety of Non-Structural Elements and Contents in Hospital Buildings- Gol. UNDP Disaster Risk Management Programme New Delhi
   (Report on aspects of Safety in Hospitals related to earthquake)
10. EARTHQUAKE- Health facility Seismic vulnerability evaluation- World Health Organisation
    (Flagship handbook on how assessing the vulnerability to earth quakes of Health Facilities)
11. SHELTER IN PLACE-Hospital Shelter In Place Planning Checklist.california hospital association
    (A check list covering t all phases of the “Shelter in Place” Process)
12. SHELTER IN PLACE- Field Manual for capacity assessment of health facilities in responding to emergencies- World Health Organization
    (Document of major importance about shelter in place and capacity assessment)
13. SHELTER IN PLACE- Evacuation and shelter in place guidance for healthcare facilities- Los Angeles County Emergency Medical Services Agency Parts 1, 2, 3
    (All three documents are the plan to conduct an efficient Evacuation and Shelter in place operation in a hospital)
14. HYGIENE- Hospital Hygiene Unannounced Inspection Audit Tool –The regulation and quality improvement authority

(Audit tool for all different aspects of hospital hygiene)
HYGIENE -Your 4 Moments for Hand Hygiene – Ontario

2.List of respondents

Nagaon

1	Mr. Sanjib Baruah Deputy Seperintendent, Mobile No-9435061098	Hojai FRU
2	Mr. Rajib Kumar Nath Block Accounts Manager (BAM), Mobile No-9854558719	Hojai FRU
3	Mrs. Emi Baruah Staff Nurse, Mobile No-9435318504	Hojai FRU
4	Dr.Bhabendra Bordoloi Seperintendent, Mobile No-9435710125	B.P Civil Hospital, Nagaon
5	Dr.J.Ahmed SDMHO and Nodal Officer SNCU, Mobile No-9435060109	B.P Civil Hospital, Nagaon
6	Dr.NarendraBhagwati OT-in-Charge Mobile No-9435060419	B.P Civil Hospital, Nagaon
7	Mr.HemangaMedhi Hospital Administrator, Mobile No-9864183178	B.P Civil Hospital, Nagaon
8	Dr.Phani Pathak Deputy Seperintendent, Mobile No-94351-60985	Jokhlabandha FRU
9	Mr.Dhrubajyoti Das Block Program Manager (BPM) Mobile No-94357-01405	Jokhlabandha FRU
10	Mr.Rajib Ahmed Pharmacist, Jokhlabanda FRU Mobile No-84028-64601	Jokhlabandha FRU
11	Rajib Sharma	Jokhlabandha FRU

	Block Accounts Manager Mobile No-9864-217217	
12	Dr.M C Dutta Mobile No.- 94357 22711	Kapali Hospital and research center
13	Sri NipunGoswami, Administrator, , 03672-233905	Kapali Hospital and research center
14	Dr.G K Bora Mobile No.-94351 60427	Dhing FRU
15	Dr.D.C. Roy Mobile No.- 94353 98159	Dhing FRU

Dibrugarh

1	Dr.DharmeshwarGogoi Deputy Superintendent, Mobile- 9435139791	Sanjivani Diagnostics and Hospitals
2	Mr.AnupGogoi Manager, Mobile- 9706358043	Sanjivani Diagnostics and Hospitals
3	Mr. Rajesh Singh Public Relation Officer	Sanjivani Diagnostics and Hospitals
4	Dr. K. Hadique Superintendent, Mobile- 9435431176	Aditya Diagnostics and Hospitals
5	Mr. Kamal Borah Hospital Administrator, Aditya Diagnostics and Hospitals Mobile- 9435031176	Aitya Diagnostics and Hospitals
6	Mr. Krishna Saikia In-charge, Medical gas Aditya Diagnostics and Hospitals Mobile- 9859372393	Aditya Diagnostics and Hospitals
7	Mr.Subhas Chandra Boro Electrician	Aditya Diagnostics and Hospitals

	Aditya Diagnostics and Hospitals Mobile- 9954526675	
8	Dr. G. K. Kurmi Deputy Superintendent, Mobile- 9435256759	Assam Medical college and Hospital
9	Dr. D. C. KalitaProf. of Medicine, Mobile-9435030504	Assam Medical college and Hospital
10	Mr.Diganta Das Registrar of Medicine, Mobile- 9436720721	Assam Medical college and Hospital
11	Mr.PareshKalita Hygiene Inspector, Mobile-8011321596	Assam Medical college and Hospital
12	Mr.NabanitBhattacharjeeGogoi Pharmacist, Mobile-9954496353	Assam Medical college and Hospital
13	Dr.Bhupendra Singh Chief Medical Officer Mobile-	Oil India Hospital
14	Dr. Kamal Choudhury Deputy CMO, Oil India Hospital Mobile- 9535004502	Oil India Hospital
15	Dr. D. K Talukdar Chief Physiotherepist Mobile- 9435038301	Oil India Hospital
16	Mrs.RanjanGogoi (Saikia) Matron, Mobile- 9435008284	Oil India Hospital
17	MridulHazarika,Manager	Bramhaputra Hospital
18	PradipGoswami, Office Executive	Bramhaputra Hospital
19	NagendraYadav, Electrician	Bramhaputra Hospital
20	Safiqual Khan, Housekeeping Incharge	Bramhaputra Hospital
21	MukulZaman, Account department	Bramhaputra Hospital

Jorhat

1	Dr. N.K Mahanta Deputy Superintendent, Mobile-94353n50345	Jorhat Medical and Hospital
2	Dr. Miranda Dutta Deputy Superintendent	Jorhat Medical and Hospital
3	Mr.Bitupan Kumar BaruahHonarary Captain-cum-Security Supervisor, Mobile-7876280249	Jorhat Medical and Hospital
4	Mr.Sanatan Kumar Baruah Senior Technician (Electrical) Mobile-9435437128	Jorhat Medical and Hospital
5	Mr. Abu JahanParidullah Junior Technician (Electrical) Mobile-9954542034	Jorhat Medical and Hospital
6	Mr. Kumar Krishna Buragohain Junior Technician (Mechanical) Mobile-9854268049	Jorhat Medical and Hospital
7	Dr.Ningsangtemsy Chief Administrator, Mobile- 09774830997	Jorhat Christian Medical Centre
8	Mr. R. M Memon Manager, Mobile-	Jorhat Christian Medical Centre
9	Mr.BudheswarGogoi Maintenance Chief Mobile- 9678799308	Jorhat Christian Medical Centre
10	Dr (Mrs) Beena Bordoloi Superintendent II, Mobile- 9435514760	Titabor Sub-divisional Civil Hospital
11	Dr.Ranjit Kr. Baruah Sub-divisional Medical and Health Officer, Mobile- 09435051590	Titabor Sub-divisional Civil Hospital
12	Md. Yusuf Ali Grade Iv (Generator Operator),	Titabor Sub-divisional Civil Hospital

	Mobile- 09706711701	
13	Mrs, Mira Hazarika Lady Health Supervisor, Mobile- 09859716435	Titabor Sub-divisional Civil Hospital
14	Mr.BirenNarah Lower Division Assistant, Mobile- 09954489061	Titabor Sub-divisional Civil Hospital
15	Mr.AjoyBaruah Administrator, Mobile- 07896645936	Sanjivani Hospital
16	Mrs.BinaBaruah Sister-in-Charge, Mobile-	Sanjivani Hospital
17	Mr.DipenBhuyian Supervisor Mobile-9508909733	Sanjivani Hospital Sanjivani Hospital
18	Mr.Ajoy Ghosh Electrician Mobile-7896854105	Sanjivani Hospital Sanjivani Hospital
19	Dr.SashidharPhukan Superintendent II, Mobile- 9435351450	Masjuli Sub-divisional Civil Hospital
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21	Mr.BhabenBhuyian Head Pharmacist Mobile- 9707642234	Masjuli Sub-divisional Civil Hospital
22	Mr.PankajGogoi Block Accounts Manager, Mobile- 09435690490	Masjuli Sub-divisional Civil Hospital
23	Mr.Bhaigon Dutta Driver (Ambulence), Mobile- 09707800555	Masjuli Sub-divisional Civil Hospital
24	Mr.kamalBalmiki Head Sweeper, Mobile- 08761906061	Masjuli Sub-divisional Civil Hospital

3.Hospital Safety Audit Tool

Hospital Safety Audit Tool						
GENERAL SAFETY						
	QUESTION	YES	NO	N/A	COMMENT	
1	Is the hospital easily accessible?					
2	Are the entrances accessible to people withhanidcaps?					
3	Are all storeys easily accessible to people withhanidcaps? (elevators, ramps)					
4	If no, specify					
5	Are drawers kept closed at all times when not actually in use?					
6	Are all vehicles (carts, wheelchairs) in good operating condition?					
7	Are all areas free of clutter?					
8	If no, which ones are NOT free					
9	Are chairs and other furniture in good condition?					

10	In storage areas, are the heavier items stored at waist level, with the lightest objects placed on the higher shelves?					
11	Are the corridors kept clear of obstructions?					
12	Are all wet floors marked with "CAUTION, WET FLOOR" (or similar) signs?					
13	Is carpeting secureD to the floor, unfrayed, free from tripping hazards, and generally in good condition?					
14	Are floor surfaces uneven or in need of repair?					
15	Are stairwell handrails in good condition?					
16	Are stair treads in good condition?					
17	Are food products, including beverages of any sort, kept out of the laboratory work environment?					
18	During the survey, were all staff wearing the appropriate lab clothing? (No open toed shoes, no shorts)					
19	Are signs ‘No admittance for unauthorised persons; displayed at access to filling areas?					

20	Are any political, religious, idiological material exposed which could create problems among staff, patients, visitors?					
21	if yes, which (could be a hindu shrine, or a poster of a political party)					
22	Is there an enrty check/control?					
23	Describe it					
24	Is there a reception/ information desk					
25	If yes,how is the impression of its performance?					
26	Is there a list of Inpatients available?					
27	Are plans of the hospital displayed in all parts of the hospital?					
28	If not, explain.					
29	Are safety walks through the hospital conducted on regular basis?					
30	How often?					
31	Are they conducted also at night?					

32	Is someone responsible for it?					
	COMMAND AND CONTROL					
	QUESTION	YES	NO	N/A	COMMENT	
33	Is there a hospital incident command group?					
34	Are all of the emergency response command group's members adequately trained on the structure and functions of the commando?					
35	Is there a replacement schedule for guaranteeing the continuing of operations?					
36	Is there a command centre specifically for emergency situations which is equipped with effective communication means?					
37	Are all hospital staff members aware of the command centre?					
38	Group and and of its duties and capacities?					
	COMMUNICATION					
	QUESTION	YES	NO	N/A	COMMENT	

39	Is there an internal communication system? (Loud speaker, phones)					
40	If yes, which one?					
41	Can this system reach all areas of the hospital?					
42	Is there a back up communication system?					
43	If yes, which one?					
44	Is there a communication system which allows external communication?					
45	If yes, which one?					
46	Is there a back up communication system?					
47	If yes, which one?					
48	Is there a spokesperson tasked with the communication and information with the public, media, health authorities?					
49	If yes, are the other staff members					

	aware of that?					
50	Are there specific rules and policies for communicating internal information to the outside?					
	SECURITY					
	QUESTION	YES	NO	N/A	COMMENT	
51	Is there enough security staff in the hospital?					
52	Is the hospital safety security clearly identiyable as a team? (can communicate between each other, same uniform)					
53	Is this team trained about the importance of specific areas in case of an emergency situation? (storage rooms, food water, medications)					
54	Is there a system of controlling, triaging people at the entrance of the hospital?					
55	Is security team and medical, visitors, staff well identifiable?					
56	If yes, hat identifying method to they use?					
	TRIAGE					

	QUESTION	YES	NO	N/A	COMMENT	
57	Are staff members trained conduction patient triage?					
58	If not all, how many are trained in the Triage procedure?					
59	Is there a clear method for patient triage identification?					
60	If yes, which one?					
61	Is there an area designed for conducting the triage of patients?					
62	How is an adequate supply of triage tags ensured?					
	LOGISTICS AND SUPPLY MANAGEMENT					
	QUESTION	YES	NO	N/A	COMMENT	
63	*Is there an updated inventory equipment, supplies and pharmaceuticals?*					
64	How often does it get updated?					
65	*Is there a specific person charged with keeping the inventory?*					

66	*Is inventory equipment, supplies and pharmaceuticals stored according to a plan?*					
67	Are the supplies stored in a safe way?					
68	Where chemicals stored with the consultation of an expert in order to prevent chemical reactions from happening?					
69	Are flammables, acids, and bases all stored separately from each other?					
70	Is rotation of items with expiry dates done?					
	ANCHORAGE					
	QUESTION	YES	NO	N/A	COMMENT	
71	Are all equipments and machines anchored in a way that they cannot fall and create damage or be a threat to people?					
72	How are they anchored?					
73	What is not anchored?					
74	Storage containers anchored?					

FIRE						
	QUESTION	YES	NO	N/A	COMMENT	
75	Is there an automatic fire alarm?					
76	Is the fire alarm connected with the nearest fire fighters station					
77	Is the emergency alarm supported by a power back up?					
78	Are there fire alarm pull stations accessible?					
79	Does all staff know the location of the pull stations close to their work place?					
80	Are there fire extinguishers available?					
81	Does all staff know the location of the fire extinguishers close to their work place?					
82	are the fire extinguishers checked regularly?					
83	During the survey were the extinguishers expired?					
84	If yes, by how long?					

85	Are all staff members trained in the use of the fire extinguishers?					
86	Staff know the proper reporting procedure if they find a fire?					
87	To whom does staff report?					
88	Is there a sprinkler mechanism?					
89	Is this sprinkler mechanism automatic?					
90	Is the sprinkler system supported by a back up water supply?					
91	Are there signs which forbid smoking in all areas?					
92	Are there fire doors?					
93	Do they close properly and automatically after being released?					
94	Are all fire exits and escape routes clear and free from obstruction?					
95	Are all fire exit doors operable?					

96	Are fire drills held at regular intervals with occasional simulation exercises?					
97	Are the fire alarms regularly tested?					
EVACUATION						
	QUESTION	YES	NO	N/A	COMMENT	
98	Is there an evacuation plan?					
99	Is there an evacuation decision plan?					
100	Is there an evacuation decision plan?					
101	Is there an evacuation relocation plan?					
102	Is staff aware of these plans?					
103	Are the roles, responsibilities and limitations of staff, security well defined in the plan?					

104	Is there a periodic testing of the evacuation plan?					
105	If yes, how often?					
106	How is it evaluated?					
HEATING, COOLING, VENITLATION SYSTEM						
	QUESTION	YES	NO	N/A	COMMENT	
107	Are all areas of the hospital we ventilated?					
108	Are ventilation openings free from Obstructions?					
109	Is the temperature in all areas of the Hospital comfortable?					
110	If not, why?					
ELECTRICITY						
	QUESTION	YES	NO	N/A	COMMENT	
111	Is access to electrical panels clear					

	and not obstructed?				
112	Are all electrical switches & circuit breakers identified?				
113	What is the general situation?				
114	In case of power disruption is therea emergency generator?				
115	Does the emergency generator turn on automatically when power is cut?				
116	Is the generator protected against disaster?				
117	Up to what extent can the generator cover the functioning of the hospital?				
118	For how long can the generator function?				
119	Is the generator regularly inspected?				
120	Which were the last two dates of inspection?				
SURGE CAPACITY					
	QUESTION	YES	NO	N/A	COMMENT

121	Is there a defined maximum capacity of beds, resources, space?					
122	What is this capacity?					
123	Is there a designed method to cope with a sudden increase of inpatient numbers?					
124	Is there a specific area which is used in case of inpatient increase?					
125	Which? (could be care areas such as lobby, auditorium)					
126	Is there a designed procedures for coping with a shortage of patient transportation vehicles,resorcres?					
127	is there a plan on how to increase vehicles for patient transportation?					
128	Is there a cooperation with local authorities for identifying alternative sites for patient care (hotels, scools,gyms,communitycenters)					
LIGHTING						
	QUESTION	YES	NO	N/A	COMMENT	
129	Are all EXIT signs illuminated?					

130	Is there emergency lightening leading the way to the escape doors?					
131	Are all spaces in Hospital well illuminated?					
132	If no, which ones are too dark?					
133	Are critical areas well illuminated (fire extinguishers, fire alarm, stairs, elevators)					
134	If no, which ones are too dark?					
135	Are all lamps working?					
136	How often are they checked?					
137	Who is responsible?					
	WATER & FOOD					
	QUESTION	YES	NO	N/A	COMMENT	
138	Is there an adequate water supply for the Hospital's capacity?					
139	Water tank has permanent reserve?					

140	Water storage tanks are protected and in secure locations?				
141	Is there an alternative water supply?				
142	How often are the water tanks cleaned?				
143	Which method is used to clean the water tanks?				
144	Who is responsible for the purification of the water tanks?				

MEDICAL GASES					
	QUESTION	YES	NO	N/A	COMMENT
145	.Is there a sufficient medical gas storage for a minimum of 15-day supply?				
146	Are these medical gases stored in a dry and safe place?				
147	Are these medical gas tanks, cylinders, and related equipment well anchored in order to stay in place?				
148	Are there alternative sources of medical gases available?				
149	Is there a specific person tasked with the storage of medical gases?				

150	Has this person received approriate training for storing medical gases?					
WASTE TREATMENT						
	QUESTION	YES	NO	N/A	COMMENT	
151	Is there a manual for appropriate waste management?					
152	Is there a specific procedure for dividing hospital waste from generic waste?					
153	How is the separation organized?					
154	Is there a person responsible for the disposal of medical waste?					
155	If yes, has this person received appropriate training?					
HYGIENE						
	QUESTION	YES	NO	N/A	COMMENT	
156	All staff uses the correct procedure for decontaminating/ washing hands					
157	Liquid soap is available at all hand washing sinks					
158	Garbage bins are available and visible					

159	The bins are clean, free from spillages inside and out and in a good state of repair					
160	All high and low surfaces are free from dust and cobwebs					
161	In clinical areas work stations are neat and tidy, equipment is visibly clean, phones					
162	Bathrooms/washrooms are clean					
163	Soap/ hand wash alochol available at washrooms					
164	There is an identified area for the storage of clean and sterile equipment					
165	All products are stored above floor level					
166	Equipment used by staff is clean and well maintained					
167	Sterile and non-sterile gloves are available					
168	Eye protection is available (shatterproof may be required in some areas)					

169	Are Facemasks and eye protection worn where there is a risk of any body fluids splashing into the face and eyes?					
170	Saff wears hygiene caps?					
171	What is the perceived general hugiene of staff?					
172	Mosquitos: which of the below are available and used in ordrer to cope with mosquitos: (explain where and how)					
173	Mosquito repellants					
174	Mosquito nets					
175	Ultraviolet bulbs					
176	Other					
177	What measures are taken to prevent animals (dogs, cats, pigeons, birds,rats) inside the hospital?					

HUMAN RESOURCES					
	QUESTION	YES	NO	N/A	COMMENT
178	Is there a updated hospital staff contact list?				
179	Is staff absenteeism monitored?				
180	If yes, how?				

181	Is the minimum need of staff needed to normally operate the hospital identified?		
182	Are all staff mebers including security vaccinated against threats to which they are exposed?		

For more information contact:
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