



A Report: Fire in Indian Hospitals a Preventive Study based on District General Hospital Fire Accident (Jan.2021) Bhandara District Maharashtra, India

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Preface of the Report:

The basis of this report and findings is the research done by students of Athawale College of Social Work, Bhandara in their projects in collaboration with District General Hospital Bhandara. From last five years students of Athawale college of Social work are doing their research project on different medical and psychiatric issues related to society. On the basis of data collected and analyze by students and respective faculty in charges these findings were reported.

The motivation and support behind this study,

❖ Maharashtra Social Work Educators, Management & Staff Forum,Nagpur:

It is vision of president of the forum Dr. Chandansingh Rotele to foster optimal health and well-being, equal human rights and a just society. Also to prepare future social work professionals for leadership in areas of culturally-informed, community-engaged practice, policy, and research, with a particular emphasis on persistent and emerging social problems in rapidly diversifying rural areas locally, nationally and globally.

Forum always aims to provide an evidenced based assessment of the value of professional development in social work for social workers some of the challenges and hurdles that exist to its development an dstructured

implementation and emphasis on the provisions and supervision for quality sustainable professional development.

❖ **District General Hospital, Bhandara:**

District general hospital help our students by giving permission to do research work and field work placement in the hospital premises.

❖ **District General Hospital Patient Welfare Committee, Bhandara:**

Committee members are Mr.Sandeep Kadam (President), Dr.R.S.Fharukhi (Secretary), Dr.Chandansingh Rotele (Member) and Mr.Moinur Rehman Sheikh (Member). This committee work for Serve as a consultative body to enable active citizen participation for the improvement of patient care and welfare in health facilities. Ensure that essentially no user fees or charges are levied for treatment related to care in pregnancy, delivery, family planning, postpartum period, newborn and care during infancy, or related to childhood malnutrition, national disease control programmes such as Tuberculosis, Malaria, HIV/AIDS, etc. and other government funded programmes which are provided as assurance or service guarantees to those accessing public sector health facilities. Decide on the user fee structure for outpatient and inpatient treatment, which should be displayed in a public place and be set at rates which are minimal and do not become financial barrier to accessing healthcare. Ensure that those patients who are Below Poverty Line, vulnerable and marginalized groups and other groups as may be decided by the state government, do not incur any financial hardship for their treatment, and create mechanisms to cover part/full costs related to transport, diet, and stay of attendant. Develop mechanisms to guard against denial of care to any patient who does not have the ability to pay, especially for services that are being provided at the government's expense.

❖ **Athawale College of Social Work, Bhandara:**

Athwale College of Social Work always work for the social cause by organizing health checkup camps, blood donation camps , ARSH (Adolescent Reproductive and Sexual Health) programme, Non communicable disease awareness programme, Cancer Awareness Programme, National Nutrition programme, Aids week programme, T.B. awareness programme, Puls-polio programme, ect. There is a Help Desk in Government Hospital, Bhandara for helping the stranger/needed one who are seeking information and guidance in Government Hospital setting. This Help Desk too runs by our student under the guidance of Officiating Principal Dr.Sarla Shanaware and Dr. Jyoti Naktode, In-charge, Department of Medical & Psychiatric Social Work, Bhandara.

❖ **Place of Higher Learning & Research centre, Athawale College of Social Work, Bhandara:**

Dr. Naresh Kolte is Incharge of Higher Learning & Research Centre, Athawale College of Social Work, Bhandara. Under his guidance our students are getting motivated to do higher education and research. The role of research in an academic institution is significant for its sustainability and development, and it is imperative to have knowledge-driven growth based on innovation. The quest for knowledge is the basic principle behind research. The quality of research work directly translates to the quality of teaching and learning in the classroom, thereby benefiting the students, the society and the country.

Abstract:

This report is the study of fire accident occurred in District General Hospital ,Bhandara on Jan.2021. In this report numbers of points are covered like importance of government hospitals in public healthcare, service provided by the healthcare department, causes due to which the accident occurred. Also in this report some important precautionary measures have been suggested to avoid such incidence.

1. Introduction:**1.1 About Bhandara District:**

Bhandara,town,north eastern Maharashtra state, western India. Bhandara District is an administrative district in the state of Maharashtra in India. It is known as the “District of Lakes”. Bhandara has a mixed economy with agriculture, industries and forest resources.. Bhandara is known for its large production of rice. Tumsar, a tahsil town, is a noted rice market. Bhandara town is also known as “Brass City” owing to the presence of a large brass products industry. Bhandara has several tourist destinations, like Ambagad Fort, Brahmi, Chinchgad, and Dighodi.The district is also known for the Ordnance Factory Bhandara of the Ordnance Factories Board, which manufactures products for the Indian Armed Forces. It is located on an estate which is commonly known as Jawaharnagar colony. This is the only Kendriya Vidyalaya in the Bhandara district. There is one Navodaya Vidyalaya (brain child of Late Prime Minister Rajiv Gandhi) in Navegoan Bandh. Ashok Leyland, a Hinduja Group Company, has a production facility at Gadegaon near Bhandara. Sunflag Iron Steel company and Shivmangal Ispat Pvt. Ltd. are other major industrial undertakings in the district.Bhandara is known as the rice bowl of Maharashtra. Bhandara is also home to a huge ordnance factory that manufactures products for the armed forces.

Covering an area of 3716 km², the district of Bhandara is segregated into two sub-divisions, Bhandara and Sakoli,that are further divided into seven talukas. Bhandara sub-division is divided into four talukas: Bhandara, Tumsar, Pauni and Mohadi. Sakoli sub-division is divided into three talukas: Sakoli, Lakhani, and Lakhandur.According to the 2011 census Bhandara district has a population of 1,200,334, roughly equal to the nation of Timor-Leste[3] or the US state of Rhode Island. This gives it a ranking of 397th in India (out of a total of 640). The district has a population density of 294 inhabitants per square kilometre (760/sq mi). It has a literacy rate of 83.76%. 98% people of the population speak Marathi. Bhandara city has many people from other Indian states as well as people belonging to the world’s major faiths.There are three Vidhan Sabha constituencies in this district: Tumsar, Bhandara (SC) and Sakoli. All of these are part of the Bhandara-Gondiya Lok Sabha constituency(as shown in Fig.1).

Bandhara has a mixed economy including agriculture, manufacturing and forest resources. With several ancient temples and historical monuments, along with lakes, parks and sanctuaries, Bhandara attracts many tourists. In 2006 the Ministry of Panchayati Raj named Bhandara one of the country’s 250 most backward districts (out of a total of 640). It is one of the twelve districts in Maharashtra currently receiving

funds from the Backward Regions Grant Fund Programme (BRGF). For health care facility there is district general hospital in Bhandara district, 8 rural hospitals and 33 primary health care centers are available.

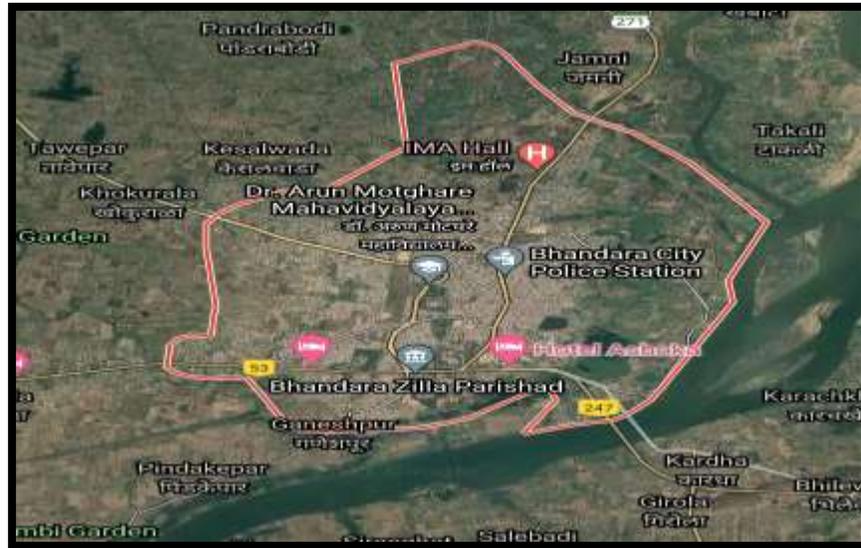


Fig.1: Map of Bhandara District (Google map)

1.2 District Government Hospital Bhandara:

District General Hospital was established in the year 1935. In the beginning the structure and facility of the hospital was limited. But today hospital has vast workspace with all the medical facilities. Hospital provide patient treatment with specialized medical and nursing staff and medical equipment. It has an emergency department to treat urgent health problems ranging from fire and accident victims to a sudden illness. Hospital has 450 beds which are used for intensive care and additional beds for patients who need long-term care. Hospital O.P.D. has number of departments which include accident room, Cycle Cell, Mental Illness, Pediatric department, Physiotherapy ,ECG,Dental,NCD,X-ray,Sonography, Research Lab,HIV,Blood bank,Family welfare etc.





Fig.2 General Hospital in map of Bhandara District (Google map)

1.3 Importance of General Hospitals in Society:

In today's time, both pollution and population are increasing at an alarming rate, which has led to multiple health issues. The poor among all are the worst affected. To improve the quality of health among the poor, educating the poor is the first step. Diseases such as jaundice and diarrhea are caused by consumption of unclean water. The government should ensure that the quality of water supplied in the areas where the poor live is clean and healthy. Since the poor cannot afford expensive medical treatments, free medical check-up camps should be organised for them on a regular basis so that early detection can help in minimising the risk of disease. Charitable hospitals should also be opened for them. The government should also extend support to the poor for the treatment of life-threatening diseases. According to a 2018 study, almost 122 Indians per one lakh die due to poor quality of healthcare each year. Due to increasing pollution, health issues are also increasing rapidly. There is an urgent need to strengthen healthcare policies in the country, especially for poor and the needy. Organise free advanced medical check-up camps for them so that deadly diseases can be detected at an early stage and timely treatment can be provided to those who live below the poverty line. Charitable hospitals should be opened in rural areas so that money for the treatment of diseases such as cancer can be raised in time. The poor must also be educated about various health issues and the treatment for the same.[1]

Primary health facilities are the basic need of everyone in society. Gone are the days when services of doctors were socially justifiable. Nowadays, hospitals have become a business and profit making organizations. After the introduction of liberalization, privatization and globalization by the government in 1991, the health sector has been badly affected. Treatment in private hospitals is out of the reach of the common man, let alone the poor. As far as the situation of government and civil hospitals is concerned, their

reliability is losing its meaning day-by-day owing to the lack of proper basic amenities and expert doctors. There are reliable government hospitals, but getting treatment there is also a dream for the poor. Government regulation of deduction of the ESI is mandatory in many cases but even there, employers fail to create awareness among their employees about the benefits available to them under this scheme. Cost of various treatments, including subsidized rates, should be made transparent so that general public, especially the poor, can become aware about the benefits given to them by the government. Investment in the healthcare sector should be increased in the budget. Pharmaceutical companies should also be ordered to sell medicine at reasonable prices to the poor.[2]

Provision of basic health facilities should be part of the Fundamental Rights. The poor are mostly deprived of advanced medical facilities as the expenses of medicines and other treatments are beyond their reach. It is very common and saddening that owing to lack of funds, the poor have to lose life. So, it is one of the prime responsibilities of the state and Centre government to ensure and provide medical assistance to the poor and the needy. The poor, who earn below the minimum listed income by the government, should be enlisted by the state governments and must be provided medical cards so that at the time of need, they can show the card in any hospital and avail proper treatment. Special hospital or clinics should be also established for their treatment. In state budgets, a part should be reserved for providing medical help to the poor. Free routine check-up camps should also be organised regularly so that they may be able to detect a disease in advance and get treated for the same. The poor must be educated through counselling and seminars on maintaining their health. If the government has been successful in eradicating polio, it has the capability to provide the poor free treatment.[3-4]

In a country like India, there is a huge inequality of wealth distribution amongst the poor and the rich. A major part of India's population live below the poverty line (BPL) and are deprived of the basic human necessities, including healthcare. Thus, it is the responsibility of the government to ensure the safety of health of its BPL citizens. There are many government hospitals in various cities that ensure cheap and affordable treatment for the poor, but effective implementation is rarely observed in such institutions. Besides making effective policies, government must ensure its effective implementation. Since most poor people are not even aware of such policies, they are exploited by the concerned authorities in the process of receiving affordable healthcare facilities. To put an end to such malpractices, NGOs and state governments must hold regular seminars for the poor to educate them of the healthcare policies and schemes available for them. There is usually a lot of paper work and other formalities which the kin of the patients have to fill, but at the time when medical facilities are required, the illiterate poor find it difficult to ask for help. Even if they succeed in fulfilling the formalities, they are not in the condition to pay for emergency treatment. People's trust in free medical facilities is built only if the government ensures high quality facilities even for the poor. To ensure distribution of medical help amongst the poor, government must ensure cheap and quality services to the patients and also make them aware of the policies to avoid exploitation.[5]

There are many reasons why poor people are not able to get good medical facilities. The primary reason is the high fees of private doctors. The government should build more government hospitals so that the poor can get medical facilities easily and at affordable prices.

1.4 Heart wrenching tragedy of District General Hospital Fire Bhandara:

1.4.1 Print and Digital Media Report:

In January 2021 a horrible incident occurred in general hospital district Bhandara, which took away the lives of 10 new born within a blink of eye parents loss their babies. This incident was a headline of every news paper and news on digital media. This report covered each and every report published with photographs of that fire accident by news agencies during that time

As per Times of India news On 09/01/21 At 2:00 am on Saturday morning the fire brigade unit at Bhandara in Maharashtra received a call from the district general hospital after a fire broke out in the neonatal ICU. "It took the firemen only seven or eight minutes to reach the hospital because it is very close by," said Vinod Jadhao, Chief Officer, Municipal Councillor's office Bhandara. However, by the time the firemen climbed their ladder and entered the smoke-filled ICU rooms, ten infants had already lost their lives."Seven babies were rescued from the first ICU room. After clearing out that room, when we reached the second unit (the special newborn care unit) we realised that due to the smoke, and the fire all ten babies in there had passed away," he added. Jadhao recalled that in one end of the room was a heap of melted plastic equipment, medicines and wires. "There were no big blazing flames, but it looked like the kind of fire that's caused by a short circuit. Although, it is for the experts to ascertain," he added. "The firemen took one-and-a-half hours to complete the rescue operation, and everyone from the medical staff to the police helped," said Jadhao. "The entire floor had to be vacated. While the medical staff had already begun shifting the patients, we also joined in and helped," he added.

By the time morning arrived, a tsunami of grief, outrage and condolences had poured in on social media. From Prime Minister Narendra Modi, Maharashtra Chief Minister Uddhav Thackeray to other political leaders, many lamented the 'tragic' and 'heart-wrenching' incident.



(Photo Reference Times of India, Lokmat News, Indian Express, The Hitwada...)

As per The Hindu news ,At least 10 newborn children died in a fire that broke out at the sick newborn care unit (SNCU) of Bhandara Civil Hospital, some 65 kms from Nagpur, on Saturday early morning. Seven newborns were rescued from the hospital immediately after the fire broke out at around 2.00 am, said Pramod Khandate, the civil surgeon of Bhandara district. He added that an inquiry has been ordered into the incident. “The fire brigade personnel have succeeded to rescue seven newborn children but could not save 10 other babies,” Khandate said.

As mentioned in The Indian Express news, There were 17 newborns admitted at the SNCU unit of the hospital when the fire broke out. A doctor and a nurse were on duty at the time of the incident. The nurse first noticed the smoke coming from the neonatal section and informed the hospital authorities. Fire brigade was called immediately, which rescued seven babies, who were then shifted to another ward, said Khandate.

The civil surgeon added that the patients in the ICU ward, dialysis wing and the labour ward were also shifted to other wards for safety after the incident. The fire brigade personnel reached the spot with fire tenders and started the rescue operation with the help of hospital employees. All the infants killed in the blaze

were between a month and three-months old. Three to four infants were charred to death while the rest of the casualties happened as oxygen supply was cut. The exact cause of death would be ascertained after the post-mortem of the bodies, Dr Khandate said.

The cause of the fire in the four-storey building is yet to be ascertained. However, preliminary investigations suggest that a short circuit could have caused the tragedy. It was said that electric warmers were being used at the neonatal unit at the hospital. Bhandara district health officer Prashant Uike said that the SNCU is a 36-bed ward. The ages of the deceased children ranged between a few days and a few months. Many parents, whose babies were among 10 new borns have blamed the staff for 'dereliction of duty'. Hospital authorities ignored safety norms, claim families.

Kin of Geeta and Vishwanath Behere, whose two-month-old daughter was among the 10 babies who perished in the blaze, blamed the hospital authorities for "dereliction of duty". They claimed that no doctor or nurse was present in the unit when the fire broke out. They blamed the hospital administration for the tragedy, and sought action against those responsible.

Vandana Sidam from Ravanwadi in Bhandara gave birth to a girl at Pahela primary health centre on January 3. The baby was shifted to the district hospital unit as its weight was below normal. Family members of Vandana, whose husband was working in Pune when the tragedy happened, have blamed the hospital authorities for the fire and sought action against officials, who they claim, ignored safety norms.

(Source of Reference: Times of India ,Jan 9, 2021, 15:32 IST ,Times of India,The Hindu **Mumbai, January 09, 2021 08:0, THE INDIAN EXPRESS** January 20, 2021)

Following are the name of 17 new born babies present in Sick Newborn Care Unit (SNCU) on 09/01/21 night

S.N.	Name of Mother	Gender	Address	Present Status
1	Mrs.Hirkanya H.Bhanarkar	F	Post. Usgao,Ta-Sakoli	Dead(Girl)
2	Mrs.Priyanka J.Basheshankar	F	Post.Jam Ta-Mohadi	Dead(Girl)
3	Mrs.Yogita V.Dhusle	F	Post. Ta-Bhandara	Dead(Boy)
4	Mrs. Sushma P.Bhandari	F	Post. Morgao Arjuni, Ta-Gondiya	Dead(Girl)
5	Mrs.Geeta V.Behere	F	Post.Bhojpur, Ta-Bhandara	Dead(Girl)
6	Mrs. Durga V. Rahangdale	F	Post. Takla, Ta.- Mohadi	Dead(Girl)
7	Mrs. Sukeshni D.Agare	F	Post. Usarla, Ta.- Mohadi	Dead(Girl)
8	Mrs. Kavita B. Kubhare	F	Post. Sitesara Alesur, Ta-Tumsar	Dead(Girl)
9	Mrs. Vandana M. Sidam	F	Post. Ravanwadi, Ta.- Bhandara	Dead(Girl)
10	Unknown boy child	M	-----	Dead(Boy)
11	Mrs.Shyamkala Shende	F		Safe

12	Mrs.Diksha D.Kandate	F		Safe
13	Mrs.Anjana V.Bhonde	F		Safe
14	Mrs.Chetna Chochre	F		Safe
15	Mrs. Karishma Kanhaya	F		Safe
16	Mrs.Sonu Manoj	F		Safe
17	Unknown Lady	F		Safe

Table: List provides by General Hospital Bhandara

1.4.2 Support Provided by the Government:

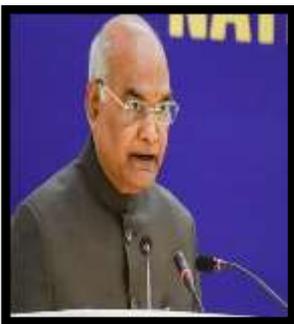
Maharashtra government announced Rs 5 lakh for the families of those infants who died in the Bhandara district general hospital fire on Saturday, Prime Minister Narendra Modi on approved an ex gratia of Rs 2 lakh from the Prime Minister's National Relief Fund to such families and announced Rs 50,000 to those who were seriously injured. Governor of Maharashtra announced ex-gratia of 2 lakhs for the kin of deceased in the fire incident.

1.4.3 Reactions of Political Leaders of India:

President Ram Nath Kovind also condoled the death of children.

Maharashtra Opposition leader Devendra Fadnavis demanded an immediate probe.He said "I demand an immediate probe in the fire incident at Sick Newborn Care Unit (SNCU) of Bhandara District General Hospital.I have also asked the government to take strict action against the culprits,"he said

President Ram Nath Kovind



Prime Minister Narendra Modi hoped for early recovery of those injured. He said "Heart-wrenching tragedy in Bhandara, Maharashtra, where we have lost precious young lives. My thoughts are with all the bereaved families.He added" I hope the injured recover as early as Possible".

Prime Minister Narendra Modi



Maharashtra chief minister Uddhav Thackeray rushed to Bhandara on Sunday and assured all possible help and time-bound probe to the kin of the ten infants who were killed in a fire accident at the district general hospital. "This terrible tragedy has left me speechless. the chief minister said while telling the family members that

the Maharashtra government is standing with them in these times of the crisis.

Uddhav Thackeray



Union Home Minister Amit Shah condoled the death of children in the fire. “The fire accident in Bhandara district hospital, Maharashtra is very unfortunate. I am pained beyond words. My thoughts and condolences are with bereaved families. May God give them the strength to bear this irreparable loss he said.

Union Home Minister Amit Shah



Congress leader Rahul Gandhi said: “The unfortunate incident of fire at Bhandara District General Hospital in Maharashtra is extremely tragic. My condolences to the families of the children who lost their lives. I appeal to the Maharashtra Government to provide every possible assistance to the families Of the injured and deceased.”

Congress leader Rahul Gandhi

Rajnath Singh too offered his condolences. "Deeply saddened by the death of infants in a tragic fire at the District Hospital Bhandara, Maharashtra. My heartfelt condolences to the bereaved families," he tweeted.



Shri.Rajnath Singh



Maharashtra Governor B.S. Koshiyari

Maharashtra Governor BS Koshiyari has expressed condolences to the families of the infants who died in the fire at Bhandara hospital. "Extremely saddened to know about the most tragic incident of fire at Bhandara Civil Hospital. I convey my deepest condolences to the families of the innocent children who lost their lives," Governor Koshiyari said.

1.5 Findings and Preventive Study

1.5.1 Fires in Indian hospitals:

Loss of human life and property by fire is always distressing. Hospital fire happens with alarming frequency and potentially devastating consequences in hospitals around the world. Fire may be initiated in a hospital for the most ordinary reasons, such as electrical short circuit, heating due to electrical overload, cooking oil or gas in the kitchen, stored inflammable liquid, arson, or smoking in bed. Most hospital fires generally originate from three distinct sources: 1) inflammable liquids, such as alcohol-containing solutions (eg, certain prepping solutions) and other volatile chemicals, such as ether or acetone used in the operating room (OR), which become even more fire-prone in the presence of oxygen (O_2) and nitrous oxide (N_2O); 2) a small spark or heat that originates in equipment operating near the zone of application of O_2 to patients; and 3) in components of O_2 gas lines, liquid O_2 tanks, and cylinders that carry pure O_2 (near 100%). Metals become readily involved in such fires.[6-8]

A compilation of 19 events since 2011 found 17 (90%) in government hospitals. Internal errors responsible for the fire accidents were (18/19) due to short-circuit except one which was due to inappropriate use of the hospital basement. Basement, meant for parking, was used as a storehouse for liquefied petroleum gas cylinders, torn mattresses, and wooden boxes. It also housed a pharmacy, a central storeroom, and a biomedical department, all containing inflammable articles. Overloaded electricity point, improper uninterrupted power supply load and acids in the battery, false ceiling panel lined with thermo coal, faulty electric wirings, and overheating leading to burning of wires were some of the causes of electrical fires reported. Safety in health-care institutions is not just a matter of poor planning/regulation but also reflects deeper malaise prevalent in all sectors, including health care, as safety does not necessarily sell.[8-10]

Most of the short-circuit-related fire gutted the air-conditioning unit in areas such as intensive care unit (ICU) receiving ventilator support, X-ray room, incubator of neonatology unit, pediatric ICU, children's ward, dialysis ward, operation theater, and biomedical equipment's storeroom. Sometimes, these places have equipment such as ventilators with heavy and fluctuating power load, making them vulnerable for short-circuiting. Oxygen enrichment of air is primarily responsible for many fires. The amount of ignition energy needed to initiate fire reduces in the presence of higher O_2 concentration and any heat/spark may be the source of ignition. Split air conditioners in ICUs, neonatal ICU, and operating rooms are the source of many such fires, though several other equipment in hospitals have similar vulnerability.[11] In air-conditioned buildings with no natural ventilation, most victims die due to inhaling carbon monoxide from smoke; smoke in the building also hampers rescue efforts.

The electricity load on the day of commissioning a hospital almost doubles from when the facility is designed, and it further goes up nearly 25% annually.[12] No hospital or authority ever estimates correctly, at the time of licensing, the patient load, how many machines it will have, and the required safety checks. The situation is worse in government hospitals where a sheer number of people overwhelm the resources in no

time. Over a period of time, minor repairs, haphazard extensions, and replacements might cause some wires to come in contact with each other or create short-circuit, which may cause a very high current flow through wires and cause fire.[13-15]

Majority of the hospital fires are electrical, caused due to overloading, short-circuit etc., In view of this, the following suggestions can be made:

1. Intelligent building design to assure hazard prevention, risk mitigation, assurance of life safety, property protection, and continuity of operations and functioning. No hospital building should be put to function unless a building utilization (BU) certificate is obtained from a competent authority. Similar certificates should be obtained for electrical fittings, lifts, etc. Regulations as per the National Building Code should be adhered to and NOC from the concerned Fire Department should be obtained before operationalizing the hospital and should be renewed annually. An effective fire safety program should be in place which addresses and monitors the four important parameters namely means of access through approach roads and open spaces and means of escapes such as external staircases and firefighting equipment. In high-rise hospitals, escape chutes[9] may be installed which ensure rapid and safe shifting of everyone including the bedridden patients
2. A disaster action plan, including four points based on rescue, alarm, confine, and extinguish, for firefighting procedures with standard operating procedures, should be prepared and prominently displayed with assigned roles to different persons, with their contact details. Regular/periodic training of all the staff and mock drills for rapid safe evacuation should be carried out. An alarm system with a public address system in the hospital to inform everyone about the emergency/disaster must be in place. It may not work in case of electricity failure; hence, it must have a power backup. Suitable linkage with nearby hospital (s) is a must to avoid delay for the treatment of critical patients
3. A simple solution for electrical accidents leading to fire is to estimate proper load and keeping some buffer before operationalizing, not to make too many changes to the electrical circuiting, and, if any alternation is done, capacity of the wire used should be kept in mind. Indian hospitals need to make several changes in the arrangement of equipment and practice of handling O₂ gas, as well as create awareness among hospital staff, doctors, and administrators.

1.6 Methodology:

Data collected by students and their guide by visiting the hospital and interaction with hospital authorities as well as doctors. Google searches led to the web links of newspapers and television clips that reported hospital fire incident. From these news items, efforts were made to determine source of fire.

1.7 Precautions Measures to prevent Fire accident in Hospitals:

Hospitals have many patients admitted in critical condition. Many people who would have mobility issues and many would not even be alert in case of an emergency. By ensuring Fire Safety in hospitals, we can prevent Fire Accidents. Hospitals stack a lot of combustible materials like chemicals, Cylinders, Surgical Equipment, etc. And many hospitals also have an inbuilt Kitchen or Canteen. A Fire Accident may have a lot of casualties

as the Fire may become uncontrollable in minutes. So, the hospital management should ensure that their buildings are Fire Safe all the times.

1. Strict adherence to the Fire Safety Laws

It is important for all buildings in India to be compliant with the National Building Code of India (NBC) Guidelines. This specifies the Fire Safety of a building.

2. Fire Drills for the staff

The staff should be trained to handle emergency situations. If they are in a state of panic, they may not be in a position to help patients who need assistance. Periodical Fire Drills for the staff prepare them for emergency situations. The Evacuation becomes much easier when the staff is prepared.

3. Fire Safety System

The hospital premises should have Fire Safety system in place. The Extinguishers, Exit Paths, Sprinklers, Hydrant, etc should be regularly checked and kept ready at all times. This ensures the building is always Fire safe.

4. Fire Safety Audit

Periodical Fire Safety Audits are also necessary. This helps the hospital management to know if there are any potential Fire Hazards. The audit also suggests preventive measures if there is any risk. The next time you visit a hospital get more aware, ask the hospital administration if they follow any of the Fire Safety guidelines mentioned above. If you are uncomfortable with the response inform the local Fire authorities and ask them to take action. You may just be doing a good deed in saving someone in your family or someone else's family.

1.7.1 Instructions for Fire Safety for Hospital Staff

Instructions for Personal Safety All Hospital Staff should know:-

- (1) The location of Manually Operated Electronic Fire Alarm (MOEFA) push button Fire alarm boxes.
- (2) Location of the Fire extinguishers, Hose Reel, etc. provided on their respective floors.
- (3) The nearest exit from their work area,
- (4) Their assembly point.

List of B.S.W. and M.S.W. Students for last 3 years who had done research projects in District General Hospital Bhandara

1.	Ms. Puja Prakash Balpande	B (Medical and Psychiatric)	The Analysis of the Views of the College Teaching Faculties over Organ Donation. Special Reference: Teaching Faculties Working at Colleges in Bhandara	Prof. Sunil B. Uikey
2.	Ms. Surekha Dadaram Gaidhane	B (Medical and Psychiatric)	A Study of the Problems Faced by the Parents of the Malnourished Children Special Reference: Parents of the Registered Malnourished Children District General Hospital, Bhandara	Prof. Jyoti Nagtode
3.	Ms. Shraddha Hansraj Badole	B (Medical and Psychiatric)	A Study of the Problems Faced by the Patients Receiving Treatment for Breast Cancer Special Reference: Registered Breast Cancer Women Patients of Rashtrasant Tukadoji Maharaj Regional Cancer Hospital Nagpur 2016-2017	Prof. Sunil Uikey
4.	Ms. Arti Ramprasad Paswan	B (Medical and Psychiatric)	A Study of the Women Suffering from HIV/AIDS Special Reference: Registered Women Patients Suffering from HIV/AIDS at Saarthi Welfare Organization	Prof. Jyoti Nagtode
5.	Ms. Vaishali Wamanrao Thawkar	B (Medical and Psychiatric)	A Study of the Opinions of the Patients on the Treatment given to	Prof. Jyoti Nagtode

			suffering from Tuberculosis Special Reference:Registered Patients Suffering from Cancer at Regional Cancer Hospital Bhandara	
6.	Ms. Krupali Anil Imalkar	B (Medical and Psychiatric)	A Study of Physical and Mental Status Suffering from Leprosy Special Reference: Registered Leprosy Patients at Rural Hospital, Lakhni	Prof. Jyoti Nagtode
7.	Ms. Ashwini Dashrath Gaydhane	B (Medical and Psychiatric)	A Study of the Problems Faced by Childless Couples Special Reference: Registered Childless Couples of Sukhad Nursing Home Bhandara and Sawsi Nursing Home Bhandara	Prof. Sunil B. Uikey
8.	Ms. Ashwini Ratan Raghote	B (Medical and Psychiatric)	A Study of Positive Impact on Health of the People Practicising Yogasan and Pranayam. Special Reference:People doing Yoga and Pranayam in Yoga Camp at Patanjali Yogsamiti, Bhandara	Prof. Sunil B. Uikey
9.	Ms. Ashwini Arvind Raut	B (Medical and Psychiatric)	A Study of the Health Problems of the Patients Suffering from Sickle Cells and its Treatment Special Reference: Registered Patients Suffering from Sickle Cells at District General Hospital, Bhandara	Prof. Sunil B. Uikey
10.	Ms. Gitika Nilkanth Gahane	B (Medical and Psychiatric)	A Study of Pre-Delivery and Post-Delivery Facilities provided by Primary Health Center to the	Prof. Jyoti Nagtode

			Pregnant Women Special Reference:Registered Pregnant Women Patients at Primary Health Center at Shahpur, District Bhandara	
11.	Ms. Kiti Ramnath Meshram		A Study of the Health Problems and Treatment Procedures of the Patients Suffering from Sickle Cells Special Reference: Registered Patients atRural Hospital, Bhandara and Lakhni	Dr. Jyoti Nagtode
12.	Ms. Punangi Anil Ilamkar		A Study of Physical and Mental Status of Patients Suffering from Leprosy Special Reference:Registered Patients Suffering from Leprosy at Rural Hospital Lakhno	Dr. Jyoti Nagtode
13.	Ms. Ishwari Prabhakar Borkar		A Study of Physical, Mental and Economic Problem of Patients Suffering from Diabetes Special Reference:Registered Diabetic Patients at Government Rural Hospital, Mohadi	Dr. Jyoti Nagtode
14.	Ms. Diksha Dilip Kakde		A Study of Physiological and Health Status of People having High Blood Pressure Special Reference:Registered High Blood Pressure Patients Suffering atRural Hospital, Risama	Prof. Sunil B. Uikey
15.	Ms. Pramila Tukaram Funde		A Study of the Effects of Corona Virus over the School going	Prof. Sunil B. Uikey

			Children Special Reference: School Children of Shri Vidya Girls High School , Satgaon (Sakhritola)	
16.	Ms. Diksha Dilip Kakde		A study of Mental and Physical Status of People having High Blood Pressure Special Reference: Registered Patients Suffering from High Blood Pressure at Rural Hospital Risama	Prof. Sunil B. Uikey
17.	Ms. Shweta Devendra Chandrikapure		A Study of the Problems Arising During the Treatment of Corona Patients Special Reference:Registered Covid Patients at Covid Care Center, Amgaon	Prof. Sunil B. Uikey
18.	Mr. Sadanand Rajiramji Nimgade		A Study of Increasing Rate of Consumption of Tobacco by Women and its Impact on their Physical and Mental Health Special Reference: General Class Women of Consuming Tobacco Products from Pachgaon, Neri, Varthi, Taluka Mohadi	Prof. Sunil B. Uikey
19.	Mr. Harsh Yadav		An Empirical Study of People Living with Hypertension and its Consequences on their Social, Economical and Health Status	Dr. Naresh Kolte
20.	Mehram		A Study of the Opinions and Views of the People practising Yogasan	Dr. Mangala Katre
21.	Nilesh Madhukar		The Utility of Herbal	Prof. Jyoti

	Thote		Plants within the Forest Area in Human Health: A Study Special Reference: The Family at Minsi Village at Adyal Forest Area, Pawni Taluka, Bhandara district	Nagtode
22.	Ms. Snehal Asaram Shivankar		A Study of the Effect on Educational, Mental and Health Status of the Students during Covid-19 Lockdown Special Reference: Trainee/Girl Students at Government Industrial Center, Bhandara	Dr. Jyoti Nagtode
23.	Ms. Payal Tukaramji Selokar		A Study of the Facilities Provided to Women Patients before and during the Delivery at Government Rural Hospital Special Reference: Registered Pregnant Women Patient at Government Rural Hospital, Mohadi	Dr. Jyoti Nagtode

1.8 Summary of the Report:

Fires can be devastating, especially in a hospital where a large number of people who need to be evacuated may be vulnerable – immuno compromised, on life support, and incapable of moving on their own. There are special requirements that must be met with while evacuating such people in case of fire emergencies. But before that – “fires must be prevented”. Most fire-related hazards are caused due to carelessness and improper handling of goods. One of the places where it is difficult to evacuate people in case of a fire breakout is a hospital. Evacuating people from hospitals during a fire hazard is challenging because it involves moving patients who are immobile and are unable to help themselves. The real challenge is evacuating high dependency people before the fire spreads in the vicinity. Therefore, it is important that hospitals and other health care centers have adequate fire prevention and safety measures in place. Prevention is the key in the case of fire-related accidents especially when places like hospitals are concerned. Every hospital must have

well-planned exit ways and well-maintained firefighting equipment to ward off the casualties and damage to assets. By ensuring fire safety in hospitals, we can prevent fire accidents. Hospitals stack a lot of combustible materials like chemicals, cylinders, surgical equipment, etc. And many hospitals also have an inbuilt kitchen or canteen. A fire accident may have a lot of casualties as the fire may become uncontrollable in minutes. So, the hospital management should ensure that their buildings are fire safe all the times.

The fire accident took place in District General Hospital Bhandara on Jan.2021, is a horrible incident and the loss of parents can never be compensated but increasing the manpower, proper training to handle such situations, proper resources and timely audit of the hospitals helps in to avoid accident like this.

References:

1. Center for Enquiry into Health and Allied Topics (CEHAT), "Changing Health Budgets," Centre for Enquiry into Health and Allied Themes, Research Centre of Anusandhan Trust, 2006.
2. CBHI, "Table 1. 1. 3, National Health Profile, 2005," Ministry of Health and Family Welfare, Government of India, New Delhi, India, CBHI (Central Bureau of Health Intelligence), 2005
3. D. Nandan, K. S. Nair, and U. Datta, "Human resources for public health in India: issues and challenges," *Health and Population: Perspectives and Issues*, vol. 30, no. 4, pp. 230–242, 2007.
4. M. Rao, K. D. Rao, A. S. Kumar, M. Chatterjee, and T. Sundararaman, "Human resources for health in India," *The Lancet*, vol. 377, no. 9765, pp. 587–598, 2011.
5. Rashmi Sharma, Harsh Bakshi, and Anupam Banerjee, *Indian J Community Med.* 2020 Jan-Mar; 45(1): 104–105.doi: 10.4103/ijcm.IJCM_182_17.
6. National Disaster Management Guidelines (Draft): Hospital Safety. National Disaster Management Authority. Government of India Document; 2013.Availablefrom:www.ndma.gov.in/images/pdf/NDMAhospitalsafety.pdf.
7. Talati S, Bhatia P, Kumar A, Gupta AK, Ojha D. Strategic planning and designing of a hospital disaster manual in a tertiary care, teaching, research and referral institute in India. *World J Emerg Med* 2014;5(1):35-41.
8. Murphy GR, Foot C. ICU fire evacuation preparedness in London: a cross-sectional study. *Br J Anesth* 2011 May;106(5):695-698.
9. Disaster Preparedness Training Programme. Introduction to Disaster preparedness International Federation of Red Cross and Red Crescent Societies; 2000 Jun . Available from: <http://www.ifrc.org/Global/Introdp.pdf>.
10. Williams J, Nocera M, Casteel C. The effectiveness of disaster training for health care workers: a systematic review. *Ann Emerg Med* 2008 Sep;52(3):211-222.
11. World Health Organization. Hospital emergency response checklist. An all-hazards tool for hospital administrators and emergency managers. WHO Regional Office for Europe; 2011 .
12. Nagral S. Fire in a hospital. *Indian J Med Ethics.* 2012;9:76–7.

13. Chowdhury K.. J Clin Anesth. 2014;26:414–24.
14. Hospital Fires Human-made Disaster? India Fails to Learn Lesson from Past Mistakes, most Critical Facilities Ignore Safety Norms. Firstpost India. 2018.
15. Wikipedia, the Free Encyclopedia. Escape Chute. 2019.

