AMRI Hospital

Fire Case Study

December 9th 2011
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INCIDENT SUMMARY

• On December 9th 2011, a massive fire broke out at annex building of AMRI Hospital Dhakuria, Kolkata in early hours of the morning. Immediate response from fire services arrived within 20min. Though the fire was primarily initiated and restricted within the basement of the hospital, poisonous smoke was sucked by the air conditioning ducts that carried it through the ducts and corridors of the 7-storey centrally air conditioned building. Due to the glass façade the smoke could not be ventilated out of the building. Ninety people choked to death, many of them were in their sleep or not in any condition to move. Fire Service tried their best to ensure everyone’s safety but hospital authorities failed to provide first-aid-evacuation. Those held accountable have been charged with negligence and failure to comply to government norms.

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INCIDENT REPORTING

• The fire was first noticed by local residents at around 3:30 A.M.
• Fire Control Room, Kolkata was informed about the incident at 4:10 A.M.
• Relatives of the victims say that the hospital did not call the fire brigade, instead the incident was reported by local residents and several families of the patients.
• It can be said that crucial time was wasted in not informing the Fire Services by the hospital.
INITIAL RESPONSE

• Eyewitnesses say they first spotted and reported smoke streaming from the hospital around 3 am, but the first fire engine arrived two hours later. Additional Director General Fire Services D Biswas said that the fire brigade was informed at 4.10 am and it responded immediately.

• Trepidation rose as the hospital authorities informed the firefighters of the presence of a biomedical department in the basement, where radioactive material for treatment of cancer patients was stored.

• NDRF was requisitioned and their anti Radiation Team came and checked the entire premises, no radiation was detected in the area.
ABOUT THE BUILDING

• The building was a ground plus 6 storey structure.
• It consisted of total 1 staircases.
• Its construction included RCC framed structure with non-load bearing brick masonry.
• It consisted of glass façade.
• It has been awarded with NABH accreditation.
NBC VIOLATIONS

• According to NBC section 6.3.4.1 - “No combustible material of any kind shall be stored or used in any building or section thereof used for institutional occupancy”

• The hospital was in direct violation of the aforementioned sub-clause as well as several minor clauses.

• According to 6.4.4.1.1. “Every place of assembly of subdivision D-1 shall have at least four separate exits as remote from each other as practicable”

• Clearly this was completely ignored by hospital authorities.
West Bengal Municipal (Building) Rules, 2007

• The hospital was also in contempt of the WBMR 2007, which are asset of rules similar to NBC but have been modified to fit West Bengal’s requirements.

• Section 12(6) (B) depicts that the buildings exceeding 14.5 meters in height, should have a given amount of fire and safety measures. The hospital was following only few of the entire list of norms.

• The building also was breaking rules under Section 82, 83, 84 which laid down the provisions of Government Interference with safety of the said structure.
AUTHORITIES’ TAKE

• The fire services department, government of west Bengal warned AMRI Hospital in September, 2011 about the inappropriate and dangerous use of the hospital basement.

• With a December 5 deadline, the hospital was allowed three months’ time to comply, but it did not. The enforcement of law is also in question.

• The report also says that the sprinklers, the gas jets and other water re-leasing equipment that are meant to fight fire, were defunct and none of them went off to prevent the fire.
LOCATION

Advanced Medical Research Institute is situated in Dhakuria, Kolkata

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NEAREST FIRE STATION

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OCCUPANCY

• **Occupancy D: Health Care Facilities**

• Buildings under this Occupancy group shall include those used for purposes of providing medical care, diagnostic facilities and treatment to persons suffering from physical discomfort, in which sleeping accommodation may or may not be provided.

• Further classification suggests that this falls in D1 category.

• The basement occupancy is also in question, as instead of parking cars it was being used for storage of flammable materials.

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ABOUT FIRE

• Fire can be classified as Type E fire. Although the cause of spark is electrical but spread of fire was accelerated due to LPG cylinders. Hence it can also be classified Type C fire.

• Since there were very few multi-storied buildings around the hospital, chances of Leap-Frog were limited.
• Though the fire was primarily initiated and restricted within the basement of the hospital, poisonous smoke was sucked by the air conditioning ducts that carried it through the ducts and corridors of the 7-storey centrally air conditioned building. Due to the glass façade the smoke could not be ventilated out of the building.
A TRAGEDY DECODED

89 people died in a fire at AMRI, one of Kolkata's leading private hospitals. Read on to find out more about the hospital and the accident.

Fire started at 2-2.30 am on Friday, say locals; 3.30 am, says hospital.

Fire tenders arrived at 4.30 am.

The worst-affected floors

Fourth and fifth floors. The fourth floor housed the ICU and NITU, while the fifth had the operation theatre, equipment and electric room.

6th floor Kitchen and roof

5th floor Operation theatre, equipment and electric room

4th floor ICU/NITU

3rd floor Male and female wards, utility, neurosurgeon and nursing station

2nd floor Pantry, female ward, deluxe suites and cabins

1st floor OPD, pantry, electric room, radiology, USG and other investigation centres

Ground floor Reception, MRI, change room, night lobby, basement.

Stores, radiotherapy dept, two kitchen stores, maintenance dept, medical records, HOD cabin and CT scan.

Towards main entrance

Entry to basement (closed)

Dhakuria bridge

Fire-fighting equipment at hospital

Not clear. "AMRI follows strict fire safety measures and regular fire drills," claimed a spokesperson.

Action taken

West Bengal govt has cancelled hospital's licence; hospital co-promoters RS Goenka (also co-promoter of Emami) and SK Todi (also promoter of Shrachi Group) have surrendered to the police.

Number of floors

Basement, ground plus six floors

Number of beds

190

Number of occupied beds

160

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ABOUT CONTENTS

• The contents included LPG cylinders which were stored near the starting point of fire.

• Also torn mattresses and bed sheets were also kept in the basement,

• Apart from illegal storage of combustible material, a pharmacy was also present quite near the source of fire.

• It can be deduced that fumes from burning of all these materials are what turned the smoke poisonous.
ABOUT OCCUPANTS

• Out of over 160 people present, the death count was 89 in which 85 were patients while 4 were staff members and nurses.

• It is presumed that out of the 85 patients most were immobile patients.

• Complaints from victims present during the fire suggest that no alarms were sounded and no hospital staff aided in the evacuation.

• No hospital staff were trained for evacuations and most abandoned their posts without aiding in the evacuations.

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UNEXPECTED HEROES

• Though most hospital employees abandoned their posts and even prevented volunteers from entering the establishment, two unsung heroes came to light.

• Two nurses of the female general ward, from Kerala showcased their bravery under such adverse conditions.

• They were able to save eight of the nine patients in their ward who were left to die. These patients were immobile and yet the Nurses managed to save most of them.

• Sadly, while going back to save the last patient these valiant heroes lost their lives to smoke inhalation.
TIMELINE

1) Smoke seen at 3:30 AM by residents

2) Hospital Delays Call Fire Brigade alerted at 4:10AM

3) Around 4 Fire Tenders Report at 4:20 AM

4) Manual Ladders are used to break windows and begin evacuations

5) Sky-Lifts and Hydraulic Ladders are brought at 7:00 AM

6) At 11:00AM Hospital authorities warn about radioactive material

7) By 12 noon NDRF and AERB conclude no radioactive leakage

8) Fire put out by 2:40 PM

9) By 2:45 Death toll has already reached high 60s.

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EVACUATION

• Fire Control Room, Kolkata was informed about the incident at 4.10 am. Immediate response from the fire services was arrived at the site within 20min.
• The road leading to the hospital is narrow and congested.
• Hospital officials abandoned patients in the ICU and others who were immobile.
• “There was no ventilation channel for the smoke to come out,” a Fire officer said, even as desperate firefighters smashed the glass windows to let the fumes out.
• 28 fire-tenders and three sky-lifts were pressed into action and the blaze was put out late in the afternoon. The survivors were shifted to five hospitals.

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ORIGIN of FIRE

• The fire was primarily initiated and restricted within the basement of the hospital where illegal highly inflammable material was allegedly stored.

• Presence of medical waste chemicals and pharmaceutical products provided fuel to the fire and made the smoke poisonous.

• Poisonous smoke was sucked by air conditioning ducts that carried it through the rooms and the corridors of the seven-story centrally airconditioned hospital

• Entire hospital building was filled with thick pile of smoke, caused tremendous suffocation for all the indoor patients.

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ROOT CAUSE ANALYSIS

• Instead of parking cars, the hospital was using its basement for storing empty and filled up LPG cylinders, torn mattresses, and wooden boxes and had converted the entire space into a storehouse.

• The centrally air-conditioned hospital didn’t have windows and with glass façade walls. As a result, smoke could not be ventilated outside the building.

• Unofficial reports say that the basement was being used as a smokers’ corner, keeping the fire alarms in switch off mode causing delay in detection of fire.
REPERCUSSIONS

- The West Bengal government started paying compensation of 3 lakhs to the victims on 2 January 2012, many of which decided to use it fighting the case against the hospital.
- The accused were made to provide compensation to the patients families of Rs.5 lakh.
- FICCI interfered with investigation asking the police to release the arrested board members who are not responsible in "day to day operations", in order to prevent negative view for the investors.
AFTERMATH

• Chief Minister Mamata Banerjee said that the tragedy was "an unforgivable crime" and vowed "the harshest punishment possible" for those found responsible.

• The owners of the hospital, RSGoenka and SK Todi, surrendered at the local police station where the fire department found them guilty of negligence.

• Ultimately a total of 16 people stood accused in connection with the fire in July 2016, including the board members and several directors of the hospital. Amongst the charges were culpable homicide not amounting to murder under section 304 of the Indian Penal Code.
RESIDENTS PLEA

• It is a horrific fact that this was the second fire in AMRI hospitals over 3 years. With a December 5 deadline, the hospital was allowed three months’ time to comply, but it did not. The enforcement of law was heavily questioned by the residents and the victims.

• "Because Mamata is here, the ambulances cannot go towards the annex building. Please ask her to shift to another road", shouted a distraught relative of the victim.

• Pradeep Sarkar another such relative said the sky lift came only around 7 am. Before that the firemen only came with manual ladders. This is to question whether the authorities who responded were equipped up to the mark or not.
INSURANCE CLAIMS

• The AMRI Hospital facilities were insured by National insurance company (NIC).

• The insurer was given permission to conduct survey of the site almost 4 months after the incident took place.

• The AMRI group has an insurance cover of Rs.200 crore. The fire incident will not hinder renewal of the AMRI contract for the present financial year said Mr. Chandraprasad, Chairman & MD of NIC.
What we could have done differently?

• On determining the root cause, it becomes obvious that had the hospital followed guidelines laid out by the NBC, much of the damage of the disaster could have been prevented.

• Storage of combustible materials near places where risk of fire is high should have been kept in check.

• Proper fire evacuation training should have been provided to the staff and Emergency Signage should have been set up at appropriate locations.
• The response time of the Fire Service was appreciable. It took them mere 10 minutes to reach the scene of fire with 4 fire tenders.
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THANK YOU