

OCCUPATIONAL DEATHS AT CONSTRUCTION SITES IN BANGALORE

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Background and Objective: India, being a fast developing nation, is looking forward a rapid growth in the economical status & infrastructure. Accordingly, there was a boom in the Real estate sector which led to exuberant constructions of multi-storeyed buildings. In the past two decades, India has witnessed rapid urbanization, motorization, industrialization and migration of people resulting from socioeconomic growth and development. With mechanization and revolution in technology, traditional ways of living and working are being altered. Injuries are a major public health problem in India. Lack of reliable and good quality national or regional data has thwarted their recognition. **Methods:** The present study is a retrospective study conducted at St. Johns Medical College. All the Autopsied cases of Occupational deaths which occurred from 2001-2010 over a period of 10 years were studied and analysed. **Result:** When a year wise percentage of fatalities was analysed, in year 2007 had a significantly high fatalities. It was found that significant increase in death was found to be in Manual construction labourers of migratory population at evening time due to Shock and Haemorrhage. **Conclusion:** A steep increase in deaths during the period of Real Estate boom was observed.

Keywords: Occupation; Mortality; Construction workers**1. Introduction:**

Construction is the most dangerous land-based work sector. The leading safety hazards on site are falls from height, motor vehicle crashes, excavation accidents, electrocution, machines, and being struck by falling objects. Some of the main health hazards on site are asbestos, solvents, noise, and manual handling activities. Falls from heights is the leading cause of injury in the construction industry. Protection is also required when the employee is at risk to falling onto dangerous equipment. Fall protection can be provided by guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, and warning line systems.

All employees should be trained to understand the proper way to use these systems and to identify hazards. The employee or employer will be responsible for providing fall protection systems and to ensure the use of these systems. Motor Vehicle Crashes are another major safety hazard on construction sites. It is important

to be safety cautious while operation motor vehicles or Equipment on the site. Motor vehicles shall have a service brake system, emergency brake system, and a parking brake system. All vehicles must be equipped with an audible warning system if the operator chooses to use it. Vehicles must have windows and doors, power windshield wipers, and have a clear view of site from the rear window.

Occupational factors make an important contribution to the global burden of disease. Work-related morbidity and mortality not only results in suffering and hardship for the Worker and his or her family, but also it adds to the overall cost to society through lost productivity and increased use of medical and welfare services¹. The cost to society has been estimated at 2-14% of the gross national product in different studies in different countries. Construction labourers face highest risk at workplace. Construction sites are increasingly unsafe in Bangalore city, with the department of factories,

boilers, industrial safety and health recording one death a month at these places. Workers face various hazards at workplaces. In the recent times there is a lot of construction activity in the city, including Metro rail, flyovers and multi-storeyed buildings². Workers employed are from rural areas and have no access to information on their rights and privileges.

2. Materials and Methods:

The present descriptive study was conducted retrospectively from 2001-2010 (10 years). In this study, a total of 120 cases of occupational deaths autopsied at St. John's Medical College were analyzed. Data were collected in a format, from the history in hospital records, Police Inquest reports and Post-mortem reports. The emphasis was on age, sex, time of sustaining injury, time of death, occupation, fatal body part, cause of death, migratory or non migratory population, protective gear, distance from site of injury to hospital, time taken to shift the deceased to hospital. All the data was documented and statistically analysed.

3. Result:

When a year wise percentage of fatalities was analysed, in year 2007 had a significantly high fatalities. The male preponderance of 110 (95.6%) deaths was seen out of 115 total deaths (Table-1). When the percentage of deaths with respect to occupation was analysed, Manual construction labourer were found to be significantly very high (67%) (Table-2). When the percentage of deaths with respect to Type of population was analysed, migratory population death was high as compared to local population (Table-3). When the percentage of deaths with respect to time of death was compared, it was found to be evening time causes significantly high death (Table-4). When the percentage of deaths with respect to cause of death was compared, it was found to be Shock and Haemorrhage was highest (Table-5).

Table-1: A year wise comparison of percentage of deaths.

Year	Fatalities	Percentage of Fatality
2001	3	2.6
2002	6	5.5
2003	10	8.7
2004	14	12.2
2005	22	19.5
2006	18	16
2007	23	20
2008	7	6.2
2009	7	6.2
2010	5	2.8

Table-2: A comparison of percentage of deaths with respect to occupations.

Occupations	No. of deaths	Percentage of deaths
Manual construction labourer	77	67%
Painter	5	4.5%
Interior decorator	4	3.5%
Electrician	10	8.6%
Carpenter	6	5.2%
Factory worker	5	4.5%
Plumbers	8	7%

Table-3: A comparison of percentage of deaths as per the type of population.

Type of population	No. of Deaths	Percentage of deaths
LOCAL	46	40%
MIGRATORY	69	60%

Table-4: A comparison of percentage of deaths with respect to time of death

Time	No. of Deaths	Percentage of deaths
Morning	35	30.5%
Noon	30	26%
Evening	38	33%
Night	12	11%

Table-5: A comparison of percentage of deaths with respect to cause of death.

Cause of Death	No. of Deaths	Percentage of deaths
Coma due to Head injury	28	24.3%
Shock and Haemorrhage	38	33%
Asphyxia	9	7.8%
Electrocution	16	14%
Septicaemia	16	14%
Others	8	7%

4. Discussion:

One of the major causes of fatalities during construction is the use of cranes or derricks during lifting operations. Using the Occupational Safety and Health Administration's (OSHA) case files from fatality investigations during the years 1997–2003, the writers examined the data to determine the proximal causes and contributing physical factors². The research results showed the use of mobile cranes with lattice and telescopic booms, truck or crawler mounted represented over 84% of the fatalities in the use of cranes/derricks. To reduce the rate of crane fatalities the writers believe that crane operators and riggers should be qualified and requalification should occur every 3 years³. Crane safety training must be provided to specialty trade crafts before they are allowed to work around cranes during lifting operations. In addition, a "diligent" competent person should be in charge of all aspects of lifting operations. Finally, OSHA should improve its system of collecting information during fatality investigations, placing emphasis on intervention strategies to improve usefulness of the investigations to researchers and policymakers inside and outside the Agency.

According to the key preliminary findings of the 2010 Census of Fatal Occupational Injuries,

The number of fatal work injuries among the self-employed declined by 6 percent to 999 fatalities, more than the decline in their hours worked. The number of fatal injuries among wage and salary workers

was increased by 2 percent in 2010⁴. Fatal work injuries in the private mining industry rose from 99 in 2009 to 172 in 2010, an increase of 74 percent. The fatal work injury rate for mining increased from 12.4 per 100,000 FTEs in 2009 to 19.9 per 100,000 in 2010⁵⁻⁷. The multiple-fatality incidents at the Upper Big Branch Mine and the Deepwater Horizon oil rig are included in these figures. Fatal work injuries in the private construction sector declined by 10 percent from 2009 to 2010 and are down nearly 40 percent since 2006. Work-related fatalities resulting from fires more than doubled from 53 in 2009 to 109 in 2010, the highest count since 2003. Workplace homicides declined 7 percent in 2010 to the lowest total ever recorded by the fatality census, but workplace homicides involving women increased by 13 percent⁸.

Conclusion:

From our study, we conclude that a steep increase in deaths during the period of Real Estate boom. This requires a strict enforcement of and implication of information on their rights and privileges of workers employed.

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