Health Care Waste Management Practices in Public and Private Sector Hospitals

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Abstract

Background: To assess the existing health care waste management practices in public and private sector hospitals of Bahawalpur City.

Methods: In this cross sectional descriptive study all private hospitals of Bahawalpur City and 24 public sector sites from four hospitals were selected by simple random sampling for observation of practices of hospital waste management. The scoring system for the observation checklist consisted of giving a score one for step done correctly, while the step not done was given zero. Fisher’s exact test was applied to see any statistical difference in practices of public and private sector hospitals and ‘p’ value <0.05 was considered as a lowest level of significance.

Results: Out of total 48 hospitals (24 public and 24 private sector) observed for medical waste management practices in Bahawalpur city, in public sector 50% were segregating medical waste from other waste stream while in private sector it was only 16.6%. Separate area for segregation was present in all public sector hospitals and 58.3% in private sector respectively. Proper containers for segregation, color coding for different types of waste and use of protective measures by waste handlers in public and private sector was 100%, 75%, 33.3% and 58.3%, 33.3%, 25% respectively. In public sector proper container for transport of waste within hospital and storage area for waste awaiting disposal was present in all public sector hospitals and in private sector it was present in 66.6% and 41.6% hospitals respectively. Final disposal of waste was not proper in all public and private sector hospitals. There is no incinerator in Bahawalpur city

Conclusion: Public sector hospitals have better practices of waste management in comparison to private sector hospitals.

Key Words: Biomedical waste

Introduction

In the process of delivering patient care services in health care facilities, biomedical waste is generated. According to World Health Organization (WHO) the incorrect management of health care waste can have direct impact on the community, individuals working in the health care facilities and natural environment. In developed countries the quantity of produce has been decreased in hospital sector and stabilized at a very low level but in developing countries the generation of waste by hospital sector still remains high. The exponential growth of health care units such as hospitals, dispensaries and laboratories has generated massive health care waste creating an alarming situation. Hospitals in Pakistan produce about 250,000 tons of waste per year. Hospital waste has been poorly handled and managed by the hospital staff and administration respectively. This leads to environmental and health consequences within hospitals as well as to outside population.

According to international policy for developing countries the generator of waste is responsible for the proper management, treatment and disposal of waste. Although waste is generated from anywhere such as the home, office, industry, agriculture and school, but waste generated from healthcare establishments is of more concern due to its hazardous nature and disease transmission characteristics. Health care waste is also categorized as non-hazardous (non-risky) and hazardous (risky) wastes. When hazardous health care wastes are not properly managed, exposure to them can lead to infections, infertility, genital deformities, hormonally triggered cancers, mutagenicity, dermatitis, asthma and neurological disorders in children; typhoid, cholera, hepatitis, AIDS and other viral infections. The people at risk of healthcare hazardous waste include; healthcare workers, patients, visitors to health-care establishments, workers in support services, workers in waste disposal facilities and fetuses in the wombs of mothers.
Methods
This was cross sectional descriptive study conducted in public and private sector hospitals of Bahawalpur City from March 2013 to September 2013 to evaluate the practices of health care waste management. All private hospitals of Bahawalpur City (24) were included in the study and for comparison purpose 24 public sector sites were selected by simple random sampling because there were only four public sector hospitals in Bahawalpur City. For observation of practices of hospital waste management, checklist was developed to evaluate the practices. It consisted of 8 items covering some areas related to the practices regarding medical waste segregation from other waste stream, separate area for segregation, proper containers for hazardous waste, color coding for segregated waste, protective measures taken by waste handlers, proper containers for transport of waste within hospital, proper storage area for waste awaiting disposal and final disposal of segregated waste. Each item was checked as done correctly or not done. The scoring system for the observation checklist consisted of giving a score one for step done correctly, while the step not done was given zero. Fisher’s exact test was applied to see any statistical difference in practices of public and private sector hospitals and ‘p’ value <0.05 was considered as a lowest level of significance.

Results
In public sector 50% were segregating medical waste from other waste stream while in private sector it was only 16.6%. Separate area for segregation was present in all public sector hospitals and 58.3% in private sector respectively. Proper containers for segregation, color coding for different types of waste and use of protective measures by waste handlers in public and private sector was 100%, 75%, 33.3% and 58.3%, 33.3%, 25% respectively. In public sector proper container for transport of waste within hospital and storage area for waste awaiting disposal was present in all public sector hospitals and in private sector it was present in 66.6% and 41.6% hospitals respectively. Final disposal of waste was not proper in all public and private sector hospitals (Table I).

Discussion
Our study showed that in public sectors hospitals color coding for different types of segregated wastes results in private sector are comparable with the study conducted by Khandelwal et al. which revealed that majority of the hospitals was not doing color coding for their waste.9 In our study practices regarding use of personal protective measures observed were almost similar in both public and private sector hospitals i.e. 33.3% and 25% respectively (p=0.5000). These results are against the findings observed in the study conducted by Mahmood S et al. in which utilization of personal protective measures by sanitary staff were much better in public hospitals as compared to private hospitals10. This difference may be due to the lack of awareness and proper training of waste handlers.

Containers for transport of waste within hospital and storage area for waste awaiting disposal was proper in all public sector hospitals while it was present in 66.6% and 41.6% in private sector hospitals respectively. Final disposal of the waste was not proper in all public and private sector hospitals observed in our study. In Bahawalpur City there was no incinerator. Dumping is being used for disposal of hospital waste in Bahawalpur City which is very harmful for underground water. These findings of our study are against the study conducted by Anwar O et al. in Faisalabad City in which 59% hospitals were disposing their hospital waste by municipal cooperation and 20% of hospitals use incinerator for the disposal of hospital waste.11

Inadequate waste management will cause environmental pollution, unpleasant smell, growth

<table>
<thead>
<tr>
<th>Practices</th>
<th>Public Sector (n=24)</th>
<th>Private Sector (n=24)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segregation from other waste stream</td>
<td>12 (50)</td>
<td>4(16.6)</td>
<td>0.0965</td>
</tr>
<tr>
<td>Separate area for segregation</td>
<td>24(100)</td>
<td>14(58.3)</td>
<td>0.0186</td>
</tr>
<tr>
<td>Proper containers for segregation</td>
<td>24(100)</td>
<td>14(58.3)</td>
<td>0.0186</td>
</tr>
<tr>
<td>Color coding</td>
<td>18(75)</td>
<td>8 (33.3)</td>
<td>0.0498</td>
</tr>
<tr>
<td>Use of protective measures by waste handlers</td>
<td>8(33.3)</td>
<td>6 (25.0)</td>
<td>0.5000</td>
</tr>
<tr>
<td>Proper containers for transport of waste within hospital</td>
<td>24(100)</td>
<td>16(66.6)</td>
<td>0.0466</td>
</tr>
<tr>
<td>Proper storage area for waste awaiting disposal</td>
<td>24(100)</td>
<td>10(41.6)</td>
<td>0.0023</td>
</tr>
<tr>
<td>Proper final disposal for segregated waste</td>
<td>0(0)</td>
<td>0 (0)</td>
<td>1.000</td>
</tr>
</tbody>
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and multiplication of insects, worms and may lead to the transmission of diseases like typhoid, cholera, hepatitis and AIDS through injuries from syringes and needles contaminated with human blood. Separation, collection, storage, carrying and disposal of hospital waste are important and ignored issues in Pakistan.11.

**Conclusion**

1. There is lack of biomedical waste practices within the public and private hospitals
2. Dedicated and motivated staff should be deployed for this activity in each hospital. There is need of training of hospital staff and continuous training will ultimately result in better management of biomedical waste.
3. It is urgently required to install proper incinerators in all the cities

**References**