ANALYZING KNOWLEDGE, ATTITUDE AND PRACTICES OF HEALTHCARE PROFESSIONALS REGARDING HEALTHCARE WASTE MANAGEMENT IN PUBLIC AND PRIVATE HOSPITALS OF KARACHI

Summya Khatoon*  Wajiha Saghir**  Riaz Hussain Soomro***

ABSTRACT
The aim to study is to examine the knowledge, attitude and practices of healthcare professionals including doctors, nurses and paramedical staff. The study joins a point by point overview of the age, gender, education and experience. Likewise, the general target of this project is to play out a study on the present medical waste administration in public and private hospitals. This study helps to pinpoint the gaps between the current KAP among the health-care professionals involved in waste management and furthermore the future desired state that should be reached. A structured questionnaire was utilized to gather the information. Non-probability quota sampling has been chosen with a sample of 124 respondents was gathered to cover the quantitative and qualitative analysis. Further it is divided in to 3 departments who are producing more toxic waste in both public and private hospital of Karachi. These three are surgical department, gynecology department and medical/general ward. The study highlighted that despite the existence of law enactment for proper management, implementation of hospital waste management and waste disposal, it is not yet correctly and carefully implemented by health-care professionals. It is also revealed that there is a gap between current knowledge of HCWM among health-care professionals and that HWM implementation policies demanded. There should be in-depth and proper training and educational programs regarding practices and awareness of waste disposal, with continuous monitoring at systematic intervals.

Keywords: Knowledge, Attitude, Practices, Healthcare Professionals, Healthcare Waste, Waste Management.

JEL Classification: M1, I11

1. INTRODUCTION
Hospitals waste has been recognized as a potential wellbeing and natural danger or environmental hazard.¹ Healthcare waste (HCW) is a term utilized for all the waste emerging from Healthcare services foundations.² Between 75 – 90% of HCW is non-hazard waste (paper, bundling, sustenance waste and so forth), practically identical to local waste. The remaining 10 – 25% (USA 15%, India 15 to 35%, and Pakistan 20%) of HCW is viewed as danger waste (infectious, pathological, sharps and so forth) and make an assortment of health hazard.³ ⁴

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¹ Laabar, Siriwong and Robson, Hospital waste management: A study on knowledge, attitude, and practices among health staff and waste handlers in Jigme Dorji Wangchuk National Referral Hospital, Thimphu, Bhutan, (Journal of Health Research), 26 no. 5, (2012)
² Muhammad Ilyas, Public Health and Community Medicine, 7th ed. Time Publisher.
As indicated by a WHO report in 2015 around 85% of the healthcare waste are really non-hazardous, 10% are infective pharmaceutical and radioactive (hence, hazardous), and the rest of the 5% are non-infectious yet risky/hazardous (substance). World Health Organization (WHO) evaluation in 2002 indicated that, there were around 22 nations which had around 64% Hospitals with no legitimate waste discarding methods. Hospitals in developing nations including Asia experience improper management of waste. In developing countries, Healthcare waste management (HCWM) is still a noteworthy challenge for healthcare facility and inappropriate Hospital Waste Management has genuine effect on our surroundings. In 2006, around 92,000 hospital beds were there in Pakistan and around 2 Kg of waste per bed created each day. Altogether around 0.8 million tons of waste is created each day. Evaluation by World Health Organization that every year there are around 2.3 to 4.7 million instances of Hepatitis C infection (HCV), 8 to 16 million new instances of Hepatitis B infection (HBV) also, 80,000 to 160,000 instances of human insusceptible lack infection (HIV) because of perilous infusions and for the most because of extremely poor waste administration frameworks.

At the present time taking care of disposal and transfer of Biomedical/Healthcare waste has risen as a significant issue in Pakistan. The insufficient disposal and handling of healthcare waste may prompt transmission of transmissible diseases. The present review is led to concentrate on the familiarity of specialists, attendants, medical lab technologists and housekeeping staff, with biomedical/healthcare waste administration. Globally, implementation of the HCWM practices at hospitals has been seriously considered. But, presently there is no accessible data that surveys the practice of handling the healthcare waste products of Hospitals of Pakistan (in general) and Karachi (specifically). Under the circumstances of this deficiency, this study was designed to collect data and to determine the knowledge, attitude and practices of healthcare workers regarding health care waste management in public and private hospitals. So, the research objectives of this study are;

1. To determine the knowledge of healthcare professionals regarding health care waste management in public and private hospitals.
2. To determine the attitude of healthcare professionals regarding health care waste management in public and private hospitals.

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hospitals.

3. To determine the practices of healthcare professionals regarding health care waste management in public and private hospitals.

4. To determine the association between practices of healthcare workers and various underlying factors (Age, Gender, Education, and Experience).

The main idea is to examine the knowledge, attitude and practices of healthcare staff i.e. Doctors (Bachelors/MBBS/Specialist), nurses (Certificate/Diploma) or paramedical staff, along with the factors i.e. Age, Gender, Education, Experience. This study will recognize the knowledge, attitude and practices of healthcare professionals and to evaluate understanding level towards healthcare waste management. Likewise, the general target of this project is to play out a study on the present medical waste administration in public and private hospitals and a key strength of this study is the analysis of KAP related to health-care waste management gave us a one of a kind chance to give data around a subject which is inadequate in our nation. It also helps to pinpoint the gaps between the current KAP among the health-care workers involved in waste management and furthermore the future desired state that should be reached.

1.1 Hypothesis

Null Hypothesis (Ho): Knowledge is not dependent of health care waste management in public and private hospitals.

Alternate Hypothesis (H_A): Knowledge is dependent of health care waste management in public and private hospitals.

Null Hypothesis (Ho): Attitude is not dependent of health care waste management in public and private hospitals.

Alternate Hypothesis (H_A): Attitude is dependent of health care waste management in public and private hospitals.

Null Hypothesis (Ho): Practice is not dependent of health care waste management in public and private hospitals.

Alternate Hypothesis (H_A): Practice is dependent of health care waste management in public and private hospitals.

1.2 Research Question

To examine whether there is association between practices of healthcare professionals and various underlying factors (Age, Gender, Education, and Experience) is present or not?

2. LITERATURE REVIEW

2.1 History

Despite the fact that there have been numerous investigations in seeking after their aims of decreasing health issues and disposing of potential dangers to individuals' health, healthcare services benefits yet it definitely creates waste that
may itself be perilous or risky to wellbeing. Over the span, healthcare waste has the potential for diseases and harm more than any other waste. Wherever waste is produced; protected and dependable techniques for its handling are therefore essential.

Insufficient and unseemly healthcare waste treatment may have noteworthy effect on the surrounding and have a genuine public health outcomes or results. Sound administration of healthcare waste is consequently a critical segment of ecological health security. A particular hazard for the environment poses by a medical waste that has the possibility of the pathogens and microorganisms it contains coming into contact with the surrounding and only partly used therapeutic products or the presence of expired products capable of having toxic effects. Waste from animal bodies, autopsies, and other waste things that have been immunized, infected, or in contact with very infectious operators. From infected objects, not only HIV and hepatitis transmitted, but also blood-borne pathogens i.e. Ebola, hemorrhagic and malaria fever viruses are transmitted.

Generally, somewhere around 75% and 90% of the waste delivered by healthcare services is non-hazard (non-contagious, non-hazardous) general waste, equivalent to local waste. Just a little section of healthcare waste is viewed as risky and may make health dangers. An evaluation of waste production rate information from around the globe demonstrates that around 0.5 kg for each bed every day is created in hospitals. Some waste created in hospitals is too perilous to possibly be dealt with carelessly and indiscretion in the administration of this waste may contaminate surrounding and spread diseases.

Healthcare waste (HCW) is considered as the second perilous or hazardous waste in the World that should be appropriately arranged via prepared healthcare staff. Great information, uplifting attitude and safe practices of healthcare staff is exceptionally basic while dealing with this infectious waste. Around the world, an expected 16

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7 Prüss, Giroult and Rushbrook. Safe management of wastes from health-care activities, World Health Organization
8 Bostoen and Kristof, Landfilling healthcare waste: sustainable method of disposal or threat to public health, WEDC, (1997)
billion infusions are managed each year, not all needles and syringes are discarded securely, making a danger of damage and contamination and open doors for reuse. Between 162 and 321, out of 300,000 cases of viral hepatitis B infection recorded annually that are resulting from HCW exposure in the USA. An occupational injury had reported the highest annual rate in waster handlers and cleaning personnel in the USA, 180 out of 1000 and as compared to that of housekeeping personnel and nurse, whose injury rate annually are ten to twenty per thousand workers.

Different reports have highlighted the risks of improper transfer of healthcare services waste. An orderly audit of healthcare waste administration in 40 low-and middle-income nations uncovered considerable issues in urban areas in Africa, Asia, and the Middle East exacerbated by expanding amounts of healthcare waste and disposal and improper treatment. The study noticed that notwithstanding the malicious health impacts of incinerator outflows and fiery remains, numerous incinerators were obsolete and broken and, as an outcome, infectious waste was openly burned or regularly disposed of with municipal waste. If the small amount of HCW is safely and carefully handled and segregated so it can be treated by a satisfactory treatment which shall be suitable and cost-effective sustainable operation in the local condition.

2.2 Statistics

Absence of mindfulness about the health dangers or hazards identified with Health care waste, deficient training in appropriate waste administration, nonappearance of waste administration and disposal frameworks, lacking money related and HR and the low need given to the point are the most well-known issues associated with health care waste. Numerous nations either don't have suitable controls, or don't uphold them.

The disposal of medicinal waste in UK has turned out to be exceptionally costly and it is assessed that UK spends more than £125 million for the treatment of Health Care Waste. The idea of manageability is inadequate in the health care

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14 Prüss, Giroult and Rushbrook, World Health Organization.
16 Coad, Adrian and Jurg. How are we managing our health care wastes by SKAT. Swiss Centre for Development Cooperation in Technology and Management, (1999)
17 Prüss, Giroult and Rushbrook, World Health Organization.
frameworks in Britain.\(^\text{19}\) In UK there is an absence of examination and exact information about the generation patterns of healthcare waste all together to give a confirmation or evidence base to future basic leadership. The different reasons towards poor people waste administration rehearses far and wide are:

- The nonattendance of waste administration.
- Lack of mindfulness about the health risks.
- Poor control, HR and insufficient budgetary of waste disposal.
- Lack of strict and proper controls.
- The reasonable attribution of obligation of proper taking care of and waste disposal.

Northern part of Jordan average production rates of aggregate therapeutic waste in the hospitals were evaluated to be 5.62 kg/persistent/day (3.14 kg/bed/day), 6.10 kg/tolerant/day (3.49 kg/bed/day), and 4.02 kg/understanding/day (1.88 kg/bed/day) for maternity, public and private clinics, separately. For therapeutic research facilities, rates were observed to be in the scope of 0.053-0.065 kg/test-day for legislative labs, and 0.034-0.102 kg/test-day for private labs.\(^\text{20}\)

There are strict enactments at the local, territorial and national levels which are outfitted towards the correct administration of unsafe and hazardous clinical waste produced in developing nations, said WHO. In developing nations, the aggregate sum of healthcare waste produced in chosen hospitals (Peru, Viet Nam, Metro Manila, Philippines) differed from 0.54 to 1.39 kg/bed-day. Then again, the reported measure of infectious (yellow bag, clinical) waste produced in these facilities changed from 0.30 to 0.34 kg/bed-day. The total amount of waste produced in a Portuguese hospital was accounted for to be around 3.9 kg/bed-day (1.9 kg/bed-day non-infectious and 2.0 kg/bed-day infectious).

On a typical around 520 kg of non-contagious and 101 kg of contagious waste is delivered each day (around 2.31 kg for every day per bed, net weight including both contagious and non-contagious waste).\(^\text{22}\) Only 27% sanitary staffs were seen to have a capacity of contingency of diseases through biomedical waste.\(^\text{23}\)

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Overuse of infusions (injections) is basic all in all medicinal practice in the developing nations, including Pakistan. All disposal restorative equipment and supplies including needles, syringes, plastic containers, trickles and infusion bags should be cut or broken and rendered non-reusable at the purpose of utilization by the individual in-control. Needle cutter utilized in 60% of hospitals. In Pakistan, 2.9kg/patient-day generates 4.1 kg/patient-day in Maternity homes. Clinics and dispensaries produces 0.06 kg/ patient-day infectious waste from 0.075 kg/patient-day and in basic health units produces 0.03 kg/patient-day infectious waste from 0.04kg/patient-day.

2.3 Medical Waste Treatment Technologies

Writing surveys on disposal of waste/waste treatment advancements are somewhat opposing. The absolute most basic innovations incorporate incinerators, sterilization or autoclave, irradiation, sterilization, chemical disinfection, microwave, concoction sterilization and secured landfill. As per past studies, around 49–60% of therapeutic waste is treated by different burnings, 20–37% via autoclave disinfection, and 4–5% by other techniques.

Thermal energy is being utilize in Incineration to decay waste materials to non-combustible residue or fiery remains and fumes gasses. The Fly and base buildups created after therapeutic waste incineration contain high state of overwhelming metal like Pb, Cd, Ni, Cr, Cu and Zn. Therapeutic waste a High estimations of metal leachability preclude the area filling of these cinders as forced by EU mandates.

The criteria utilized to assess mechanical alternative ought to consider health, ecological, what more, financial or economic variables is. Medicinal waste administration is a range which needs more research and study to equip it towards maintainability.

3. MATERIALS AND METHODS

The study was based on healthcare waste management among healthcare professionals working at public and private hospitals of Karachi. The study was done for a period of two months November & December 2016.

The study group of healthcare professionals were grouped into four subgroups as Doctors, Nursing staff, Paramedical staff and other workers. 63 doctors, nursing staff 33, paramedical staff 27 and 1 other worker.

Non-probability quota sampling has been chosen to cover the quantitative and qualitative analysis. A structured questionnaire was designed to assess the situation of healthcare waste management at public and private hospitals. It comprised of questions related to demography, perceptions and knowledge of healthcare professionals including doctors, nurses and paramedical staff. Demographics included information about the healthcare professionals’ age, gender, education, degree/ diploma, occupation and experience. The reliability of the questionnaire was assessed by applying reliability test that displays Cronbach alpha as 0.84.

Knowledge: Knowledge was defined as Adequate Knowledge and Inadequate Knowledge. There were total 10 numbers of knowledge related questions. Each correct answer contains 1 mark. If Healthcare worker scores 24 (70%) out of 34 (100%), it was considered as Adequate and if Healthcare worker scores less than 24 (70%), it was considered as Inadequate.

Attitude: An Attitude was defined as a positive or negative attitude. There were total 10 numbers of attitudes related questions. Each question contains 1 mark. If Healthcare worker scores 7 (70%) out of 10 (100%), it was considered as positive attitude and if Healthcare worker scores less than 7 (70%), it was considered as negative attitude.

Practices: Practice of the Healthcare worker was defined as Good Practice or Bad Practice. There were total 4 numbers of practice related questions. Each question contains 1 mark. If Healthcare worker scores 3 (75%) out of 4 (100%), it was considered as good practice and if Healthcare worker score less than 3 (75%), it was considered as bad practice.

4. DISCUSSIONS

In the study, out of total 124 healthcare workers, majority were doctors 63 followed by nurses’ 33, paramedical staff 27 and other 1 who took part in this study. Females were predominantly higher 79 as compared to males 4. Their knowledge, attitude and practice on with respect to healthcare waste management was evaluated by utilizing structured
questionnaire. The information was analyzed utilizing percentages and proportions. In tables 4.1, 4.2 and 4.3 details are displayed.

Table 4.1 presents that every one of the classifications of healthcare professionals have satisfactory or adequate knowledge about hospital waste (used syringes, used scalpels/ blades, swabs, waste blood, left over bandages) associated hazard diseases, waste disposal, needle injury, segregation and color coding, knows the risk and non-risk waste. It also demonstrates that laws of HCWM and sufficient knowledge provided by supervisor for HCWM are the two areas where knowledge is slightly lacking. Majority of healthcare professionals desired to have educational program regarding healthcare waste management, routine medical checkup and thinks that health care workers should wear personal protective equipment before handling healthcare waste.

Nearly 73% doctors and 67.2% nurses/paramedics wear PPE before handling any healthcare waste. 34.9% of the doctors and 44.3% nurses/paramedics do not undergo routine checkup. The small portion of study population that do not properly go for disposal of used needles and other sharps and do not follow color-coding for healthcare waste.

Healthcare professionals of all categories had adequate knowledge about hospital waste associated hazard diseases, needle injury concern, segregation and color coding and knows the risk and non-risk waste. As to issues confronted by doctors and nurses/paramedics, the Reponses acquired were poor accessibility and understanding of needle destroyers, less strict principles, gloves and outfits and absence of sufficient information from supervisor for healthcare waste management. Proposal or suggestions delivered by doctors/nurses/paramedics that educational programs regarding healthcare waste management and guidelines should be executed and is required.

<table>
<thead>
<tr>
<th>S#</th>
<th>Questions regarding Knowledge on healthcare waste management</th>
<th>Correct Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Doctors</td>
</tr>
<tr>
<td>1</td>
<td>Know what healthcare waste management is</td>
<td>60 (95.2%)</td>
</tr>
<tr>
<td>2</td>
<td>Know about Laws regarding healthcare waste management</td>
<td>34 (54%)</td>
</tr>
<tr>
<td>3</td>
<td>Supervisor provided sufficient knowledge for healthcare waste management</td>
<td>31 (49.2%)</td>
</tr>
<tr>
<td>4</td>
<td>Used Syringes, used scalpels / blades, Used swabs, Waste blood, Left over bandages, Waste body parts are Hazardous healthcare waste or not?</td>
<td>63 (100%)</td>
</tr>
<tr>
<td>5</td>
<td>Know the difference b/w Risk waste and non-risk waste</td>
<td>48 (76.2%)</td>
</tr>
<tr>
<td>6</td>
<td>Know which color is used for separation of hospital waste infections</td>
<td>41 (65.1%)</td>
</tr>
<tr>
<td>7</td>
<td>Hazard diseases associated with hospital waste</td>
<td>61 (96.8%)</td>
</tr>
<tr>
<td>8</td>
<td>How the waste should be carried from waste to final disposal area</td>
<td>55 (87.3%)</td>
</tr>
<tr>
<td>9</td>
<td>How hospital waste should be disposed off</td>
<td>59 (93.7%)</td>
</tr>
<tr>
<td>10</td>
<td>Is needle injury a concern</td>
<td>63 (100%)</td>
</tr>
</tbody>
</table>
Table No 4.2: Attitude regarding healthcare waste management

<table>
<thead>
<tr>
<th>S#</th>
<th>Questions regarding attitude on biomedical waste management</th>
<th>Correct Answers</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Doctors</td>
<td>Nurses/P</td>
<td>Paramedics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N (N%)</td>
<td>N (N%)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Proper segregation and disposal of HCW is a part of your responsibility</td>
<td>55 (87.3%)</td>
<td>50 (82%)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Labelling of container before filling it with waste is of any clinical significance</td>
<td>55 (87.3%)</td>
<td>42 (70.5%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Healthcare waste management is not an issue at all</td>
<td>61 (96.8%)</td>
<td>52 (85.2%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Needle stick only a financial burden injury or any exposure to hazardous waste concern for you</td>
<td>55 (87.3%)</td>
<td>39 (63.9%)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Healthcare waste should be disposed of in an incinerator</td>
<td>53 (84.1%)</td>
<td>47 (77%)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Different type of waste should be separated near incinerator</td>
<td>39 (61.9%)</td>
<td>29 (47.5%)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Risk waste and non-risk waste should not throw together in a bin</td>
<td>42 (66.7%)</td>
<td>35 (57.4%)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>HC. workers should undergo routine medical checkup because of handling healthcare waste</td>
<td>60 (95.2%)</td>
<td>53 (86.9%)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Would you like to have some educational program for healthcare waste</td>
<td>62 (98.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>HC. workers should wear Personal protective equipment before handling healthcare waste</td>
<td>61 (96.8%)</td>
<td></td>
<td></td>
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</tbody>
</table>

Table No 4.3: Practice regarding healthcare waste management

<table>
<thead>
<tr>
<th>S#</th>
<th>Questions regarding practice on biomedical waste management</th>
<th>Correct Answers</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Doctors</td>
<td>Nurses/P</td>
<td>Paramedics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N (N%)</td>
<td>N (N%)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Do you wear PPE before handling healthcare waste</td>
<td>46 (73%)</td>
<td>41 (67.2%)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Do you follow color-coding for healthcare waste</td>
<td>26 (41.3%)</td>
<td>32 (52.5%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ever consult doctor for routine check-up</td>
<td>22 (34.9%)</td>
<td>27 (44.3%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Properly go for disposal of used needles and sharps</td>
<td>56 (88.9%)</td>
<td>52 (85.2%)</td>
<td></td>
</tr>
</tbody>
</table>

Healthcare workers of all categories had adequate knowledge, positive attitude about hospital waste associated hazard diseases, needle injury concern, segregation and color coding and knows the risk and non-risk waste yet slightly bad practice had seen as the healthcare workers did not up to their routine check-up, color-coding of waste is not practiced as recommend and absence of sufficient information from supervisor for healthcare waste management. Hospitals waste has been recognized as a potential wellbeing and natural danger or environmental hazard. Healthcare waste (HCW) is a term utilized for all waste emerging from Healthcare services foundations. This study was conducted in public and private hospitals in Karachi among healthcare workers or professionals. There were 124 respondents in the study (63 doctors, nursing staff 33, paramedical staff 27 and 1 other worker).

The healthcare waste management is created by different sources. The significant sources are public and private hospitals, animal research centers and veterinary universities. The study highlighted how in a developing country such
as Pakistan, despite the existence of law enactment for proper management, implementation of hospital waste management and waste disposal is not yet correctly and carefully implemented by health-care professionals.

The study showed that more than 95% of the doctors had knowledge about HWM and the laws regarding to it. However, doctors (49.2%) and nurses/paramedics (59%) had not have sufficient knowledge that was supposed to be provided by supervisor. The study also revealed that doctors and nurses/paramedics were aware about the hazardous healthcare waste, knows the difference between non-risk and risk waste, how the waste should be disposed of and also had knowledge about needle stick injury.

Regarding attitude towards HCWM, majority felt that HCWM is an issue and Educational programs are necessary for healthcare workers along with this healthcare workers should undergo routine medical checkup. Bangladesh, Iran and Pakistan likewise have comparative discoveries, demonstrating lack of knowledge in few areas, insufficient usage and accessibility of personal protective equipment (PPE), inadequate separation of risky and non-risky waste and lastly, absence of laws and policy for waste management. Findings of our study is similar to some previous studies.31 32 33.

In Table 4.4, chi-square analysis shows P value - 0.001 that displays there is a significance of hospital (public/private) with knowledge, attitude and practices of medical/healthcare professionals which means knowledge, attitude and Practice are dependent of health care waste management in public and private hospitals.

<table>
<thead>
<tr>
<th></th>
<th>Knowledge, Attitude &amp; Practices</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inadequate/Negative/Bad (n=46) n (%)</td>
<td>Adequate/Positive/Good (n=78) n (%)</td>
</tr>
<tr>
<td>Public</td>
<td>33 (53.2)</td>
<td>29 (46.8)</td>
</tr>
<tr>
<td>Private</td>
<td>13 (21)</td>
<td>49 (79)</td>
</tr>
</tbody>
</table>

Different reviews from Pakistan uncover comparable circumstance in major hospitals of the country. One study outlined that the greater part of the hospitals did not have disease control and waste administration groups set up.

Moreover just 50% of the hospitals had central and temporary capacity areas.\textsuperscript{34} Healthcare waste has by now been revealed to be unlawfully and irrationally reused or recycled which may have critical results to the animal and human health in the nearby environment.\textsuperscript{35}

5. \textbf{CONCLUSION}

Concluding up from the outcomes, in developing nations, the administration procedures of HCW require considerably more consideration than the present technologies for waste treatment. In any case, adequate care ought to be taken to pick economically and environmentally supportable technological and mechanical alternatives. All the healthcare workers are required to know about appropriate collection, segregation, and transport to the last disposal point. A solitary training period is not adequate or sufficient for complete and effective practice of healthcare administration. The significance of training with respect to healthcare waste administration can't be overemphasized; absence of complete and proper knowledge about healthcare waste administration impacts practices of proper waste transfer. There is likewise a requirement for educational programs to comprehend the hospital work and the best possible collection and transport of hospital waste. We suggest that strict supervision ought to be followed in everyday hospital waste management exercises. The whole waste management practices should be a piece of total hygiene practice of the general public as opposed to binding to hospital and health.

\textbf{References}


Coad, Adrian, and Jurg Christen. 1999. "How are we managing our health care wastes by SKAT." \textit{Swiss Centre for Development Cooperation in Technology and Management, Vadianstrasse} 42.


World Health Organization. 2014. Safe management of wastes from health-care activities. world health organization.


