

Observational & Scaling of Variables Influencing Healthcare Waste Administration with Utilizing Analytic Hierarchy Process

*Dr. R.K.Kushwaha¹, Md. Modassar², Shilpa Rai³

Assistant Professor¹,

¹Department Of Management Studies, Sri Satya Sai University of Technology and Medical Sciences, Sehore, Madhya-Pradesh (India)

^{2,3}Research Scholar², Department Of Management Studies, Sri Satya Sai University of Technology and Medical Sciences, Sehore, Madhya-Pradesh (India)

Corresponding Author: *Dr. R.K.Kushwaha

Abstract: Hospital waste administration is a noteworthy natural medical issue, particularly in creating nations, nations where the issues of innovative, financial, social and insufficiently prepared staff in charge of overseeing and gathering waste are encountering issues. The principle objective of this investigation was recognizing and positioning the variables influencing medicinal waste administration. This investigation was cross-sectional. The examination populace comprised of healing facility chiefs, administrators of clinic waste. The present investigation had a specimen size of 32 patients in the wake of gathering the polls and because of the trouble because of occupied people, 32 surveys were analyzed. The information accumulation was matched correlations. The legitimacy by specialists and educators and by utilizing Lavish and its unwavering quality was affirmed on the premise of contrariness.

Keywords: Hospital Waste Management, Healthcare Waste, Analytical Hierarchy Process.

Date of Submission: 18-11-2017

Date of acceptance: 30-11-2017

I. Introduction

Management of healthcare wastes (HCW) ought to be considered as a vital piece of doctor's facility cleanliness and disease control. The HCW produced inside a human services office ought to dependably take after a proper and all around distinguished stream from their purpose of age until their last transfer. This stream is made out of a few stages that incorporate age, isolation, gathering and on location transportation, on location stockpiling, offsite transportation lastly on or offsite treatment and transfer. The poor isolation, taking care of and transfer practices of numerous doctor's facilities, facilities and wellbeing focuses are likely delegates of practices all through Nigeria and stance genuine wellbeing perils to individuals living in the region of social insurance establishments. An arrangement of defensive measures ought to likewise be created in connection with the taking care of and treatment/transfer of human services squander. It is accounted for that human services organizations discard all losses to city dumpsites without pre-treatment, prompting an unfortunate and dangerous condition around the wellbeing foundations, influencing patients, staff and the group (Ferreira and Veiga, 2003; Da Silver et al., 2005; Tudor et al., 2005; Ndidi et al., 2009; Abah and Ohimain, 2011; Ogbonna, 2011). Squander administration and treatment choices should first ensure the medicinal services laborers and the patients and limit impacts on the earth. Be that as it may, the nature and amount of human services squander produced and in addition the institutional practices concerning supportable techniques for social insurance squander administration including waste isolation and waste reusing are inadequately inspected and recorded in our medicinal services organizations in spite of the wellbeing dangers postured by uncalled for treatment of social insurance squanders (Ubani, 2004; Oke, 2008; Farzadika et al., 2009; Adegbita et al., 2010). Contamination of water supply from untreated medicinal services waste can likewise have annihilating impacts. On the off chance that irresistible stools or organic liquids are not treated before being discarded, they can make and broaden pandemics, since sewage treatment in Africa is practically nonexistent (Rhodes et al., 2000). For instance, the nonattendance of legitimate disinfection techniques is accepted to have expanded the seriousness and size of cholera pandemics in Africa amid the most recent decade.

II. Objectives Of The Study

- To analyze the scaling of variables influencing healthcare waste administration utilizing analytic hierarchy process.
- To study healthcare implication of hospital waste administration practices in New Delhi.

III. Review Of Literature

Carl and Janis (1993) announced that most waste transfer destinations are required by law to have ecological contamination anticipation and control advancements. Accessible records on the amount and nature of HCWs and the administration systems in our organizations, regarding satisfactory transfer procedures of these squanders have remained a test in many creating nations of the world. In any case, it is accounted for that few several tons of HCWs are kept in open dumpsites untreated nearby nonhazardous strong squanders (Alagoz and Kocasay, 2007; Abah and Ohimain, 2010) which now postures wellbeing dangers to wellbeing laborers, cleaning staff, patients, guests, squander gatherers, transfer site staff, squander pickers, sedate addicts and the individuals who purposely or unconsciously utilize "reused" tainted syringes and needles. Along these lines, doctor's facility squanders ought to be overseen so as to secure the wellbeing and security of the faculty creating or transporting healing center/clinical squanders, general society and all parts of the earth. This investigation was embraced to recognize the breaches or holes related with the treatment of HCWs in our wellbeing foundations in Nigeria contrasted and the worldwide accepted procedures and current advances to defend the soundness of the group.

Louis (2001) revealed that natural directions in Nigeria don't assume any vital part in urging firms to enhance their ecological execution or lessen squander. Regardless of the way that there is no current healing facility squander approach to control medicinal waste taking care of and transfer, in Nigeria (Coker and Sangodoyin, 2000; Louis, 2001), the individual doctor's facilities don't have any controlling strategy on clinic squanders age, dealing with and transfer. This perception bolsters Melanen et al. (2001) and Townend and Cheeseman (2005) position that managerial.

IV. Research Methodology

Research Design

Research Design is a map or blueprint according to which the research is to be conducted. In the present study, the research design will be Descriptive Research Design. Descriptive research includes survey and fact finding enquiries. The research design specifies the method of data collection and data analysis.

Data Collection Method

A research design is an arrangement of conditions for collection and analysis of Data in a manner that aims to combine relevance to the research purpose with Economy in procedure. It constitutes the blueprint for collection, measurement and analysis of data.

a) Primary data: These are those data which are collected afresh and for the first time, and thus happen to be original in character. We will be using the structured questioners.

b) Secondary data: These are those which have already been collected by someone else and which have already been passed through the statistical process. We were collected it from the sources like internet, published data etc.

Sampling Plan Sampling Technique

First step in sampling plan is to decide the Sampling Technique, Universe or Population. We will be going to choose the sample according to the "Convenience Sampling". Once the universe is decided the researcher must concern himself to find:

- What sampling unit should be studied?
- What should be the sampling size?
- What sampling procedure should be used?

Universe

The first step in developing any sample design is to clearly define the set of objects, technically called the universe. In present research, universe was being the ultimate respondents of the hospitals in New Delhi (South).

Geographical Location

The present research was conducted in New Delhi (South).

Sampling Unit

The basic thing is to be decided in sampling unit who is to be surveyed. In the present study, the sampling units was the respondents who are the ultimate patients of the hospitals i.e. All population ranging between the ages of 16 to 50 and above.

Sample Size

The second issue is to be decided is ‘The Sample Size’. The whole of the universe can’t be studied in a single research work. The researcher has to select a relevant fraction of the population or universe. In the present study the sample size were of 32 Respondents.

Sampling

Sampling was carried out for each category and vital information included nature of waste generation and disposal methods for both solid and liquid wastes. Data were obtained by administering questionnaires to hospital staff such as consultants, medical officers, paramedics (matrons, nurses, cleaners, pharmacists), and administrative personnel. The questionnaires were designed in such a way as to enable respondents indicate wastes types generated and disposal methods. The questionnaire was structured to generate data on the following:

- Various sources of wastes in the hospital
- Type of waste collected and handled
- Safety of personnel and personnel handling waste
- Adequacy of the protective wear provided
- Current waste handling methods/procedures
- Transportation, treatment, and waste disposal methods/ procedures.
- Existing waste management system.
- Awareness of hospital staff on waste management.

Each of the hospitals was provided with polythene waste bags with which waste generated were collected daily. The next day, the bags were collected, sorted into categories and the weight of various wastes were determined by using a weighing balance. This was done with the assistance of cleaners and nurses who gather all the solid wastes generated per day in a central waste bin from where the wastes were sorted into categories and weighed using the Ohaus Dail Spring Scale. The composition of the wastes from sampled hospital was estimated by sorting into five categories namely:

- Plastics, PVC and syringes
- Swabs, pads, gauze and absorbents
- Paper packages and bottles
- Sharps/needles
- Kitchen/food wastes

V. Data Analysis & Interpretation

Table 1: Preferences for paired comparing

Numerical value	Preferences (oral judgment)
9	It is quite important or very favorable reference or more
7	Preference or importance or desirability very strong
5	Preferred or important or powerful utility
3	A reference or a little bit more important or better
1	Preference or importance or the same utility
2 and 4 and 6 and 8	Preferences between these intervals

Table 2: Rating factors affecting the management of medical waste from the specialists based on Law she technique

Sr. No	Effective factors	Score
1	Awareness about protecting public health, environmental and medical wastes	83.0
2	Developing a proper and regulated for each of the stages of waste management	59.0
3	An action plan to reduce waste	83.0

4	Planning and standardization of storage management and storage of waste	64.0
5	Attention to staff training and upgrading of waste	00.1
6	The use of technology to day in each of the stages of waste management	00.1
7	Calculate and control financial aspects of waste management	89.0
8	Committee meetings timely and proper functioning of hospital waste	64.0
9	Attention to health and safety enforcement agents under the supervision of executive management waste	83.0

The 9: factors identified in the questionnaire paired comparisons and the 16 members of the community were studied and the demographic characteristics are shown in Table 3.

Table 3: Distribution of sample frequency

No	Variable type		Number	Percent
1	Gender	Male	12	5.37
		Female	20	5.62
2	Age	Less than 30 years	2	6
		30 to 40 years	16	50
		40 to 50 years	14	44
3	Work Experience	Less than 5 years	2	6
		5 to 15 years	14	44
		15 to 25 years	12	5.37
		More than 25 years	4	5.12
4	Job	Hospital Management	12	5.37
		Waste Management	14	44
		Matron	6	5.18
5	Type of hospital	Governmental	12	5.37
		Private	6	5.18
		Social security	14	44

Table 4: Weight and rank the factors affecting the management of medical waste in hospitals

Rank	Weight	Factor
1	162.0	Attention to staff training and upgrading of waste
2	142.0	Awareness about protecting public health, environmental and medical wastes
3	141.0	The use of technology to day in each of the stages of waste management
4	127.0	Developing a proper and regulated for each of the stages of waste management
5	103.0	Calculate and control financial aspects of waste management
6	101.0	Due to health and safety enforcement agents under the supervision of executive management waste
7	089.0	Planning and standardization of storage management and storage of waste
8	071.0	An action plan to reduce waste
9	064.0	Committee meetings timely and proper functioning of hospital waste

VI. Findings Of The Study

In the wake of distinguishing 17 factors that influence the administration of healing facility squander, these variables made as a poll to 12 specialists from the scholarly world and by computing the relative legitimacy record (CVR) the need of any of the things inspected that the nine elements were chosen on doctor's facility squander administration is appeared in Table. In the general case is an irregularity proportion under 0.1, you could state it is a similarity network gathering and friction is moderately adequate (18, 19).

VII. Result & Discussion

As the discoveries of this investigation demonstrated the utilization of proper innovation as the third imperative factor was therapeutic waste administration. A standout amongst the most noticeable cases, eminently in the field of safeguarding and advancement wellbeing and the proper approach, steady with the new advances proficiently educated on the subject of waste and waste administration. Sadly, once in a while because of absence of legitimate administration and wrong utilization of general wellbeing and the earth are in danger. The volume of waste created by wellbeing focuses - restorative and non-utilization of advancements for purifying and clean landfill, individuals and its partners have confronted enormous difficulties. The requirement for purifying irresistible healing facility squanders to landfill through non-consuming innovation particularly the focal framework for sanitization via autoclave gadgets because of high rates of irresistible waste and the high cost of transfer of these squanders is essential. The utilization of proper innovation in each of the phases of waste administration, including gathering, transportation and transfer appears to be extremely basic in light of the fact that if there should arise an occurrence of non-utilize of Suitable hardware monetary and physical harm. One of the primary targets of the official administration of medicinal waste in the nation, ensure general wellbeing and the earth. Given the significance of this subject in the restorative waste administration in the nation seem learned individuals working in wellbeing focuses. Also, squander treatment and particularly directors, information regarding this matter can decrease the harm to wellbeing and the earth has helped staff and additionally enhances the general soundness of the populace. At last, decrease the cost of human services in the wellbeing framework.

VIII. Conclusion

Administration of medicinal services squanders has turned out to be one of the basic worries in creating nations particularly Nigeria. Social insurance squander is unsafe, if taken care of, treated or arranged off inaccurately can spread infections, and harm individuals, domesticated animals, wild creatures, plants and biological systems. The examination recognizes lacking applicable preparing of waste handlers on transfer practices and arrangement of satisfactory gear as an issue militating against appropriate waste administration hone in medicinal services establishments in Port Harcourt. The healing facilities don't isolate squanders neither do they keep records of waste age and transfer. The investigation additionally uncovered the nonappearance of institutional courses of action for the overs element of healing center squanders at all levels. It is accordingly prescribed that staff preparing winds up plainly basic to make mindfulness on squanders, their belongings, significance of existing rules and the usage of the waste administration alternatives for the distinctive classes of squanders with the goal that clinics don't move toward becoming contaminations focuses that add to the harm of both the earth and human wellbeing.

References

- [1]. Arab M, Ravangard R, Omrani GH, Mahmoudi M. Wastes Management Assessment at Public-Teaching and Private Hospitals Affiliated to Teheran University of Medical Sciences, Iran. *Journal of Health Administration*. 2010;12(38):71-7.
- [2]. Arab M, Safari H, Zandian H, Nodeh ;FH. Evaluation of practicing safety features for hospital waste collection among Iran's public hospitals. *Journal of Material Cycles and Waste Management*. 2016:1-7.
- [3]. Arab M, Baghbani RA, Tajvar M, Pourreza A, Omrani G, Mahmoudi M. Report: The assessment of hospital waste management: a casestudy in Tehran. *Waste Management & Research*. 2008;26(3):304-8
- [4]. Alagöz AZ, Kocasoy G. Determination of the best appropriate management methods for the health-care wastes in Istanbul. *Waste management*. 2008;28(7):1227-35.
- [5]. Abedi T, Vaezzade F. Hospital wastes management. Rasht: Gap; 2002.
- [6]. Arab m, Habibi Nodeh F, Rahimi Foroushani A, Akbari Sari A. Evaluation of Hospital Waste Collection Safety Measures by Cleaning Staff of Public Hospitals Affiliated with Tehran University of Medical Sciences, 2012. *Hospital*. 2015;13(4):31-9.
- [7]. Chaerul M, Tanaka M, Shekdar AV. A system dynamics approach for hospital wastemanagement; *Wastemanagement*.2008;28(2):442-9.
- [8]. Ferreira V, Ribau Teixeira M. Assessing the medical waste management practices and associated risk perceptions in Algarve hospitals, Portugal. 2009.
- [9]. International Committee of the Red Cross. Medical waste management. Geneva, Switzerland: avenue de la Paix; 2011.
- [10]. Khalaf A-SA. Assessment of Medical Waste Management in Jenin District Hospitals: National University; 2009.
- [11]. Mohammadian Fazli M, Nassiri J, Nabizadeh R, Mehrasbi Mr. Qualitative and quantitative assessment and management of hospital waste in Zanjan, Iran in 2011. *Iranian Journal of Health and Environment*. 2013;6(1):55-64.
- [12]. MohammadbeigiA, Mohammadsalehi N, Aligol M. Validity and Reliability of the Instruments and Types of MeasurmentS in Health Applied Researches. *Journal of Rafsanjan University of Medical Sciences*.205;13;1153-70.

- [13]. Manga VE, Forton OT, Mofor LA, Woodard R. Health care waste management in Cameroon: A case study from the Southwestern Region. *Resources, Conservation and Recycling*. 2011;57:108-16.
- [14]. Prem Ananth A, Prashanthini V, Visvanathan C. Healthcare waste management in Asia. *Waste management*. 2010;30(1):154-61.
- [15]. Ruoyan G, Lingzhong X, Huijuan L, Chengchao Z, Jiangjiang H, Yoshihisa S, et al. Investigation of health care waste management in Binzhou District, China. *Waste management*. 2010;30(2):246-50.
- [16]. WHO. health-care waste management 2011.

IOSR Journal of Business and Management (IOSR-JBM) is UGC approved Journal with Sl. No. 4481, Journal no. 46879.

Dr. R.K.Kushwaha Observational & Scaling of Variables Influencing Healthcare Waste Administration with Utilizing Analytic Hierarchy Process. *IOSR Journal of Business and Management (IOSR-JBM)*, vol. 19, no. 11, 2017, pp. 15-20.