

A TQM APPROACH TO IMPLEMENTATION OF HANDLING AND MANAGEMENT OF HOSPITAL WASTE IN TATA MAIN HOSPITAL

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BACKGROUND

Bio-medical waste is defined as waste that is generated during the diagnosis, treatment or immunisation of human beings and are contaminated with patients' body fluids (such as syringes, needles, ampoules, organs and body parts, placenta, dressings, disposables plastics and microbiological wastes).

Proper disposal of Hospital waste is of paramount importance because of its infectious and hazardous characteristics. The Govt. of India promulgated the Bio-medical Waste (Management & Handling) Rules, 1998 and it became mandatory for Tata Main Hospital also to comply with the rules and the standards laid down under statutory regulations. The General Manager (Medical Services) gave a directive that proper handling & management of hospital wastes should be implemented by 30/6/2000 the time frame specified by the Govt. of India. A Task force was constituted in Sept. 1999 to implement the Hospital waste management policy and system. The members of the task force consisted of representatives of doctors, nurses, administration and housekeeping departments. The task force decided to approach the problem and implement the system through Total Quality Management (TQM) concept.

I. TQM APPROACH

According to W E Deming the Quality Guru "Good quality does not necessary mean high quality. It means a predictable degree of uniformity and dependability with the quality suited to the requirements." TQM is "achieving total quality through gaining everyone's commitment and involvement" (Mitchell, 1997). The TQM approach lays stress on systematic way of tackling problems. The task force incorporated the following steps in tackling the problem of waste management system in the hospital.

- a) Proof of the need*
- b) Diagnostic journey*
- c) Remedial journey*
- d) Implementation and Holding the gains.*

* (Juran Inst. 1996)

A. Proof of the Need

The need for taking up the project were identified as under:

* The Govt. of India Gazette notification of Bio-medical Waste Management and handling rules 1998 established a deadline for hospitals having 500 beds and above (under

which Tata Main Hospital falls) to have waste treatment in place by 31st December 1999 or earlier (later amended to 30th June 2000).

* There was no proper waste management practices prevalent in TMH. This was confirmed by a survey taken up by an MBA Project trainee. His findings showed that only 24% of the waste generated in the Hospital per day was segregated properly and only 45% of the staff generating and handling waste were aware of proper waste disposal.

B. Diagnostic Journey:

a) Process Flow Chart: A process flow chart of the existing waste system of the hospital was made which indicated the sequence from generation of waste to its final disposal. The decision points in the flow chart (diamond shape symbols) show the points where data has to be collected (Fig I).

b) Data Collection: Data was collected of the total quantity of waste which showed that approx. 400 kg. of waste was generated in the hospital per day, out of which only 160 kg. was bio-medical waste as per the Bio-Medical rules. The Bio-medical waste was not segregated at source and was mixed and collected in one container in the wards.

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c) In order to identify the root causes, brainstorming for generating ideas was held amongst the QIP team. About 23 ideas were generated which was further grouped into Man-related, Method-related, Machine related and External factors. These were depicted in Ishikawa (Fish bone) diagram (Fig II)

d) Two root causes were identified:

- * Lack of awareness of staff about waste management
- * No proper process for waste management

e) The root causes were tested through further surveys and Pareto analysis, and were found to be valid.

C. Remedial Journey:

a) Hospital waste management training programme was organised for Doctors, the Nurses, Paramedical staff and attendants. The total staff trained was 805 out of 900 staff identified training. The training is a continuing process.

b) Protocol for waste management was made and widely discussed and distributed in all wards and sections of the hospital.

c) A new incinerator was purchased and installed which met the standards as laid down by the Ministry of Environment, Govt of India.

D. Implementation and Holding the Gains:

a) The implementation of the action plan led to an environmentally aware workforce.

b) The implemented waste meets the statutory and legal requirement of the Govt. as per Bio-medical rules 1998 and amendment 2000.

c) Through sale of non-hazardous wastes like used tins, non-contaminated plastics, waste food, etc. a recurring income of Rs. 1.0 lakh per annum is also being generated.

REFERENCES

Quality Improvement of Juran Institute Inc. USA Compiled by TMDC 1996.

The Quality Pocket Book by Anthony Mitchell, 1997.

FIG 2 - WASTE MANAGEMENT FLOWCHART

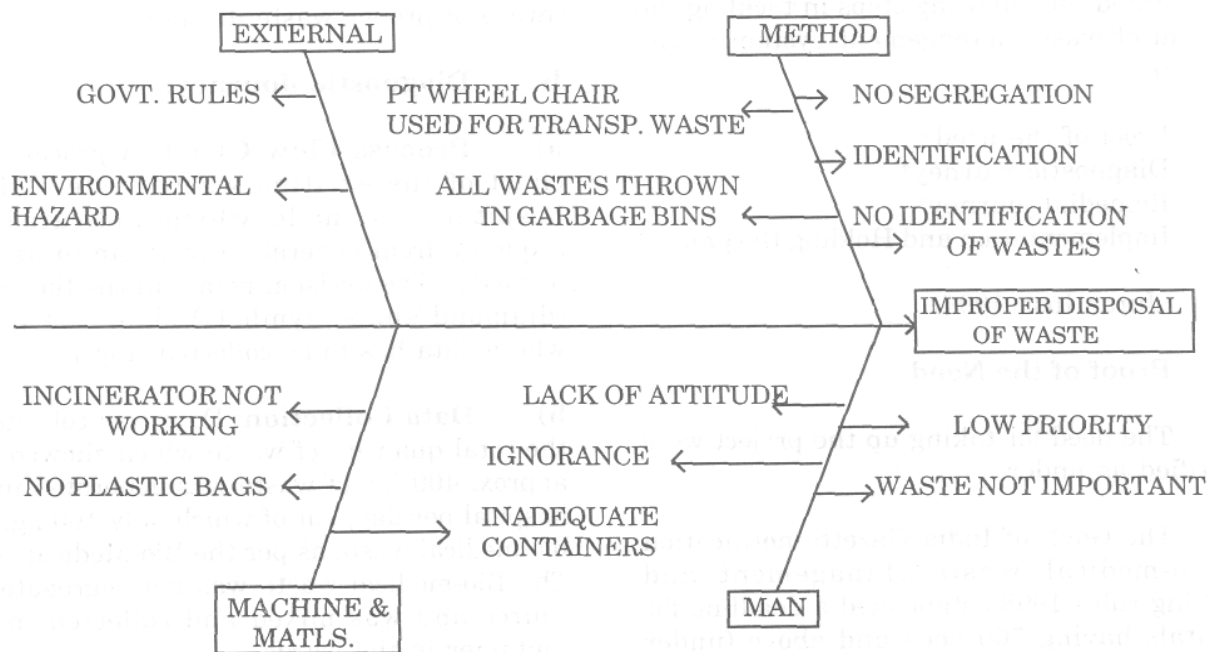
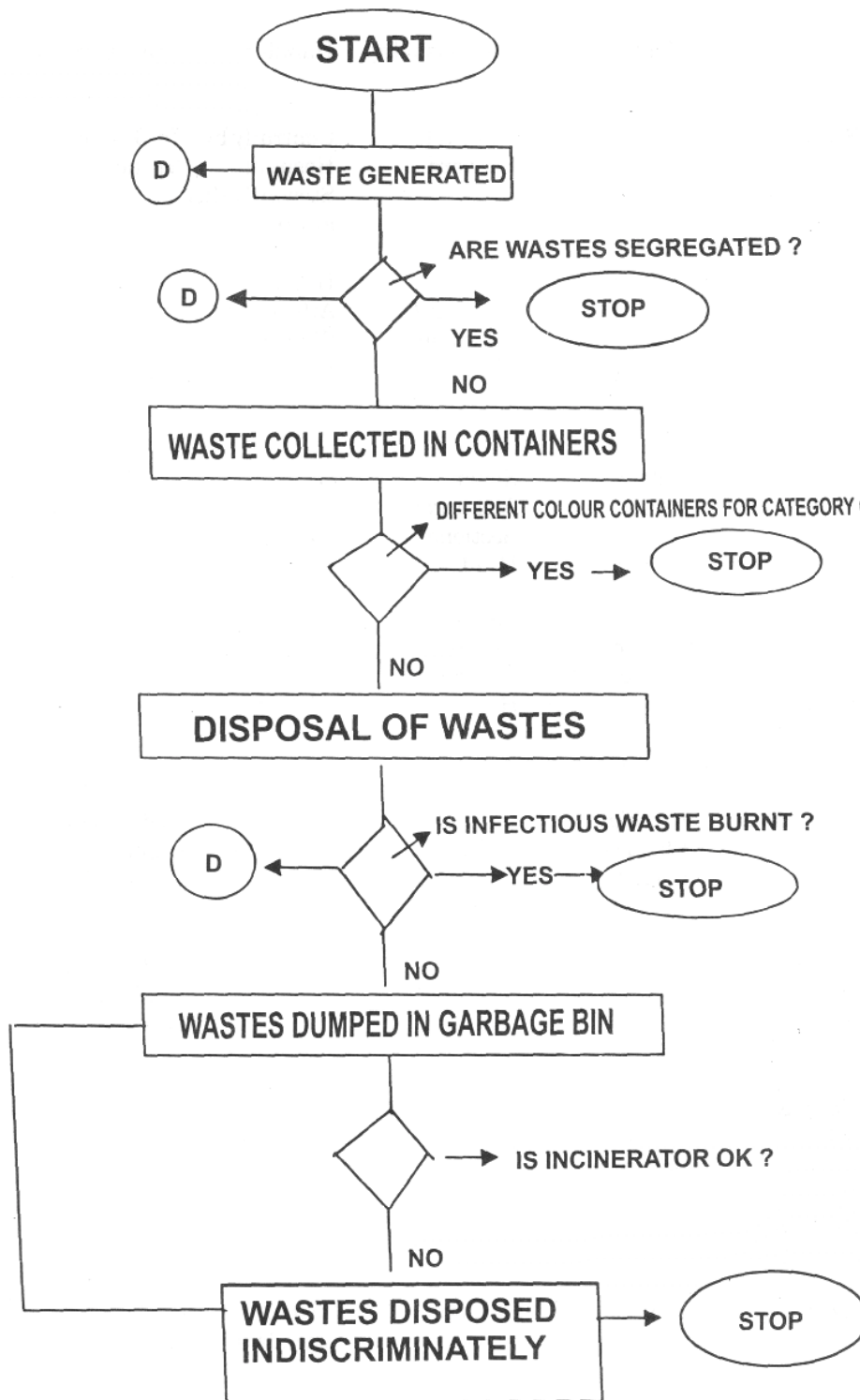


Fig. 1



PROTOCOL FOR MANAGEMENT AND HANDLING OF HOSPITAL WASTE

HWMP/PROC/001/2/R-1/99

Dated: 01/6/2K

Waste	Container	Responsibility /Owner	Handler	Transportation	Treatment/ Disposal
1. Sharps (Cat.-4) Syringe with needle, broken ampoules & glasses, scalp vein	Blue Container	Hospital Steward	Centrally by Hospital Steward office alternate day	In Garbage Trolley	Incineration
1. Solid Infectious (Cat.-6) 1A. Cotton Swabs & Dressing materials	Yellow Plastic Bag (in bucket/ card / board box)	Sister Incharge/ Sectional Head	Hospital Attendant (Ward) In 'A' Shift	Red wheel chair or by hand	Incineration
2B Anatomical (Cat. -1) eg. placenta, organ	Yellow Plastic Bag (in a bucket)	Sister Incharge/ Sectional Head	Hospital Attendant (Ward) in 'A' Shift	-do-	Incineration
2C Urosac, Ryles tubes, Foleys Catheter, drainage bottles, B.T Sets(Cat.-6)	Green Plastic Bucket	Sister Incharge/ Sectional Head	Hospital Attendant (Ward) in 'A' Shift	-do-	Central disinfection near Hospital Steward Office then disposal in garbage bin
2. Solid Non-Infectious (Cat.-7) Used I.V. bottles, I.V. sets	Red big Plastic bucket	Sister Incharge/ Sectional Head	Hospital Attendant (Ward) in 'A' Shift	Red Wheel Chair	Cut and send to Hospital Steward Office
3. General Waste Scrap papers food materials, wrappers	G I Tub	Sister Incharge/ Sectional Head	Hospital Attendant (Ward) in all 3 shifts	Red Wheel Chair and By hand	Disposal by Public Health Dept. for land filling
4. Microbiology & Biotechnology Waste (Cat.-3) Culture swabs, stocks of specimen, human & animal cells	Yellow Plastic Bag (in a bucket)	Microbiologist	Lab. Attendant (Local)	Local	Local autoclaving/ steam sterilization at 100°C for 2 hours, Incineration
5. Incineration Ash (Cat.-9)	Plastic Bag	Hospital steward	Incinerator Attendant	Garbage Trolley	Garbage bin/ disposal by Public Health

Issued by Hospital Waste Management Committee, T.M.H

N.B: All the handlers must use the protective gears