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Waste management of hospital waste in COVID-19

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Abstract : under the topic 'Waste Management in COVID-19' we have studied the problems occurring during waste management & their disposal specially biomedical wastes during critical situations and tried to find out some better solutions for them than available ones . For project we have used the resources like internet, topic related articles , research papers etc. We have also visited an hospital for data collection regarding hospital's daily waste management and processes like collection of waste , separation , treatment etc. to make the project very precise, practical & effective also. So using resources and by analysing the data we have found some solutions for safe treatment of biomedical waste which was our main focus .

Keywords : Analysis , Biomedical Waste , Hospital , Management , Site visit , Techniques .

1. Introduction

As we know & seeing that due to covid-19 pandemic there are many problems in every field of life. Like in health sector, private employment sector education sector everyone is seems to facing many problem related to proper execution of their work in covid-19 the health sector is playing a very important and big role for treatment of patients for finding vaccine and medicines for covid-19 take care of their their diseases people so due to the much number of patient everyday there is product of hug biomedical and other Hospital waste are occurring.

Treatment of such a hug amount of waste in very difficult especially in covid-19 situation so we have tried to find out some solution for its best treatment in all time with covid-19 so that the unsafe disposal treatment of these hazardous Biomedical Waste School could be minimised to a very high level

By using this solution we can also reuse or recycle the some waste of hospital in other fields also so overall we going to site visit on hospital in Mumbai collecting data of waste generated there and how is there waste management management and disposal by analysing the data and finding out some solution we suggest some better solution it we also have visited on more more many hospital for comparison of processes by previous hospital for waste management

Biomedical Waste: Biomedical waste is defined as any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals, or in research activities pertaining thereto, or in the production or testing of biological

Householdl Waste: Household waste, also known as domestic waste or residential waste, is disposable materials generated by households. This waste can be comprised of non-hazardous waste and hazardous waste. Non-hazardous waste can include food scraps, paper, bottles, etc

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Hazardous waste: Hazardous wastes are defined as any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are non-degradable or persistent in nature

Hazardous Waste Scenario In India: India has become the dumping ground for the hazardous industrial wastes of the rich and developed nations. India is being exploited unscrupulously by its own elements as can be seen from the fact that despite court ban on the import of hazardous materials, such imports are continuing.

Here are a few facts compiled by Greenpeace(the most active international environment protection movement) Greenpeace alleges that some 150 companies and trading houses are importing toxic wastes into India, though only seven are licensed to do so. Greenpeace researchers in Asia cite Australian government statistics which show that country exported more than 1,450 tonnes of hazardous wastes like scrap lead batteries, zinc and copper ash to India. A Greenpeace analysis of India's foreign trade data found that at least 1,127 tonnes of zinc ash were imported mainly from the United States, since May 1996. Some 569 tonnes of lead battery wastes were brought in through the main seaport of Mumbai between October 1996 and January this year. Greenpeace claims being informed by "sources close to the Indian lead industry" that about 40,000 tonnes of broken lead batteries were imported last year

II. METHODOLOGY

Waste management is the process that involves the collection, transportation, and recycling or disposal of waste . it encompasses management processes and resources that ensures proper handling of waste products management of the resources involves maintenance of the waste transportation trucks and the dumping facilities so that they comply with the environmental regulations as well as health codes . the primary objective of waste management is to avoid the adverse effects of waste to human health and natural environment, but in most occasions, waste management companies carry out the process to get useful resources . waste materials can also be in all forms of matter, which are gaseous, liquids, radioactive matter and solid .

According to waste management companies, there are several waste management methods. These methods differ from one nation to another . it also differs from industrial and residential areas. Whichever the case , waste management is usually the responsibility of the local government . industries can also manage their wates, in case they are non-hazaedous. The methods of waste management involve proper dumping, recycling, transportation and collection and the creation of awareness.

Creation of awareness

Management of waste is an area that requires proper awareness and education for global preservation. Creating awareness is critical for the perseverance of the security of the humankind and global health. Education on waste management involves the introduction of the reverse vending machines to supermarkets and public institutions. The advantage of employing these machines is that they are affordable and hence, cut down cost on waste management.

Collection and transportation

Collection and transportation of wastes vary from one place to another. Some places prefer bin rental, which comes in different sizes. The price of renting waste disposal bins depend on their sizes. Large waste disposal waste bins cost more than the small ones. On average, the cost of renting 10-yard bin in Ottawa is $225 including the tax and tipping fee. For the purpose of collection and transportation of wastes, it is imperative that every residency is endowed with three waste disposal bins. The first bin is for general wastes, the second one is for recyclable wastes, and the third bin is for garden materials.

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Fig no.3.2 : Bins use for segregation of solid bio-medical Waste

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Fig. 3.4 Dumping of Waste By Landfilling

Dumping

The most common waste dumping method include landfill and incineration. A landfill is a conventional dumping method which involves burning of waste in a common pit. The landfil should be economical and far from the residential areas. On the other hand incineration is a dumping which involves combustion of the waste materials. The method is used convert waste into steam gas, ash and heat. The advantage of using incineration method can be conducted at individual scale level.

Recycling

Perhaps products such as LDPE, PVC, PS and PP are recyclable. However there are

Complex products that are not easy to recycle. Beacause of the complexity of recycling these productsexists processes such as biological reprocessing. This approach is useful to waste materials that are organic in nature. The waste materials are put in biological decomposition and later recycled to form compost for agriculture.

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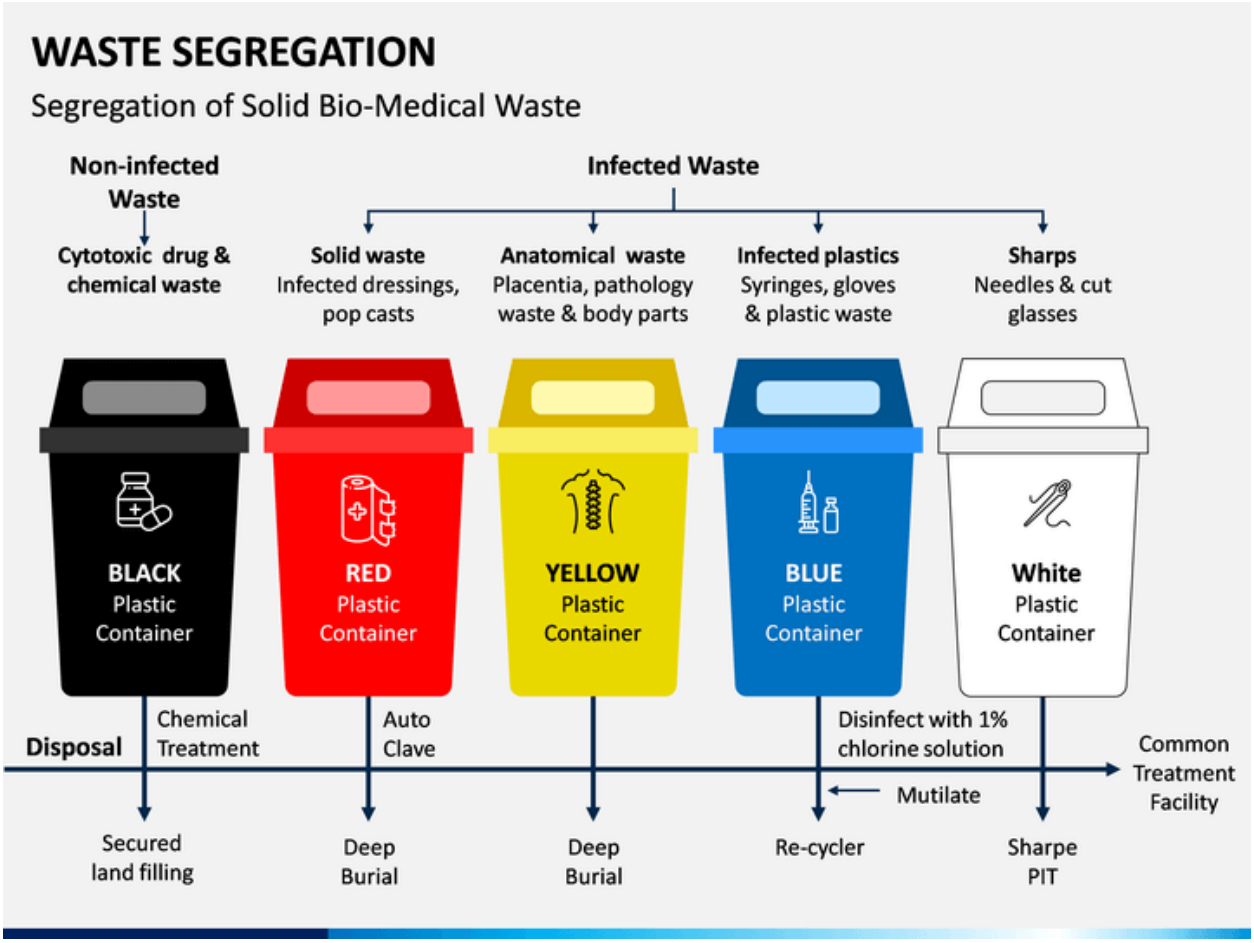

SITE VISIT

In any project practical information or field conditions are very important for its reliability so we have visited an hospital in dahisar but we were not allowed to go inside but from an staff we gather some information according to that appx. 198 kg / day waste generated everyday during pandemic and it was 50 kg /day . so the waste production has been increased by 4 times. According to data from BMC′s solid waste management department,from march 19 to march 31, Mumbai generated 6414 kg COVID-19 waste, an averageof 286 kg/day. In april, Mumbai′s COVID-19 waste increased 15 times that of the 12 days in march to 99,123 kg, an average

III. CONCLUSION

First of all this handling Healthcare or other waste in in this period should near frequently and understand that hand by washing with soap and water for more than 20 seconds is more effective than gloves or alcohol. now during pandemic the tendency of the most of the hospitals is to manage all their waste as hazardous waste this can overload the Healthcare waste capacity of the hospital and creates on emergency associated with sudden increase in area required capacity for proper collection disposal and treatment this become an undeserved side effect of covid-19 so proper and effective manager ment of this waste is mandatory .

In this direction it is also important to highlight that unfortunately many developing countries still a lack of infrastructure to treat 2010 and other biomedical waste so the waste produced in health care facilities during covid-19 pandemic shall be sent to be stored in sanitary landfills on separated area isolated from the regular west and with immediate daily cover the main purpose of such measure is to ensure that Health Care waste cannot be exposed or mixed to non infectious waste, waste workers will not be at risk during disposal activities and one's Health Care waste is dumped human animal will be able to be contact with it. Then it is recommended to unload the waste as close as possible to the selected area and dump the waste immediately after unloading, taking care to not leave healthcare waste piles waiting to be dumped.

Last but not least, it′s important to register that Sanitary Landfills are an indispensable part of any waste management system and in pandemics, in the absence of thermal treatment, those infrastructures are an adequate final sink for healthcare waste, but certain procedures have to be applied. But important to say that even if the right treatment for infectious waste is available, in pandemics the amount of healthcare waste generated is usually much more than usual, so sanitary landfills can provide an alternative route for safe disposal. Now, the another important thing is to non hazaar waste like glucose bottles pipes medical equipment. bottle ,glass bottle can be recycle and then reusable sometime of PP kids gloves bedsheet and other clothes type things can be used after sanitization in 1% ethanol solution it is safe according to Government recommendation and of course it reduces the volume of waste for transportation and for disposal also.so based on above analysis we have understand the solution which one given in conclusion hopeful that this shall minimise the difficult occurring difficulties occurring during management of waste in covai 19

IV. REFERENCES

[1] S.Herat,Indian journal of environmental protection, vol 19 December 1999,
[2] B.J.Alappat and A.K. Dikshit, Indian journal of environmental protection, vol 19 December 1999,
[3] Impacts of COVID-19 on solid waste management: Colorado Department of Public and Environment: access on: 04/05/2020 Available acts-covid-19-solid-waste-management
[4] Can Bangladesh cope with covid-19 medical waste: The Daily Star: access on: 04/05/2020 an-bangladesh-cope-covid-19-medicalwaste-1897327
[5] Untreated medical waste: A serious threat to public health: The Daily Star: access on: 28/10/2019 untreated-medical-waste-serious-threatpublic - health-1819624.
[6] Disposal of medical waste remains a big concern: The Daily Star: access on:30/10/2019.
[7] The COVID-19 pandemic is generating tons of medical waste: The Verge: access on: 01/05/2020 the covid-19-pandemic-is-generatingtons- of-medical-waste
[8] Covid-19: A Letter Concerning Hazardous Waste Management: International Solid Waste Association: access on: 02/05/2020 article/covid-19-and-hazardous waste management /109/
[9] Water, sanitation, hygiene, and waste management for the COVID-19 virus: WHO and UNICEF: access on: 29/04/2020665/331846/WHO-2019-nCoVIPC