

## COMMENTARY

# Medical waste pollution

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**A**S THE saying goes, "prevention is better than a cure". This saying is so true when it comes to pollution. But in order to prevent pollution we have to identify the sources of the pollution.

One source that does not get much attention is waste from the medical industry. Medical waste is also referred to as chemical waste and refers to waste material from hospitals, clinics, labs, nursing homes and doctors' offices and cannot be considered as general waste. Disposal of this type of waste is reason for great concern, as it is classified as hazardous or bio-hazardous and improper disposal can result in the spread of infectious diseases. In this article I will explain how medical waste is categorised, disposed of, how effective these disposal methods are in preventing pollution and finally some possible ways to reduce this type of pollution.

Waste from medical facilities can be placed into five categories: infectious, sharps, pathological, pharmaceuticals, radioactive and other. Infectious waste includes waste from surgeries and autopsies on patients suffering from infectious diseases. Sharps

include items such as needles, scalpels, lancelets, broken glass and anything that can cause a cut.

The third group, pathological waste includes tissues, organs, body parts, blood and body fluids. Pharmaceuticals includes medication and chemicals that have expired, spilled or become contaminated. Medical facilities also use radioactive material in diagnosis and procedures. The final category contains a variety of items- bed linens, waste from kitchens and offices. Some of this waste can contain body fluids which may contain pathogens.

Proper disposal does not only refer to the location at which these items are dumped, but the way they are treated before they leave the medical facility. For instance, infected body tissue and parts are incinerated in order to dispose of them. Materials like needles and scalpels are prepared for disposal in an autoclave which uses heat and pressure to sterilise them before they are discarded to lower the risk of disease transmission.

It is common knowledge that some of the usual disposal practices actually introduce more pollutants into the environment. This is the case when it comes to incinerators, whose use releases mercury and dioxin into the surrounding air space. Mercury if allowed to enter our water courses;

settles at the bottom on the detritus layer, where the dead plant and animal matter is decomposed by bacteria. It is these same bacteria while doing their ecological duty; break down the mercury into a form easily absorbed by small organisms like insects. These organisms are a food source for fish which as a result become contaminated. Therefore mercury gets passed along the food web as the contaminated fish are eaten by other fish.

Eventually the mercury content will be so great that it is lethal to top predators including humans. Mercury also causes mental retardation and other disabilities in developing fetuses and infants. Dioxin is produced when plastics are burnt. This chemical causes cancer, birth defects, hearing and cognitive defects and changes in behaviour in infants.

In some countries, waste from medical facilities is disposed of along with domestic waste, while in others it is disposed along the roadside or left untreated and buried. If left at the side of the road, this rotting garbage attracts a variety of disease transmitting animals. This includes flies which transmit diseases like dysentery, diarrhoea, cholera, and hepatitis. If the waste is receptacles that can collect water, they provide the ideal habitat for

mosquitoes which transmit diseases like dengue and yellow fever. In dumps or poorly constructed landfills, chemicals from this waste can reach and enter the ground water supply.

If this garbage is left with domestic garbage for collection it can cause transmission of disease to those persons collecting it, and then to their families and friends. In the case of highly contagious diseases it can spread rapidly to people they encounter.

As I mentioned earlier, another source of medical waste pollution is the disposal of medications. When we throw out expired or unwanted tablets and liquids from our own medicine cabinets down the drain, we are also contributing to medical waste pollution. I must note it is the preferred method of medication disposal because it prevents accidental ingestion, by family members and people who scavenge through our trash when we put it out on the street and when it arrives at the dump.

In America, chemicals such as ibuprofen and acetaminophen found in pain killers have been found in the drinking water. When you dump chemicals down the drain it may or may not get treated before it enters the water supply or water courses. Also we have to consider the fact that some treatment plants may not be equipped to filter these chemicals

from our water.

But steps can be taken to reduce the amount of waste generated in medical facilities, including lessening the amount of plastic used, for example, using metal syringes rather than disposable plastic syringes or in dentists' offices using cotton bibs instead of plastic.

When it comes to medical waste from households, for bottles of liquids it is suggested that you add some undesirable substance like old cooking oil or dirt, tape the top to prevent leakage and hide between the garbage.

The reason for hiding is to prevent accidental ingestion if you have young children that can remove it at the top of the bag, or pets.

For tablets it is suggested that they be diluted with a little water or soda and then dumped in the garbage. If you really feel strongly about this you can encourage your community to petition for a local drug pickup where all the unwanted medications are collected and taken to a facility where they can be properly disposed of.

Pollution from medical waste comes from both government and private facilities, as well as from our own medicine cabinets. We all have a responsibility to dispose of this type of waste properly to conserve our health and our environment.