

## **Technologies for decontamination and safe disposal of hospital waste developed**

Researchers from Sri Ramachandra Medical College and Research Institute (SRMC & RI) and Central Institute of Plastics Engineering & Technology (CIPET) Guindy, Chennai have developed a series of technologies for safe disposal and management of hospital waste.

These include a technology for decontaminating used sharp items present in hospital waste, a sensor operated waste bin to absolve the necessity of waste disposing staff touching the bins and specifications for universal sample collection container which makes the sample non-toxic when it is disposed as waste.

Dr. Padma Srikanth Professor Dept. of Microbiology, SRMC& RI Porur, Chennai and K.Prakalathan from CIPET Guindy Chennai have jointly developed these series of technologies. Their applications in a hospital can be a comprehensive hospital waste management solution.

These technologies developed with the support of Waste Management Technologies (WMT) Program of Department Of Science & Technology,GOI can be used in Primary Health Care Centres and Hospitals.

The Sharps disposal container is a non manipulative device and stands out for its capability of onsite decontamination of used sharps. It has the unique provision for mutilation of sharps and chemical treatment at source and is in compliance to Biomedical Waste Management Rule 2016 & amendment in March, 2018 and is ready for Technology Transfer.

The sensor in the sensor operated bin works for non contact disposal of hazardous waste such that it is a non touch technique. The bin will open automatically and shuts off automatically after the bin is filled up to three fourth limit which prevents spilling over of waste. The prototype of Sensor Operated Waste Bin has been validated which holds special features of automatic open and closure of lid for disposal of waste it avoids overflow of medical wastes by intimating the specified filling and locks the lid and intimates to clear wastes after every 24 hours.

The Universal sample collection container whose specifications have been framed is of universal size, shape and material unlike those currently available in the market. Generally sample collection containers are made up of inferior grade plastics . They are used for storing biomedical wastes and in their disposal when they are decomposed in autoclave machine the plastics release several biotoxins dangerous for the environment. So developing specifications for the plastic used in the container with universal shape and material and getting National Accreditation Board for Testing and Calibration Laboratories (NABL) approval will prevent environmental damage.

The technologies have been validated by doing the analyses for Log 10 reduction of HIV, Hepatitis B and Hepatitis C viruses using laboratory techniques of Reverse transcription polymerase chain reaction (RT-PCR) (Rotorgene). Patent for these technologies for Hospital Waste Management have been filed and they have a huge market potential owing to the high demand for cost effective and non manipulative disposal of sharps in Hospitals and clinics.

The team is further working to develop hundred sharps disposal container and sensor operated bin to be installed at local health care centres for further improvement if required and obtaining Bureau of Indian

Standards(BIS )approval for making Indian standard for manufacturing of sample collection container with universal shape, size and material under NABL guidelines & International guidelines.

