

Case Study

Implementation of Safe Health Care Waste Management System Western Regional Hospital (WRH) Pokhara, Nepal

GGHH Agenda Goals

- To establish safe and sustainable health care waste management system in the hospital and become a role model in western region of Nepal
- To reduce toxic chemicals in the hospital through mercury elimination

Hospital Goals

- To reduce POPs generated from burning of health care waste
- To reduce the risk generated from untreated health care waste to the health care workers, cleaning staff, patients, visitors, waste pickers, municipal staff and other community.

Progress Achieved

- Autoclave-based waste management system installed and operating
- Reduction in dioxins and other POPs created as waste burning is eliminated
- Fewer needle stick injuries reported by cleaning staff
- Clean-up of hospital grounds
- Phase-out of mercury thermometers and blood pressure meters
- Waste segregation at source and improved sharps management
- Sale of recyclable wastes to subsidise waste management system
- Composting of food waste

Before and after implementation of safe health care waste management system in WRH

	
<p>Open waste burning: before safe health care waste management system implementation</p>	<p>Safe collection of risk waste: The same view after safe health care waste management system implementation</p>

The Issue

Pokhara is an important tourist city situated in the western part of Nepal. New hospitals are mushrooming day by day but concern on managing medical waste was secondary.

Five years ago, the Western Regional hospital (WRH), the largest government hospital in Pokhara, was either burning its health care waste or disposing it in the municipal stream.

Continuous burning of medical waste in the backyard of the hospital was considered a huge public health and environmental problem by the hospital management. There was a long strike by the locals demanding to stop dumping health care waste generated from the hospitals.

In this context, WRH requested HECAF for technical assistance to establish a safe health care waste management similar to the system based on non-burn technology pioneered in the National Kidney Center by HECAF.

Implementation process

Phase I (2008)

- Sensitization for hospital management and stakeholders
- Training of the nursing and housekeeping staff of hospital
- Model ward selection and implementation of segregation system in consultation with staff
- Replacement of mercury thermometers and blood pressure meters
- Regular monitoring of model ward in first three month of implementation
- Replication in three more wards with the help of previously trained staff and staff of model ward

Work to establish safe health care waste management system was started from the year 2008. Mr. Mahesh Nakarmi and Ms. Saraswoti Thakuri from HECAF visited the city waste disposal system, hospitals and landfill site and conducted a sensitization seminar all stakeholders related with health care waste management.

During the first phase of work, in 2008, HECAF implemented a model waste segregation and handling system in the surgical ward of the hospital. Once this was established, a similar system was replicated to other three wards by the trained staff of the hospital.

The system was developed in consultation with staff. Therefore program was very well received by the staff of the hospital. Local participation is one of the main strengths of the program.

However, due to lack of budget WRH was unable to purchase the autoclave for waste treatment.

Phase II (2011)

- Replication of waste management systems in remaining five wards
- Construction of waste collection center
- Purchase of autoclave for waste treatment
- Establishment waste treatment and storage center

To alleviate the financial problems, HECAF and HCWH then introduced the hospital to the UNDP Public Private Partnership (PPP) program. This program provided the financial support to the hospital to implement phase II activities from 2011 onwards. A waste collection area and a treatment center were established, and the system was replicated to other remaining five wards in the second phase of activities.

Cleaners of the hospital have reported fewer needle stick injuries after the establishment of this new waste management system. The program has been very popular with the nurses, cleaners, doctors and management of the hospital. This has been developed as a model in western region and other people from various private and government hospital also visits this hospital to look for its waste management system.

In 2013, the infectious waste was being autoclaved and recyclable waste was sent for recycling through a private vendor. Biodegradable waste generated from the hospital is being composted on the back yard of the hospital.

Implementation of this environmental friendly safe health care waste management system has stopped the waste burning, which has reduced 2989 micrograms International- Toxic Equivalent per year (I-TEQ/year) dioxin release to the environment. The UNDP/GEF guideline was used to calculate the dioxin level (see links for more info).

The Hospital management was convinced of the importance of having a safe health care waste management system. They have a plan to allocate yearly budget for waste management. Furthermore, the funds collected from the sale of recyclable waste have been useful for minor maintenance and replacement of the equipment.



The autoclave used for waste treatment is simple and easy to operate. Any literate person can use machine after short training. Locally available repair and maintenance service and simple technology are important factors that make this a sustainable waste treatment option.

The hospital is also moving towards mercury free health care. All the mercury containing thermometer and blood pressure equipment had been replaced in the hospital with digital one.



Hands on training session



Dr Buddhi Thapa, observing the training and discussing with the staff

Tracking process (2011 to till now)

- Generation of health care waste is tracked by weighing collected waste at treatment and recycling center.
- Regular staff meetings are conducted to collect feedback for improvement.
- Monthly reports are prepared and submitted to the management including all financial details and waste generation.

Challenges and lesson learned

- Budget from the government for the autoclave did not arrive, which made it impossible to accomplish the project in Phase I as originally planned.
- Involvement of different stakeholders was essential to complete the process but did result in significant delays. The public private partnership (PPP) concept involved different stakeholders such as private companies and hospital management. Liaising and reaching consensus between these partners delayed the process.
- Municipal staff are not aware about the autoclaving system of the hospital and its importance to kill germs of waste. Therefore, nearby community including landfill staff oppose the dumping of autoclaved waste at the landfill.

Next steps

- Establish regular training program on health care waste management
- Allocate regular yearly budget for health care waste management
- Improve monitoring of autoclave operation and maintenance
- Disseminate the information and lesson learned to the general public
- Liaise with the municipal landfill staff for disposal of autoclaved non-recyclable waste.

Demographic information

Western Regional Hospital (WRH) is government regional hospital with 350 beds, situated in the western part of Nepal. Average bed occupancy of the hospital is 70%.

Links

- United Nation Development Program (UNDP): Global health care waste project. Medical waste incinerator report. <http://gefmedwaste.org/article.php?list=type&type=33>
- Guidance on Estimating Baseline Dioxin Releases by UN/GEF Global Healthcare Waste Project July 31st, 2009 <http://gefmedwaste.org/downloads/Dioxin%20Baseline%20Guidance%20July%202009%20UNDP%20GEF%20Project.pdf>

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Quotes:

Dr. Buddhi Bahadur Thapa, Medical Superintendent, WRH



“Health care waste management was felt very necessary part of hospital management so we conducted series of meeting with the ministry, municipality and other donor organization for establishment of health care waste management system. It was very difficult in the beginning but now it has become easy and well received by the staff. This is very important and all health care facilities should establish health care waste management system to make their own staff, patients, visitors and public free from risk associated with health care waste.”