

## Pioneer in Safe Health Care Waste Management in Nepal National Kidney Center

### GGHH Agenda Goals


- Leadership
- Energy
- Waste
- Chemicals

### Hospital Goals

- Provide affordable, sustainable, international standard dialysis and kidney disease treatment throughout Nepal
- Improve the health status of Nepalese by organizing awareness programs for kidney disease prevention
- Develop human resources for kidney care and treatment.

### Progress Achieved

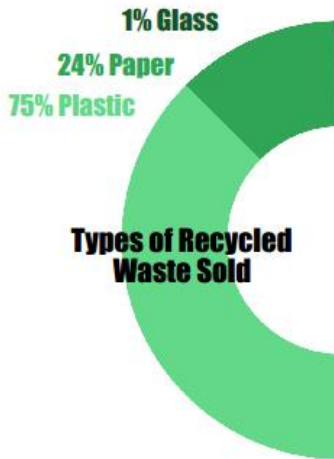
Safe health care waste management implemented in all the units—with a governance structure and system in place for safe waste segregation, transportation, treatment using autoclave technology, and recycling.



**Waste Treatment and Storage Center Established**

.....

64% of NKC waste recycled, generating USD430 / month

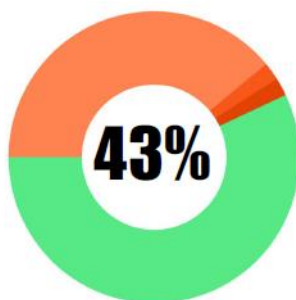


**Types of Recycled Waste Sold**

- 75% Plastic
- 24% Paper
- 1% Glass

### The Issue

Hemodialysis generates a lot of risk waste.



### 43% of NKC's waste are risk waste...

...after proper segregation from non-risk waste.

Risk waste includes infectious waste, used syringes and sharps.

World Health Organization estimates that on average 10-25% of total hospital waste is risk waste.

- Infectious Waste (39.00%)
- Used Syringes (2.00%)
- Sharps (2.00%)
- Regular Waste (57.00%)

### Sustainability Strategy

The implementation of the safe health care waste management system would not have been possible without the leadership and support from Dr. Rishi Kumar Kafle, Founder, President, and Executive Director of NKC.

The buy-in and cooperation from all hospital staff was also important. The provision of training for all hospital staff, and their participation in the planning process contributed to their buy-in and cooperation in implementing the health care waste management system. All new staff members are oriented and trained to implement the health care waste management system.

### Implementation Process

1. Diagnostic Assessment Initially, the waste management system at NKC was established in an ad hoc manner, but after its implementation, we realized that a diagnostic assessment should be conducted as a first step. The diagnostic assessment process helps to gain an understanding of:

- The volume and type of waste at the health facility
- Existing waste management practices
- Opportunities and barriers in implementation of new system
- A re-assessment was conducted at the NKC.

A re-assessment was conducted at the NKC in September 2013.

One of the findings from the re-assessment showed that NKC had a needle destroyer, but it was used at the Waste Treatment and Storage Center, after collecting the syringes from the units. This puts the waste handlers at risk to needle stick injuries.

In response, the system was modified in which needle cutters were provided to each unit, and staff members were trained to cut the needle immediately after use at source. This new practice enhanced the safety of the waste handlers and other staff members.



**Refresher training for NKC staff**

### 2. Design and Construction of the Waste Treatment and Storage Center

On February 10, 2014, the waste treatment center was updated and modernized, including a new autoclave thanks to the collaboration of HCWH and funding from WHO and the Gates Foundation.

There are separate areas or rooms for:

- Storage of infectious waste
- New vacuum autoclave
- Storage of general and recyclable wastes
- Storage of consumables
- Staff washroom

The layout was designed so that infectious and non-infectious wastes are kept separate at all times; they are never in the same room, and enter and leave the center by different doors. Waste from the risk trolleys is brought to its own area in order to undergo treatment using non-burn technology i.e., autoclave.

After disinfection, the recyclables are stored and sold to a local scrap dealer. Data on the waste generated is recorded at different stages—when it is collected, autoclaved and sold.



### 3. Waste Segregation at Source

The re-assessment found that staff members were segregating waste, but not systematically and consistently, and this was partly because there were different segregation systems in the different units, with different types of bins and labeling. Following standardization of all the bins and labeling, and training for all staff, waste was properly segregated.



#### 4. Waste Collection and Transportation

Based on the results from the re-assessment, changes were made to waste collection and transportation. A schedule and route was designed together with hospital staff to ensure safe transportation of waste. The waste for all units is now being transported to the Waste Treatment and Storage Center at a fixed schedule rather than at haphazard times. The waste is being transported by waste management staff rather than by the nurses or other hospital staff. All waste handlers wear personal protective equipment, including appropriate mask, glove and protective clothing, and use forceps when handling

#### Lessons Learned

A systematic and comprehensive diagnostic assessment of the health care waste management system of the health care facility must be conducted as a first step. Adopt a participatory approach. All staff members should be involved in the design and planning of the health care waste management system to ensure buy in and ownership of the system. The location and labeling of the waste bins are critical success factors for waste segregation at a health care facility.

#### Next Steps

Four satellite dialysis centers have been established in different parts of Nepal, with plans to establish more throughout the country so that patients do not have to travel to the capital for dialysis services. In all the satellite dialysis centers, health care waste management will be considered and integrated in the running of the centers.

#### Quotes

“We are a health care center and we are working tirelessly to improve people’s health. Therefore, it is critical that the disposal of our waste do not harm the same people that we treat”,  
*Dr. Rishi Kumar Kafle, Founder President and Executive Director of National Kidney Center*

“When the NKC was established in 1997, the medical waste generated after dialysis was one of the main issues for us. How can we dispose the huge amount of waste safely without harming the staff that works here, the patients, the community, and the environment?”

There was no one working on this issue in Nepal at that time, so in 1999, I studied the World Health Organization Handbook on Safe Health Care Waste Management, which was just published, and I started implementing the suggested system at the NKC.

I designed and supervised the construction of the Waste Treatment and Storage Center where infectious waste is autoclaved and recyclables stored. I managed to get a faulty autoclave that was donated to Mission Hospital, and repaired it with the help of biomedical technicians of NKC. I then worked with the NKC staff to plan and implement the waste management system throughout the center.

From the experience and lessons learned here, I led the establishment of a model health care waste management system at Bir Hospital in 2010—one of the oldest hospitals in Nepal. Today, I am proud that we have established model systems that other hospitals can adopt.”  
*Mr. Mahesh Nakarmi, Founder Member and Executive Director of Health Care Waste Management Program of Health Care Foundation Nepal*

#### Demographic Information

The National Kidney Center was established by Health Care Foundation Nepal (HECAF) in 1997. The NKC is an ISO9001:2008 certified dialysis center. NKC has been a member of the Global Green and Healthy Hospitals Network since 2013.

Health Care Foundation Nepal, established in 1994, is a national non-governmental and not-for-profit organization with a mandate to work in three core areas: (1) health care, (2) environmental health and (3) emergency health.

**1997 2016**

**5**  **72** Dialysis  
Machines

**Largest facility in Nepal for  
kidney disease treatment**

Serves **160** patients a day

**Offers the world's  
cheapest dialysis session**

Cost per  
session **NPR 3,000 (USD 28)**

**The only center in Nepal offering  
dialysis services to patients with  
Hepatitis B and C, and HIV/AIDS**

<http://www.nationalkidneycenternepal.org>

<http://www.hecaf.org>

<https://www.facebook.com/medicalwastenepal/>