

Managing COVID-19 Biomedical Waste in India

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Centre for Science and Environment



PROPER DISPOSAL OF BIOMEDICAL WASTE

Generated from the diagnosis, treatment or immunisation of humans and animals, it needs to be segregated and handled separately from general waste



Yellow category

USED FOR

Anatomical, chemical and soiled waste, lab waste and medicines

METHOD OF DISPOSAL

Incineration at temperatures between 800 and 1,050°C or plasma pyrolysis, a thermal process that uses high temperature in an oxygen starved environment to dissociate waste, or deep burial in rural or remote places



White category

USED FOR

Sharps, usually metal, waste such as needles and fixed syringes

METHOD OF DISPOSAL

Autoclaving, followed by shredding or mutilation and encapsulation in metal or cement containers to be sent for final disposal to iron foundries or designated pits



Red category

USED FOR

Contaminated plastic waste such as used tubings and bottles

METHOD OF DISPOSAL

Sterilised using autoclaving, a process that uses high-pressured boiling water, followed by recycling. The waste should not reach landfills



Blue category

USED FOR

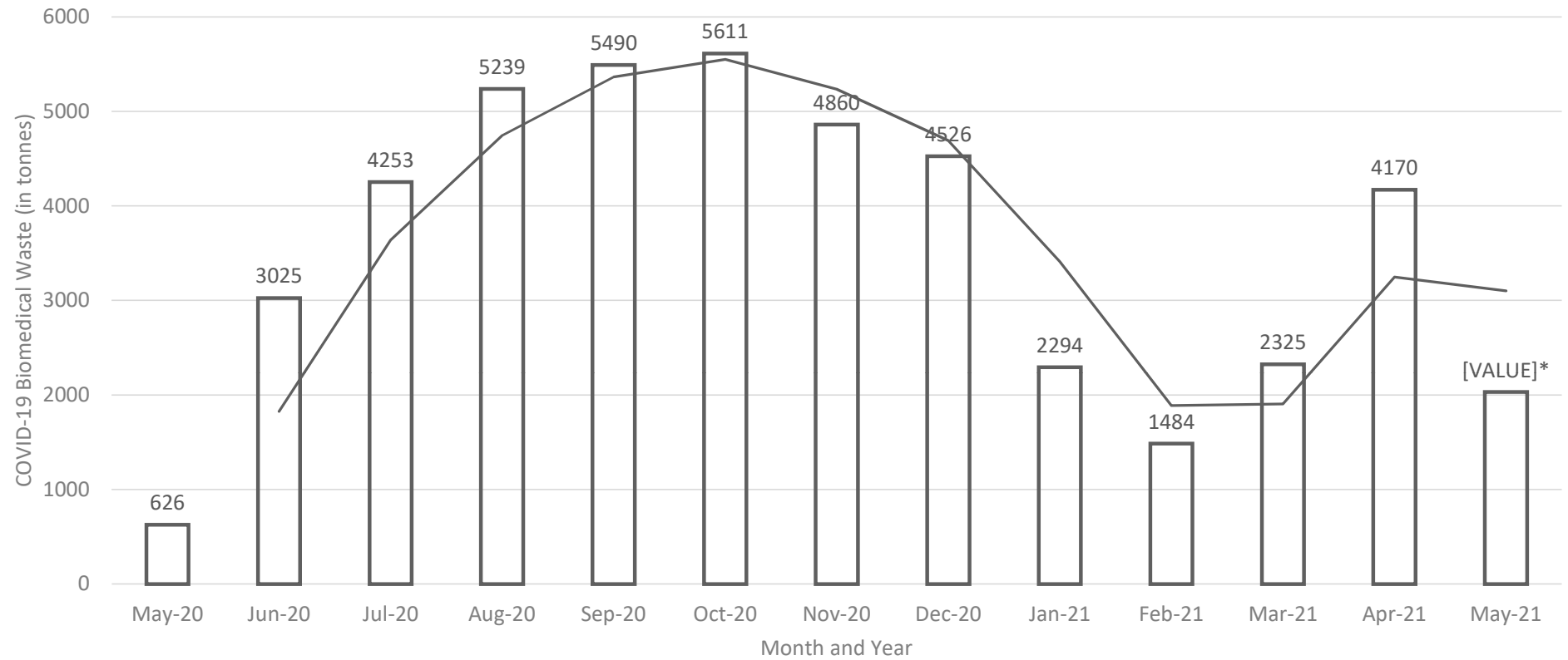
Broken, discarded or contaminated glassware

METHOD OF DISPOSAL

Disinfection by soaking and cleaning with sodium hypochlorite or through autoclaving and other process before recycling

Source: Bio-medical Waste Management Rules, 2016

Total COVID 19 waste generated



Source: CPCB

* Only 10 days data available for May 2021

Rising to challenge

India has been proactive in issuing guidelines for the management of COVID-19 biomedical waste

March 19, 2020

Central Pollution Control Board (CPCB) releases its guidelines on COVID-19 biomedical waste handling which spells out the waste management system that needs to be instituted for hospital isolation wards

April 18

Second review mandates that waste water generated in the treatment facilities be managed appropriately

June 6

Third review issued to address the growing concerns over the safety of waste handlers and the need for protective gear for sanitary workers and others involved in the waste management systems

March 25

First review of the guidelines issued on waste handling measures that need to be observed by quarantine centres beyond healthcare facilities

May 1

CPCB releases the COVID-19 BMW application for treatment facilities and waste generators to update their output. Supreme Court makes reporting through the application mandatory on July 30

July 14

In the final review, the pollution control board addressed the issue of segregation of general and biomedical waste in quarantined households



Environmental (Prevention & Control) Authority- EPCA report no.110

- The OCEMS has been installed in most of the CBWTF', but this is not working to satisfaction- it is either not connected to the website of the pollution control board or the data is insufficient.
- It also recommended a national bar-code system, implemented through CPCB for tracking of biomedical waste- quantity and collection- to ensure compliance

Report dated 30th June 2020

Source: Various government and media reports

4:13 AM 4G

Login to your Account

User ID

PIN

Log in

New BioMedical Waste Generator or Transporter?

Register

4:13 AM 4G

← New Facility/Transporter

+ Facility ✓

Transporter

Select Facility ▼

Select Associated CBWTF Select ▼

Facility Enter the Facility Name

Address as per Authorization Enter the Address

Zipcode Enter the zipcode

State Select ▼

City ▼

Bedded/Non-bedded Select ▼

Contact Name Enter the name

Email Enter Email id

4:14 AM 4G

Waste Handler

ACCEPT COVID-19 WASTE

Vehicle Number

Today's load(06 May, 2020 04:14)

| RED | | YELLOW | |
|------|-------------|--------|-------------|
| Bags | Weight (kg) | Bags | Weight (kg) |
| 5 | 7.0 | 9 | 11.0 |

| BLUE | | WHITE | |
|------|-------------|-------|-------------|
| Bags | Weight (kg) | Bags | Weight (kg) |
| 0 | 0.0 | 0 | 0.0 |

Total 14 Bags,18.0kg

Total facilities visited 2

Home

History

Profile

WIDELY UNDER-REPORTED

Despite it being mandatory, only a small percentage of generators share waste details on the government mobile application, COVID-19 BWM App

| Month | Number of treatment facilities* using the App | Number of generators# using the App |
|----------------|---|-------------------------------------|
| August 2020 | 150 | Over 5,000 |
| September 2020 | 174 | 6,800 |
| October 2020 | 181 | 6,800 |
| November 2020 | 184 | 100,000 (approx) |
| December 2020 | 184 | 8,000 (approx) |
| May 2021 | 168 | 5,084 |

* India has 198 registered common biomedical waste treatment facilities.

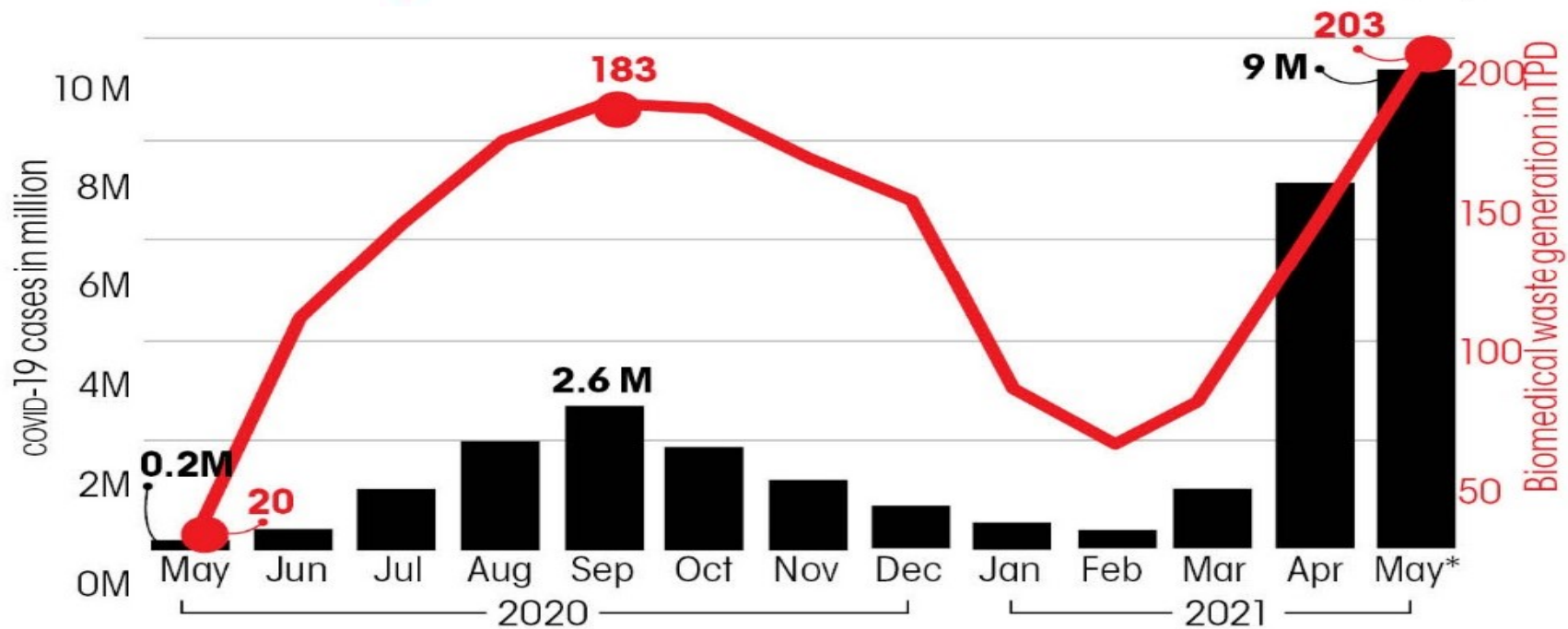
#List of generators include 106,643 bedded healthcare facilities in the country, and the individual households that are under quarantine. The municipal body must update the household data in the App.

Source: Central Pollution Control Board

DISPROPORTIONATE INCREASE

While new cases increased by 234 per cent, COVID-19 biomedical waste generation went up by 11 per cent between the peak months of the two waves

● New COVID-19 cases ● Average COVID-19 biomedical waste generation in tonnes per day (TPD)



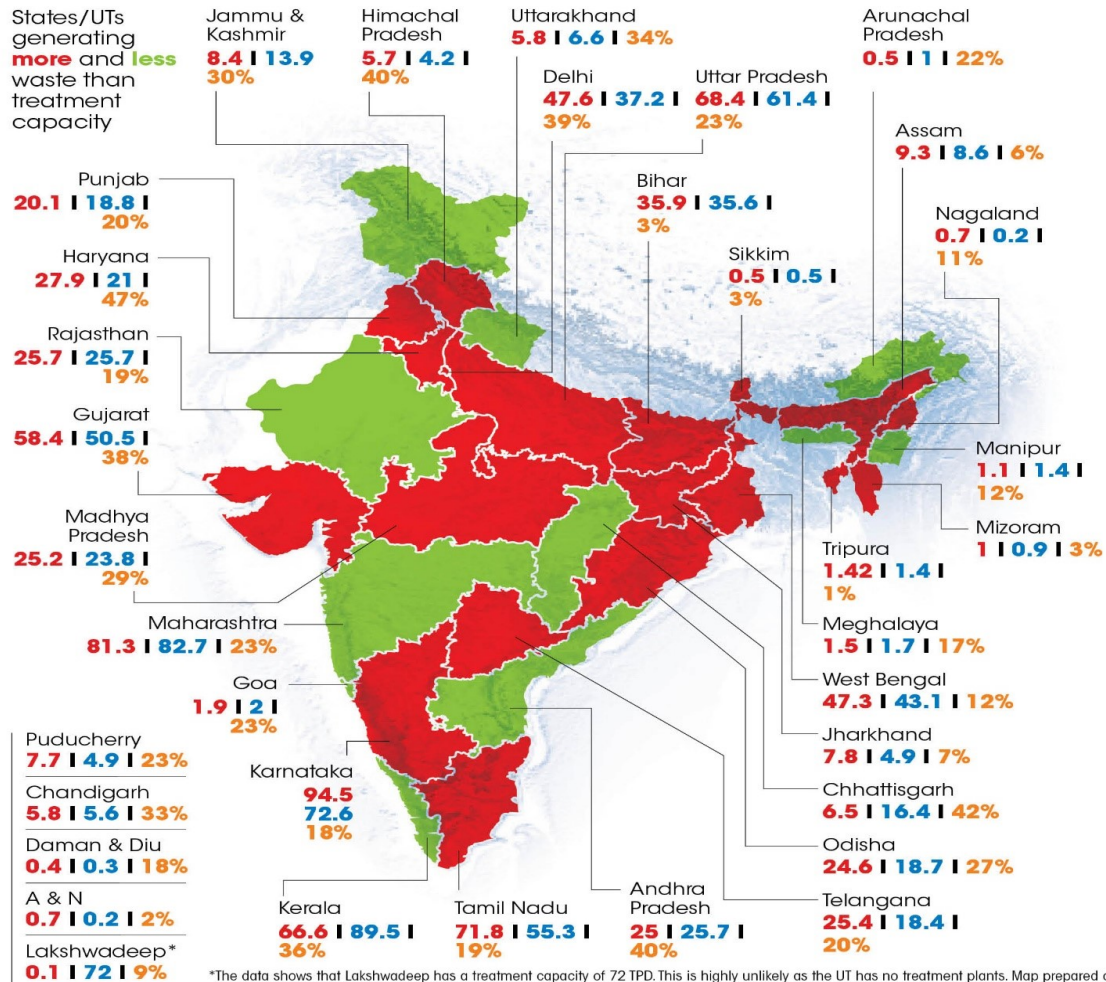
* Waste generation data only till May 10, 2021

Source: Central Pollution Control Board

TOO MUCH TO HANDLE

As many as 22 states/UTs have generated more biomedical waste than their treatment capacity during the pandemic's second wave

00 Total biomedical waste generated in tonnes per day (TPD) **00** Total treatment capacity (TPD)
00 % share of covid-19 biomedical waste in the total



*The data shows that Lakshwadeep has a treatment capacity of 72 TPD. This is highly unlikely as the UT has no treatment plants. Map prepared on the basis of biomedical waste generated in December 2020 and covid-19 waste generation in May 2021. Source: Central Pollution Control Board

Key aspects

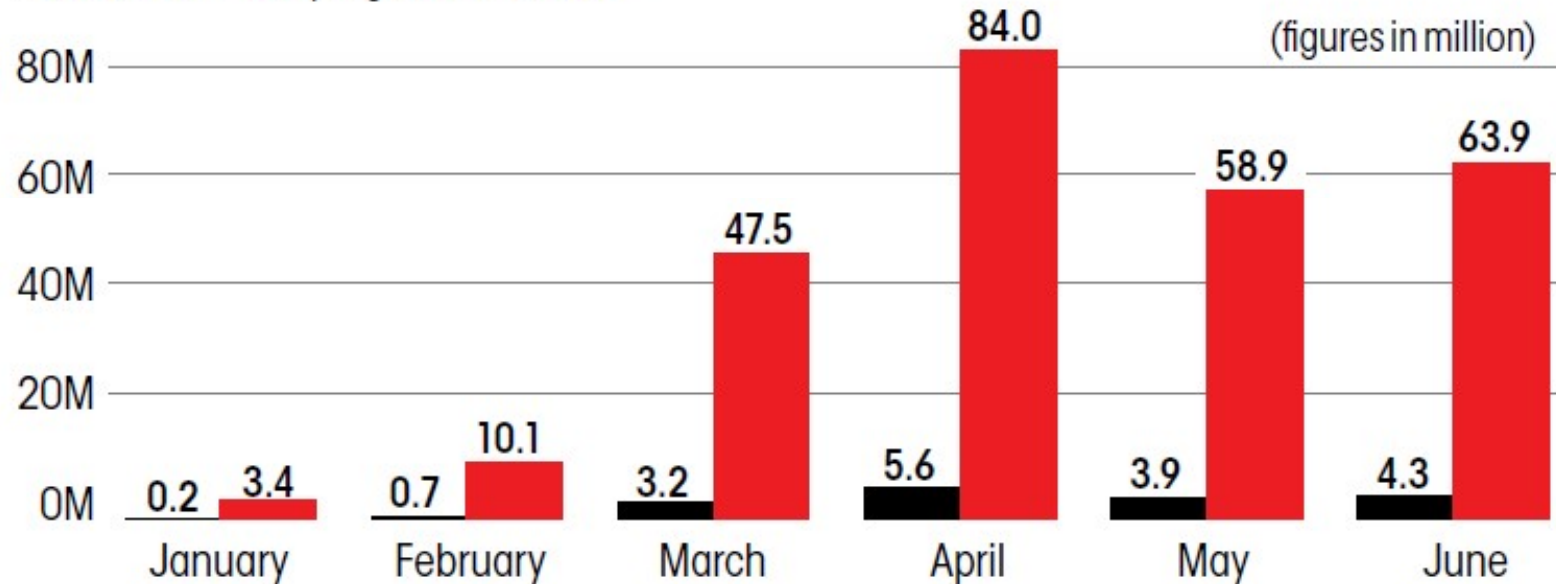
| | |
|--|------------|
| Total biomedical waste generated | 811.52 TPD |
| Total treatment capacity | 754 TPD* |
| % Share (Average) of COVID-19 biomedical waste | 21.4% |

* The data shows that Lakshadweep has a treatment capacity of 72 TPD. This is highly unlikely as the UT has no CBWTF's

ADDING TO THE BURDEN

India's COVID-19 vaccination drive has so far used close to 268 million syringes and needles, and almost 18 million glass vials

● Glass vials* ● Syringes and needles[#]



*One vial on an average carries 15 vaccine doses (Covishield has 10 doses a vial while Covaxin has 20)

*The number of syringes is equal to the number of vaccine doses administered. Source: Our World in Data



Thank you!!