



**Dr Veena Aggarwal**  
Consultant, Womens' Health  
CMD and Group Editor-in-Chief,  
IJCP Group & Medtalks  
Trustee, Dr KK's Heart Care  
Foundation of India

## HCFI Round Table Environment Expert Zoom Meeting on "Challenges in Municipal Waste Management"

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- Rapid urbanization and changes in lifestyle have converted small town to cities and cities to mega cities. This has resulted in generation of huge amounts of municipal solid waste, which has posed a threat to the environment.
- According to the Constitution of India, solid waste falls under the purview of the state government with tasks assigned to the urban local bodies.
- The collection and disposal of municipal solid waste is carried out by the municipal body. The state government and the pollution control board acts as the regulatory authorities.
- Municipal solid waste is a neglected issue in India even though the management rules were introduced in the 2000s. The biggest drawback is that we are not aware of the rules.
- In the Solid Waste Management Rules, 2016, the focus was on segregation of waste and waste to energy plants, responsibilities of bulk generators and Resident Welfare Associations (RWAs) were assigned, non-governmental organizations (NGOs) were involved.
- From 31st December, 120 micron plastic bags have also been banned.
- Unless waste is segregated, the problem is not going to be resolved. Segregation should be done at source, not after mixing of waste. Awareness is required for segregation at source.
- In recent years, technologies have been developed, which have helped to reduce the quantum of waste. Despite the rules and availability of technologies, implementation is lacking. A reason put forth for this the nonavailability of land, which is due to the NIMBY (Not In My Backyard) syndrome.
- Data of different bodies do not match. The information is incomplete. No auditing of processing plants is being done.
- Despite rules, land, finance, we are failing. It is very important to go to the root of the problem. A uniformity in systems is needed.
- Waste management is the responsibility of all, not just the government.
- People need to be given some incentive for participation in waste management and for Bhagidari schemes to be successful. However, incentives may not be a long-term solution to the problem.
- Some value has to be added to the waste for people to take interest. But some things need to be mandated so that they are complied with.
- There is a need to bring about a culture change in the society.

- Religious waste – flowers, havan samagri should be collected from temples.
  - A 100 cities have been selected for smart cities. Smart cities need smart vision, smart decisions and the ability to take people into confidence.
  - The contribution of informal sector towards waste management is not recognized. The scale of work done by the informal waste collectors in India is unmatched.
  - Cities have privatized waste management leading to the loss of livelihood for a number of waste pickers.
  - Municipal solid waste consists of the everyday items that are used and thrown away. It mainly comes from homes, schools, hospitals and public places. Categorically the wastes are considered household, office and retail wastes.
  - Concern about improper management has led to global efforts to reorient municipal solid waste management systems towards sustainability given the limited resources for its funding and the need for social admissibility aligning the incentives of the main stakeholders.
  - In selecting vehicles for waste collection two errors are commonly made. One of them is to choose advanced compactor trucks when they are not suited to the local conditions especially standards of maintenance, type of waste, financial capacity of the operator and access roads. The other common lapse is to use vehicles that are designed for materials that have a much higher density than solid waste. So, that the load-carrying capacity is too small and the productivity is low. Another problem with many waste collecting vehicles is that the waste must be lifted high to get it into the vehicle and no suitable mechanism is provided to do the lifting. So, it is done manually in an inefficient and unhygienic way.
  - The challenge of proper municipal solid waste management is complicated by several external stressors such as economic growth, which leads to waste generation; some of the waste such as electronics may be difficult to recycle. Population growth also increases waste generation. Densely populated towns and cities make it difficult to collect waste.
  - Lack of funds is a major problem. The shortage may restrict operational expenditure, such as maintenance, fuel and salaries or there may be a lack of capital for purchasing new equipment and vehicles.
- Participants:** Mr Vivek Kumar, Dr Anil Kumar, Dr SK Gupta, Dr Dipankar Saha, Mr Pradeep Khandelwal, Mr Neeraj Tyagi, Mr Lovekesh Chandra, Ms Ajeeta Agrawal, Ms Neena Gupta, Dr S Sharma



### The First Gene Therapy for Bladder Cancer

Patients with high-risk non-muscle-invasive bladder cancer (NMIBC) not responding to intravesical bacillus Calmette-Guérin (BCG) therapy now have a new treatment alternative to cystectomy, which has almost always been their only treatment option. The US FDA has approved the first gene therapy “nadofaragene firadenovec-vncg” for the treatment of adult patients with high-risk BCG-unresponsive NMIBC with carcinoma *in situ* with or without papillary tumors.<sup>1,2</sup> Nadofaragene firadenovec-vncg, available as Adstiladrin, is a nonreplicating adenoviral vector based gene therapy and is instilled into the bladder through a urinary catheter once every 3 months for 1 year. “The adenovirus vector enters the cells of the bladder wall, releasing a gene that directs the cells to secrete high quantities of interferon alfa-2b, a naturally occurring cancer-fighting protein”.<sup>2</sup>

**Contraindication:** Immunosuppressed patients or those with immunodeficiency.

**Side effects:** Fatigue, chills, fever, bladder discharge, bladder spasm, urgency, hematuria, dysuria.

Nadofaragene firadenovec-vncg is expected to be available in 2023, in the later part of the year. The cost of the therapy is yet to be revealed.

#### References

1. FDA news release. Dec. 16, 2022. Available from: <https://www.fda.gov/news-events/press-announcements/fda-approves-first-gene-therapy-treatment-high-risk-non-muscle-invasive-bladder-cancer>. Accessed Dec. 19, 2022.
2. FDA approves first gene therapy for bladder cancer. Medscape. Dec 16, 2022.