



Nightmare Bacteria

[Source: TOI](#)

Drug-resistant nightmare bacteria infections are surging in the **United States**, with **NDM-1 (New Delhi Metallo-beta-lactamase-1)** cases rising fivefold from 2019–2023.

Nightmare Bacteria

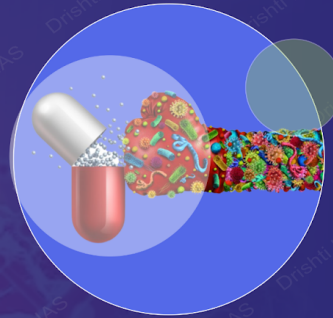
- **About:** Nightmare bacteria are **Carbapenem-resistant Enterobacteriaceae (CRE)** like ***Klebsiella pneumoniae*** and ***E. coli***, resistant to **last-resort carbapenem antibiotics**.
 - They are called “**nightmares**” because they **spread resistance genes easily** and **cause severe, often fatal infections** in the **bloodstream, lungs, and urinary tract**.
- **Global Spread:** This is **not US-specific**; **NDM-producing bacteria** are widespread in **South Asia**, and **international travel and trade** make [Antimicrobial Resistance \(AMR\)](#) a global challenge.
 - **AMR** occurs when **microorganisms** (bacteria, viruses, fungi, parasites) develop resistance to **antibiotics** and **antivirals**, making infections harder to treat and easier to spread.

NDM-1 Gene

- NDM-1 is a **gene found in certain bacteria** that enables them to produce an enzyme called **New Delhi metallo-beta-lactamase**.
- This enzyme makes the bacteria **resistant** to many **powerful antibiotics**, including some of the **last-resort drugs**.

ANTIMICROBIAL RESISTANCE

The ability of microorganisms to resist the effects of antimicrobial drugs



CAUSES OF ↑ AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in *K. pneumoniae*
- AMR *Mycobacterium tuberculosis* causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistance and Use Surveillance System) in 2015

INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing **TB, Vector Borne diseases, AIDS etc.**
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

New Delhi metallo- β -lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β -lactam antibiotics inactive

Read More: [India's AMR Crisis](https://www.drishtiias.com/printpdf/nightmare-bacteria)