



## GUILLAIN-BARRÉ SYNDROME - DISEASE

**NEWS: More than 100 confirmed cases of Guillain-Barré Syndrome (GBS).**

### WHAT'S IN THE NEWS?

- Health authorities have reported **over 100 cases of Guillain-Barré Syndrome (GBS)** in the affected region.
- GBS is a **rare but serious neurological disorder** that affects the **peripheral nervous system**.
- The sudden rise in GBS cases suggests a **widespread trigger**, likely a bacterial infection affecting a large population.

### Two deaths reported, and 17 patients are on ventilators.

- The severity of the outbreak is underscored by the fact that **two individuals have died** due to GBS complications.
- **17 patients are in critical condition and require ventilatory support**, indicating respiratory muscle weakness or paralysis, which is a known severe complication of GBS.
- The high number of severe cases suggests that **many patients may have experienced delays in receiving medical treatment**, worsening their condition.

### Experts estimate over 5,000 cases of Campylobacter infection in the region.

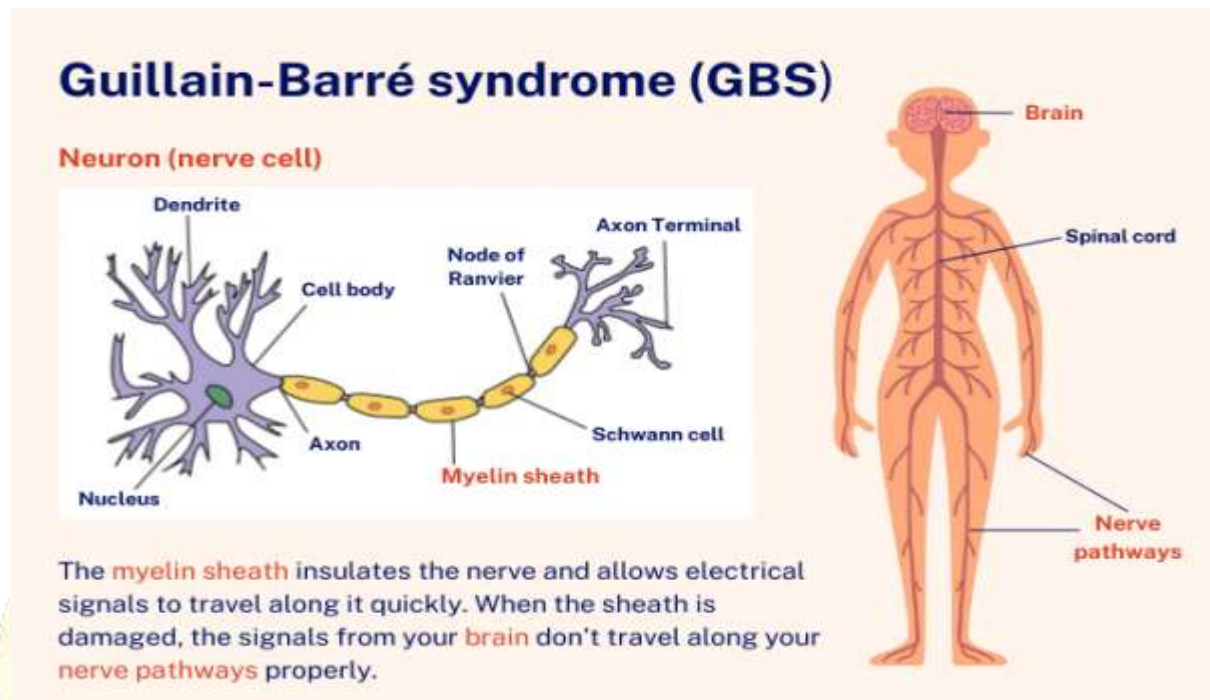
- **Campylobacter infection is one of the leading bacterial causes of foodborne illness worldwide.**
- Experts believe that the number of **people infected with Campylobacter jejuni could be over 5,000**, based on epidemiological assessments and laboratory reports.
- Since **only a small percentage of Campylobacter infections lead to GBS**, this high infection rate aligns with the **observed GBS cases**.

### The outbreak is linked to a contaminated water supply, carrying E. coli and Campylobacter jejuni bacteria.

- Water samples from the affected area have tested **positive for both E. coli and Campylobacter jejuni**, confirming contamination.
- **E. coli** is a common indicator of **fecal contamination**, meaning that **human or animal waste has entered the drinking water system**.



- **Campylobacter jejuni** is a well-known trigger of GBS, making it the likely cause of the outbreak.



## Understanding Guillain-Barré Syndrome (GBS)

**Autoimmune disorder where the immune system attacks the peripheral nervous system.**

- GBS is classified as an **autoimmune disease**, meaning the body's **own immune system** mistakenly attacks healthy cells.
- In GBS, the immune system **targets the peripheral nerves**, which are responsible for sending signals between the brain, spinal cord, and the rest of the body.
- This attack **disrupts nerve function**, leading to **muscle weakness and sensory abnormalities**.

**Causes muscle weakness, numbness, and potential paralysis.**

- Early symptoms include **tingling or numbness in the hands and feet**, progressing to **muscle weakness**.
- If left untreated, **muscle weakness can worsen, potentially leading to full-body paralysis**.
- Severe cases of GBS can **affect breathing muscles**, requiring **mechanical ventilation** for survival.

**Often triggered by bacterial infections, most commonly Campylobacter jejuni.**



- While the exact cause of GBS is unknown, it is often preceded by infections, particularly bacterial or viral illnesses.
- **Campylobacter jejuni**, a bacteria found in contaminated food and water, is the most common bacterial trigger of GBS.
- Other triggers include respiratory infections, flu, or gastrointestinal infections.

**Infection sources include contaminated food and water, poultry, and livestock waste.**

- **Campylobacter bacteria** are commonly found in undercooked poultry, raw milk, untreated water, and animal feces.
- Poor sanitation, consumption of infected meat, and contaminated drinking water are key risk factors.
- **Cross-contamination in kitchens** can also spread the bacteria.

## **Causes and Transmission Route**

### **Contaminated Water Supply:**

**Water samples indicate high E. coli levels, pointing to contamination from human/animal feces.**

- **E. coli** is a bacterial species that originates from human or animal waste.
- High levels of **E. coli** in water indicate that sewage or animal waste has entered the drinking water system, creating a public health hazard.

**Acts as the primary transmission medium for Campylobacter infection.**

- Since **Campylobacter** spreads through contaminated water, the infected water supply is the most likely cause of the outbreak.
- People who drink, cook with, or bathe in contaminated water can ingest the bacteria and become infected.

### **Food Contamination Hypothesis:**

**Experts suggest infected individuals may have consumed contaminated chicken or meat.**

- **Poultry** is a known source of **Campylobacter** infection, and undercooked chicken or cross-contaminated food can transmit the bacteria.



- Some experts initially speculated that the outbreak could have originated from **consumption of contaminated meat**.

**However, this alone cannot explain the large-scale outbreak.**

- **If contaminated food were the sole cause, the outbreak would have been more localized, affecting only people who consumed specific food products.**
- **Instead, the widespread nature of the outbreak suggests a different primary source.**

**Waterborne transmission remains the most probable cause.**

- **Given the large number of cases and the presence of Campylobacter in the drinking water supply, waterborne transmission is the most plausible explanation.**
- **Infected water can reach thousands of people simultaneously, making it the most efficient mode of spreading the bacteria.**

**Public Health and Government Failure**

**Delayed Response:**

**Local authorities failed to act after detecting the first Campylobacter cases.**

- **The first Campylobacter cases were reported early, but authorities did not take immediate preventive action.**
- **Timely intervention could have stopped further spread, but instead, the contamination persisted.**

**Clean water should have been immediately supplied, but contamination persisted.**

- **After identifying contaminated water as the source, officials should have arranged for alternative water sources.**
- **Failure to provide clean drinking water allowed the outbreak to escalate.**

**Weak Public Health Infrastructure:**

**In western nations, even three GBS cases would trigger an immediate outbreak response.**

- **In developed countries, even a small cluster of rare diseases like GBS would trigger an urgent epidemiological investigation and containment measures.**



## In India, government hospitals focus on treatment, lacking proactive infection tracing.

- Public hospitals in India often prioritize treating patients over tracing infections, leading to delays in identifying sources of outbreaks.
- A more proactive disease surveillance system is needed to detect and respond to outbreaks before they escalate.

## Comparison to COVID-19 Crisis:

During COVID-19, NDMA (National Disaster Management Agency) handled outbreak control.

- During the COVID-19 pandemic, the NDMA played a key role in coordinating nationwide outbreak responses.

## Experts question why NDMA is absent in managing the Pune crisis.

- Public health experts are questioning why the NDMA has not stepped in, given the severity of the outbreak.
- A coordinated disaster response is essential to prevent further spread and ensure effective management.

**Source:** <https://www.downtoearth.org.in/health/guillain-barr%C3%A9-outbreak-in-pune-human-made-epidemic-more-than-5000-cases-expected-experts#:~:text=Maharashtra's%20Pune%20is%20grappling%20with,17%20others%20are%20on%20ventilators.>