



(GRAM-NEGATIVE) BACTERIA

A HEALTH RISK THAT REQUIRES FULL ATTENTION



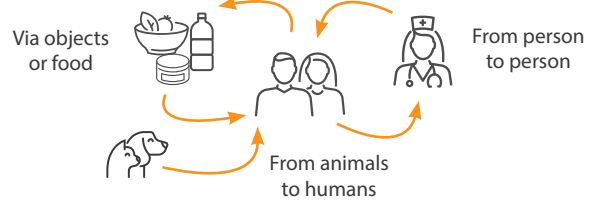
Bacteria are single-celled **microorganisms** measuring between **0.3 and 5 µm in size**. They differ in their morphology, with the cell wall playing a **central role**.

The bacterial cell wall consists mainly of murein, a peptidoglycan that surrounds the cell as a three-dimensional network. The structure of this protective layer is variable and characteristic of specific bacterial species.

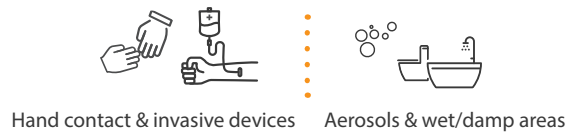
Many bacteria also have a **mucous capsule as an outer shell**, which provides protection or can promote adhesion to surfaces and other cells.

TRANSMISSION PATHS

KNOW THEM AND ACT ACCORDINGLY

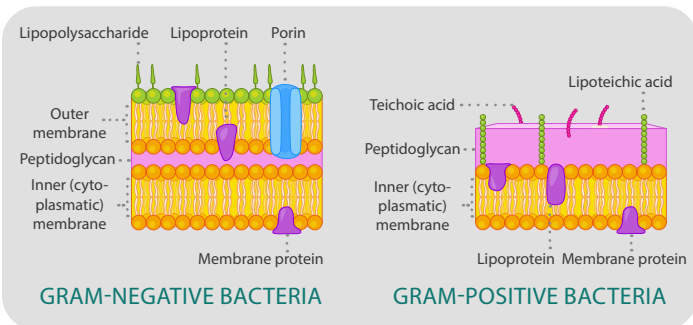


DIRECT versus INDIRECT TRANSMISSION



GROUPS OF PEOPLE AT RISK

INCREASED RISK IN MEDICAL SETTINGS



An important **method for distinguishing** between bacteria is **Gram staining**,

whereby **Gram-negative bacteria** stain **red** because their outer membrane cannot absorb the crystal violet dye,

while **Gram-positive bacteria** retain a **blue to blue-violet color** due to their thick murein layer.

Moist environments favor the survival of Gram-negative pathogens

GRAM-NEGATIVE Infections

3MDRGN / 4MDRGN*

- Klebsiella pneumoniae*
- Acinetobacter baumannii*
- Pseudomonas aeruginosa*
- Escherichia coli*

*Multidrugresistant Gram-negative rods with resistance to 3/4 antibiotic groups

GRAM-POSITIVE Infections

MRSA* VRE**

- Enterococcus faecalis/faecium*
- Staphylococcus aureus*
- Clostridioides difficile*

*Methicillin-resistant *Staphylococcus aureus*
**Vancomycin-resistant enterococci

SIGNIFICANCE FOR HEALTHCARE

With their high virulence and resistance in some cases, and due to their numerous virulence factors and resistance mechanisms, Gram-negative bacteria are **responsible for an increase in**

- Bacterial load
- Healthcare-associated Infections (HAIs)
- Severe infections in general
- Hospital stays (days)
- Treatment costs (costs, time methodology, level, intensity, etc.)
- Severe disease progression, including complications and consequences

42.3% of all detected pathogens of HAIs/nosocomial infections are Gram-negative bacteria

WHY ARE GRAM-NEGATIVE BACTERIA PROBLEMATIC?

Their **barriers, genetic flexibility**, and other **defense mechanisms** often cause them to be particularly **virulent** and **resistant**.

The combination of these characteristics promotes the **increase of antibiotic resistance and multidrug resistance/MDRGN**.

Learn more about this in our **information sheets:**

