

Antimicrobial Resistance

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Abstract: *Antimicrobial resistance (AMR) is one of the most serious global public health threats in this 21st century. Health care providers need to take necessary steps to prevent spread of infections.*

Keywords: Antimicrobial resistance, infections, antibiotics, global public health, MRSA, WHO

Antimicrobial resistance (AMR) presents a global public health threat. It is a dynamic phenomenon that occurs when bacteria, viruses, fungi and parasites resist the effects of medications, making common infections harder to treat, increasing risk of diseases spread, severe illness and death.

Describing antimicrobials, the Department of Health explains Antimicrobials or antimicrobial agents are medicines which kill or inhibit the growth of germs and are used to treat infectious diseases. These include antibiotics, antivirals, antifungals, antiparasitic and disinfectants. The term 'Superbugs' is often used to describe microorganisms that become resistant to antimicrobials.

Antimicrobial resistance is caused naturally, but it is compounded due to overuse of antibiotic doses, improper dumping of untreated chemicals from factories and hospitals in the environment, random dosing of antibiotics to livestock and excessive spraying of pesticides on crops.

There are three types of public health antimicrobials sterilizers, disinfectant and sanitizers. Five bacterial targets have been exploited in the development of antimicrobial drugs: cell wall synthesis, protein synthesis, ribonucleic acid synthesis, deoxyribonucleic acid (DNA) synthesis and intermediary metabolism.

MRSA is one of the most common antibiotic resistant bacteria. Symptoms of MRSA infection often begin as small red bumps on the skin that can progress to deep, painful abscesses or boils which are pus filled masses under the skin. Other leading antimicrobial drug resistant diseases are Mycobacterium tuberculosis, Vancomycin resistant Enterococci, C. difficile, Neisseria gonorrhoea.

WHO capturing the scale of the problem, writes: Antimicrobial resistance (AMR) threatens the effective prevention and treatment of an ever - increasing range of infections caused by bacteria, parasites, viruses and fungi. WHO explains the impact when these organisms change over time, they no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness and death. As a result the medicines become ineffective and infections persists in the body, increasing the risk of spread to others.

5D's of antimicrobial stewardship

Antibiotic stewardship was implemented in 2011 and focuses on five **D's**: - **Drug**, **De - escalation of therapy**, **Discontinuation of therapy**, **Dose** and **Diagnosis**.

What can I do to prevent antibiotic resistance?

The best way to prevent antibiotic resistance is to use antibiotics correctly. Take them only when needed. Here are some of the ways you can help:

- Don't take an antibiotic for a virus.
- Don't save an antibiotic for the next time you get sick.
- Take antibiotics exactly as prescribed. Don't skip doses. Complete your full course of treatment even if you are feeling better.
- Never take an antibiotic prescribed for someone else.

Healthcare providers can also help by:

- Only prescribing antibiotics that are needed
- Targeting the medicine as soon as possible to the specific bacteria involved
- Prescribing medicines for only as long as needed

Other public health measures can also help lower resistance. That includes cutting the use of antibiotics in livestock.

Healthcare providers also need to take steps to stop the spread of these infections. These bacteria are very common in healthcare settings. They should always maintain good hygiene. They should also always use methods that control infection.

Key points about antibiotic resistance

- Standard antibiotics can't kill bacteria that have become resistant. Many of these germs have spread all over the world.
- These bacteria can cause infections. They can be very hard to treat.
- If you have an infection that is antibiotic - resistant, your healthcare provider may or may not have other treatment options.
- Taking unneeded antibiotics promotes the growth of resistant bacteria.
- Practice good hygiene. It helps prevent the spread of infections that are resistant to antibiotics.

.....*Good Health*.....