by Gerhard Domagk, for which he was awarded the 1939 Nobel Prize. All classes of antibiotics in use today were first discovered prior to the mid 1980s.

Medical Uses:

1) Treatment:

- Bacterial infection
- Protozoan infection, e.g., metronidazole and Bactrim is effective against several parasitics.
- Immunomodulation

2) Prevention:

- Surgical wound
- Dental antibiotic prophylaxis
- Conditions of neutropenia, e.g. Cancer-related.

Classes:

Antibacterial antibiotics are commonly classified based on their mechanism of action, chemical structure, or spectrum of activity. Most target bacterial functions or growth processes.

Those that target the bacterial cell wall or the cell membrane or interfere with essential bacterial enzymes have bactericidal activities. Example: **Penicillins, Cephalosporins, Rifamycins and Sulfonamides.**

Those that target protein synthesis are usually bacteriostatic. Example: **Macrolides, Lincosamides and Tetracyclins.**

Further categorization is based on their target specificity. "**Narrow-spectrum**" antibacterial antibiotics target specific types of bacteria, such as Gram-negative or Gram-positive bacteria, whereas **broad-spectrum** antibiotics affect a wide range of bacteria.

Production:

- Semi-synthetic: With advances in medicinal chemistry most modern antibiotics are modifications of various natural compounds. These are called semi-synthetic antibiotics. Example: beta-lactam antibiotics, which include the penicillins, the cephalosporins, and the carbapenems.
- Synthetic: Which are produced solely by chemical synthesis. Example: Sulfonamides, Quinolones & Oxazolidinones.
- Natural: Compounds those are still isolated from living organisms. Example: Aminoglycosides.