

BIOLOGY

Resistance to Antibiotics

Causes of Antibiotic Resistance

- Overuse of antibiotics for treatment of many diseases and not just bacterial diseases. For example, prescribing antibiotics for coughs, colds and flu. These are caused by viruses which antibiotics will not kill.
- Only taking the provided antibiotics until the symptoms disappear. Not all of the bacteria may be killed and will allow another chance for the bacteria that are more resistant to survive and reproduce.
- Food producing animals such as chickens and pigs are fed antibiotics in their diet to prevent infection and promote growth. With widespread use promoted resistant strains.
- The use of cleaning products that contain antibacterial ingredients, encourage the development of antibiotic-resistant strains of bacteria. The quantities of these products are not used enough to kill all the bacteria, so those that are more resistant will survive, reproduce and form resistant populations.
- These resistant strains evolve due to natural selection explained by Darwin/Wallace.

Problems Relating to Antibiotic Resistance

- Antibiotics are no longer effective.
- Microorganisms that cause diseases that were once easily cured have developed resistant strains that are not responding to the cheaper 'first-line' antibiotics.
- The effects of these once easily cured diseases are now much more severe and because they take longer to cure, the infectious period is much longer, meaning that there's a greater chance of passing on the resistant strain.
- When second or third line antibiotics have to be used, they are much more expensive and more toxic.
- Antibiotics to treat resistant strains are too expensive for some countries so the strain is left untreatable and spreads.
- Some 'super-bugs' are resistant to almost all antibiotics such as Golden Staph.
- In the near future some diseases will have no treatment unless there is a breakthrough in producing more effective drugs.



Strategies to Slow the Development of Antibiotic Resistance

- Antibiotics should only be prescribed for bacterial infections when it will be a benefit to the patient.
- The antibiotic prescribed should target the pathogen and not be broad spectrum.
- Normal hygiene practices should be strictly adhered to in hospitals.
- You should not take antibiotics for viral infections such as cold and flu.
- You should take the whole course of antibiotic and not stop when the symptoms go away.
- You should not take antibiotics that are prescribed for someone else.
- You should not use cleaning products that contain anti-microbial ingredients.

