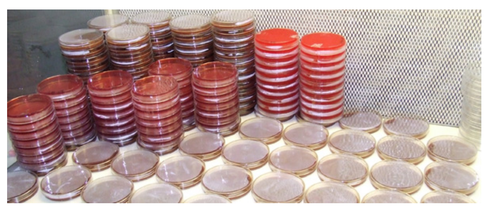
What are scientists doing about antimicrobial resistance?

WARWICK
INTEGRATE
ANTIMICROBIAL RESISTANCE

What is antimicrobial resistance (AMR)?

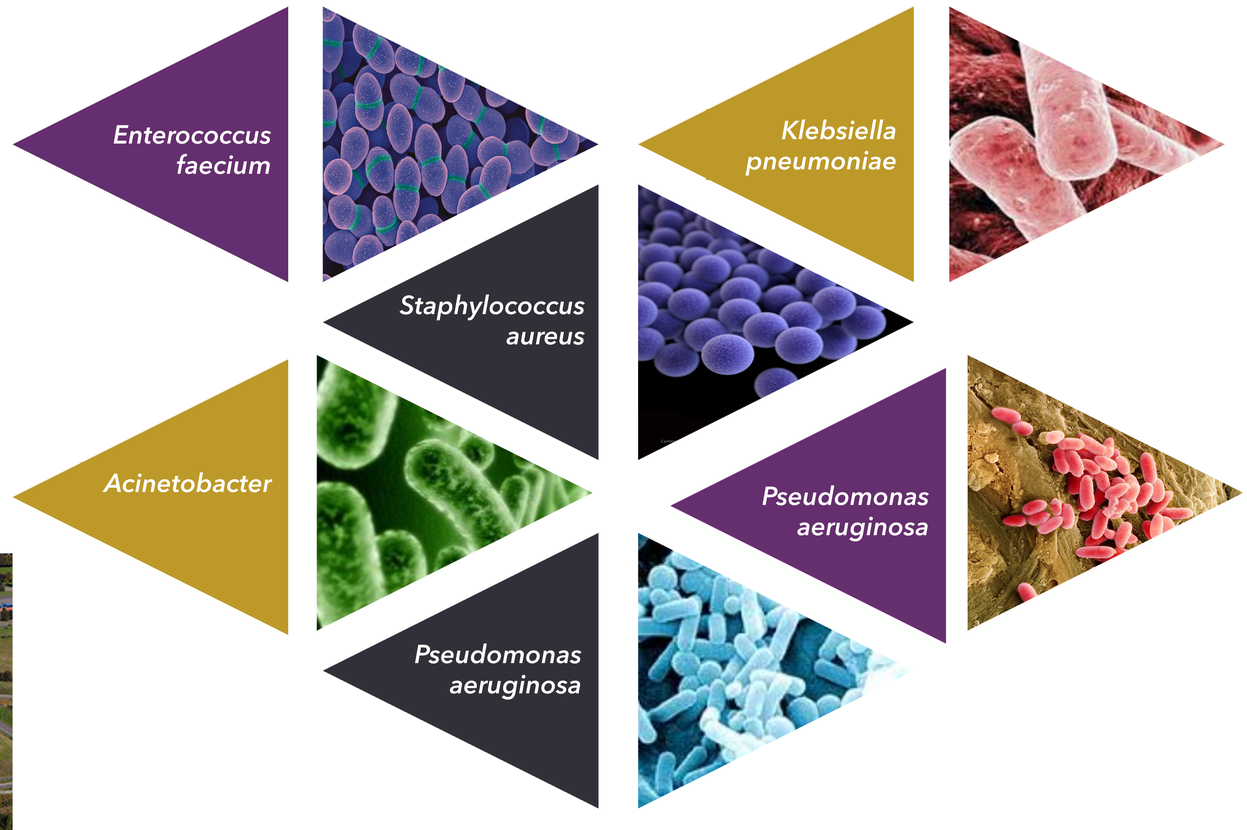
It is the ability of a microorganism (like bacteria, viruses, and some parasites) to stop **antimicrobials** (such as **antibiotics**, antivirals and antimalarials) from working against it. As a result, standard treatments become ineffective, infections persist and may spread to others.



Who is most at risk?

- Cancer Patients
- Pre-term Babies
- Cystic Fibrosis Patients
- Joint Replacement Patients
- Diabetic Patients
- UTI Patients

Bad Bugs, No Drugs (The ESKAPE pathogens)



Mechanism of Action

How are bugs becoming resistant?

How fast are they becoming resistant?

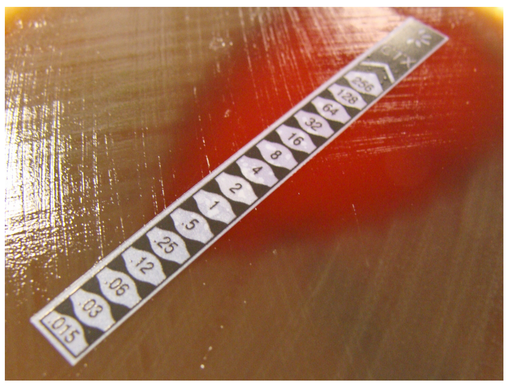
Determine level of resistance to the drug (Image Right)

Making mutations in pathogen to determine resistance mechanism

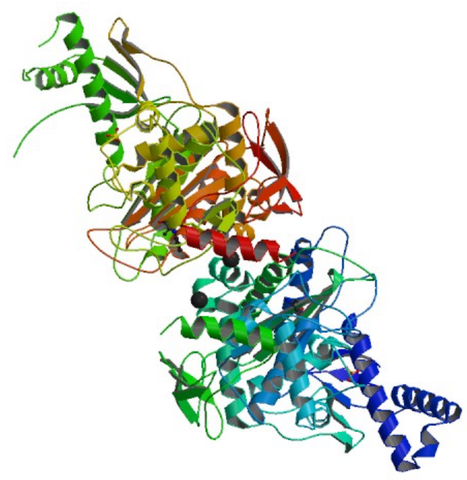
New Antimicrobial Targets

Identifying new proteins to inhibit

Determining the structure of proteins to design effective inhibitors (Image Right)



Research Themes for Scientists



New Antimicrobials

Problem – Very expensive for pharmaceutical companies to develop

Burden left with academic scientists

Interdisciplinary – Biologists, Physicists, Medics, Engineers and Chemists

Clever design approaches

Alternative Therapies

What if there are no new antibiotics or targets?

Phage therapy reserach… viruses that kill bugs

Vaccines

Tackling Antimicrobial Resistance is a Team Effort