What are scientists doing about 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 research… viruses that kill bugs
Vaccines

Tackling Antimicrobial Resistance is a Team Effort