

# Anti-infectives: The way forward

Resistance to antibiotics, antifungals and antivirals is increasing. There are now emerging some strains of bacteria resistant to all antibiotics. With no new class of antibiotics in the development pipeline, and over ten years' lead time if there were, what are we to do?

Experts from independent and charitable learned and professional bodies have come together with those from a Government Department and research agency as well as industry to identify a way forward.

This policy alert is being co-ordinated by  
the Institute of Biology



INSTITUTE  
OF BIOLOGY

with the Royal Pharmaceutical Society of Great Britain.



**Royal  
Pharmaceutical  
Society**  
of Great Britain

**"These germs of disease have taken toll of humanity since  
the beginning of things."**

H.G. Wells, *War of the Worlds*  
(1898)



# Pharmageddon Now

## Present

### At the moment:

- ◆ There are 5,000 deaths *per annum* in the UK from infectious diseases contracted in hospitals
- ◆ There has been no completely new class of antibiotic developed in the last 30 years
- ◆ Virtually all major pharmaceutical antibiotic research has moved out of the UK
- ◆ New antibiotics take in excess of 12 years to bring to market at an approximate cost of £250 million
- ◆ Any new antibiotics would be promoted for use by companies seeking to recover development costs' which is counter to the desire to limit their use to treat resistant organisms
- ◆ In many countries antibiotic availability and use is so indiscriminate that resistance is a serious burden worldwide

### Importantly in 2002 we are aware of these facts:

- ◆ Parliamentarians understand how important these issues are, and in 1998 the House of Lords published a report on antibiotic resistance
- ◆ Antibiotic use as prophylactics in agriculture is declining, with application as growth promoters negligible in the UK
- ◆ We have the necessary scientific and medical expertise to prevent the future scenario envisaged

### The bad news is that:

- ◆ In 1969 the Swann Committee recommended that Government address resistance, but the Expert Advisory Committee on Antimicrobial Resistance recommended by Swann was only set up in 2001
- ◆ Little progress has been made implementing recommendations of the House of Lords Report issued in 1998
- ◆ Continuation of the national surveillance system currently provided by the PHLS is in doubt



# Future - fact or fiction?

**If the situation remains unaltered then within the next couple of decades:**

- ◆ There will be more strains of bacteria resistant to all antibiotics in our communities and within many hospitals in the UK
- ◆ There will be strains of bacteria resistant to some antibiotics in all hospitals in the UK
- ◆ Reliable surveillance data on the various antibiotic-resistant strains of bacteria in either our hospitals or local communities will not be available
- ◆ Numbers of intensive care patients will rise (costing £1000 - £1800 *per patient per day*) resulting in a commensurate increase in NHS costs
- ◆ A marked increase in the number of deaths *per annum* from infectious diseases will occur in the UK
- ◆ It is unlikely that effective new antibiotics will be available to tackle the problem
- ◆ There will be few medical microbiology specialists being trained at degree level, and new doctors will have only a rudimentary grasp of infectious disease
- ◆ The UK will have returned to the pre-antibiotic era and average life expectancy will significantly decrease



# Action required

**To prevent this future scenario decisive action is urgently required.**

## **The UK must:**

- ◆ Ensure that the recently published UK Antimicrobial Resistance Strategy and Action Plan is actively adopted by all stakeholder departments and agencies. The Interdepartmental Steering Group, and recently established Expert Advisory Committee on Antimicrobial Resistance, must continue to press for widespread acceptance of the strategy
- ◆ Develop a cross-departmental co-ordinated funding programme, involving charities and industry as appropriate, to stimulate efforts in antibiotic research, to facilitate effective long-term surveillance of antibiotic resistance, and to tackle the growth of hospital-acquired infections
- ◆ Increase funding for academic research focused on development of new therapeutics
- ◆ Provide a more favourable climate for pharmaceutical companies to develop new antibiotics by extending market exclusivity for these beyond the current 20 years from patent registration, through changes to patent legislation, to provide patent rights running 20 years from marketing
- ◆ Ensure that foreign policy champions best practice for antibiotic use overseas, particularly in Europe, with new products being given EU-wide licences
- ◆ Literature and advice required at school level to encourage pupils to pursue careers in pharmaceutical science and medical microbiology and related professions. Government Departments should liaise with learned societies to this end
- ◆ Revise medical and veterinary curricula to reflect the significance of infectious disease and the appropriate use of antibiotics



The science behind this policy alert was reviewed and discussed at a symposium principally organised by the **Institute of Biology** and the **Royal Pharmaceutical Society of Great Britain** but with assistance of a number of learned societies within the Affiliated Societies together with the **Department of Health** and **Medical Research Council**. The symposium received some welcome support from **Bayer** and **AstraZeneca**.

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8th – 9th July 2002

at the Royal Pharmaceutical Society, London



INSTITUTE  
OF BIOLOGY



The Institute of **Trichologists**

**MRC**  
Medical Research Council



society for general  
**Microbiology**



Royal  
Pharmaceutical  
Society  
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apsgb.org

**(DH)** Department  
of Health



The Association of  
**CLINICAL MICROBIOLOGISTS**  
The professional body for microbiologists

**AstraZeneca**  
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The Principal Organisers are  
the Institute of Biology and the Royal Pharmaceutical Society  
with the support of the

Association of Clinical Microbiologists, British Electrophoresis Society,  
British Society for Cell Biology, Institute of Trichologists,  
Academy of Pharmaceutical Sciences, Society for Applied Microbiology  
and the Society for General Microbiology  
and the Medical Research Council and Department of Health  
and the assistance of AstraZeneca and Bayer



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Corroborating views and support have also been received from the following:



apsgb.org

*The Academy of Pharmaceutical Scientists*



*The Society for Applied Microbiology*

society for general  
**Microbiology**

*The Society for General Microbiology*

as well as



*Bayer*



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*AstraZeneca*

The Institute of Biology and Royal Pharmaceutical Society of Great Britain are independent and charitable learned and professional bodies for bioscientists and pharmacists respectively.

The Affiliated Societies are a co-operative of independent specialist bioscience learned bodies serviced by the Institute of Biology