

Taking individual action to tackle antibiotic resistance



Key points

- Antibiotic resistance is described by the WHO as a 'major threat'
- Drug-resistant infections kill 25,000 people each year in the European Union
- Without a global and multi-faceted response, an increasing number of previously treatable infectious diseases will become life-threatening conditions

Call to action

- Investment in initiatives to promote hand hygiene
- Campaigns to increase understanding of the appropriate use of antibiotics
- Greater utilisation of the wider public health workforce to support patient compliance with medicines

Background

The ground-breaking discoveries of penicillin and sulphonamides in the first half of the 20th century sparked a 'golden age' of medicine. However, less than a century later, we are facing the resurgence of many diseases previously thought to have been 'beaten'. Decades of misuse and over-prescription of antibiotics have enabled the development of drug-resistant strains of many diseases, such as tuberculosis, gonorrhoea and salmonellosis.¹

Without effective action, we are facing a future in which previously treatable diseases become life-threatening conditions. In the European Union, 25,000 people each year die as a result of drug-resistant infections,² the same number that are killed by car accidents.³ This issue, described by the World Health Organisation as a 'major threat to public health', requires an urgent and multi-faceted response.⁴ In the *UK Five Year Antimicrobial Resistance Strategy 2013 to 2018*, the Government outlines seven key areas for action. These include the need for more international cooperation, development of new drugs and treatments and more prudent use of existing antimicrobials.⁵

Alongside this, the strategy outlines the many simple and cost-effective actions that could be taken at the individual level to help prevent the spread and further development of antibiotic resistant diseases. These include practising good hand hygiene, adhering to prescribed medical treatments and reducing the prescription rate of antibiotics for coughs and colds.

What is the RSPH calling for?

- **Investment in initiatives to promote hand hygiene**

The RSPH calls for further investment from local authorities, clinical commissioning groups (CCGs) and schools in initiatives to promote good hand hygiene. The connection between hand hygiene and the spread of infection is long established, with the WHO describing it as 'one of the most effective methods to prevent transmission of pathogens'.⁶ However, in spite of this, a significant portion of the UK population does not practice good hand hygiene. For example, a study conducted in 2012 found that, of those included in the study, faecal strains were present on 26% of hands, with 11% of hands being comparable to a dirty toilet bowl in terms of the number of germs.⁷ Even during an outbreak of infection, studies have shown that a concerning percentage of people continue to practice poor hand hygiene. In Britain during the 2009 swine flu epidemic, only 53% increased the frequency with which they washed their hands, the lowest percentage of all the countries studied.⁸

Hand washing provides a simple, cheap and yet extremely effective method of preventing the spread of infection, thus reducing the need for antibiotic medication and reducing the spread of drug-resistant infection. It is, therefore, essential that we invest in educational initiatives to not only teach the importance of hand hygiene, but also the most effective method of hand washing, as demonstrated, for example, in the RSPH hand washing [video](#) aimed at the public.

It is vital to focus educational initiatives at health care professionals and patients within health care settings. Settings, such as hospitals, provide the ideal environment for antibiotic resistant infection to spread, as demonstrated by the development of MRSA.⁹ According to the National Institute for Health and Care Excellence, 300,000 patients per year contract an infection in an NHS hospital.¹⁰ It is vital that health care professionals are trained to understand and reduce the risk of infection transfer, firstly, from poor hand hygiene, but also through other methods, such as via uniforms worn between the home and the workplace. Additionally, procedures must be put in place to ensure that all staff members maintain consistently high standards of infection control, including, for example, ensuring that all staff uniforms are washed to a sufficient standard.

These educational initiatives must also be utilised within schools. The rate of antibiotic prescription is significantly higher for children than adults. Therefore, teaching good personal hygiene, including good hand hygiene may reduce the spread of infection and ultimately, the use of antibiotics within this age group.¹¹

- **Campaigns to increase understanding of the appropriate use of antibiotics**

Antibiotics are ineffective against viral infections such as coughs, colds and the vast majority of sore throats. However, in spite of this, the prescription of antibiotics for these conditions rose by 40% between 1999 and 2011.¹² A report by ESPAUR, the surveillance programme established by Public Health England in 2013, similarly found that between 2010 and 2013 the prescription rate for antibiotics increased by 4%.¹³ Of the patients that visit their GP with these conditions, over half of them are given a prescription for antibiotics. For over 10% of GP surgeries, this figure rises to two-thirds of patients.¹⁴ Research that seeks to explain why GPs continue to prescribe antibiotics for viral infections suggests that many GPs may mistakenly believe that patients have an expectation of leaving with a prescription.¹⁵

Studies have shown that the public's knowledge of infectious agents, antibiotics and antibiotic resistance is patchy. A study conducted in 2007 found that 97% of those surveyed understood that antibiotics should not be taken unnecessarily and 79% indicated that they were aware of antibiotic resistance.¹⁶ However, a study published in 2013 also found that one in four people believed that antibiotics were effective against most coughs and colds and more than one in three believed that antibiotics could kill viruses.¹⁷

The unnecessary prescription of antibiotics is a significant contributing factor in the development of antibiotic resistance. To effectively reduce the inappropriate use of antibiotics, we call for investment from local authorities and CCGs in awareness campaigns aimed, firstly, at the public to increase their understanding of the appropriate treatments for coughs and colds and secondly, at prescribing medical professionals to raise their awareness of the need for more prudent use of antibiotics. Where this approach has been adopted, there have been positive results. In Derbyshire between 2009 and 2012, medical professionals were provided with training and ongoing support in the form of 'antibiotic audits' and educational resources for their surgeries. At the same time, school health assistants were trained to deliver educational programmes in schools across the region. Following these initiatives, the prescription rate of cephalosporins, a key class of antibiotics, reduced to one-third below the national average and the prescription rate of quinolones, another class of antibiotics, reduced to one-quarter below the national average.¹⁸ With the ever-increasing workload and budgetary pressures of GPs and nurses, these campaigns could be instrumental in reducing the number of unnecessary visits to GP surgeries.

Previous awareness campaigns in the UK, however, have been conducted over the short-term and have focused primarily on the use of leaflets and posters with limited success. A survey conducted after the 'Andybiotic' campaign of 1999 and 2002 found that just 20% of those surveyed were aware of the campaign.¹⁵ McNulty et al argue that for greater effectiveness, a campaign must utilise a variety of mediums and be repeated over several years.¹⁵ An antibiotic awareness campaign in France, for example, utilised both radio and television advertisements on an annual basis from 2002 to 2007 resulting in an impressive 27% reduction in antibiotic use.¹⁹

• Greater utilisation of the wider public health workforce to support patient compliance with medicines

The RSPH calls for greater utilisation of the wider public health workforce for supporting compliance with prescribed medical treatments. The rate of compliance varies considerably according to the length and complexity of the prescribed treatment. One study found that 70% of patients were compliant with a twice daily dosage, compared with just 39% for a four times a day dosage.²⁰ Similarly, a study examining antibiotic use in children found that after three days 44% of children were fully compliant, reducing to 29% after six days and just 18% after nine days.²⁰ For infectious diseases, not completing a course of medication or not taking the medication in the prescribed manner is a contributing factor to the development and propagation of antibiotic resistance. With conditions such as tuberculosis that require a long course of medication, non-compliance is a particular issue.²¹ Health trainers and health champions, particularly those based within GP surgeries and community pharmacies, who are trained to work within communities supporting individuals to lead healthier lifestyles, could be instrumental in encouraging greater compliance. Health trainers and health champions could also support improvements in personal hygiene, including practicing good hand hygiene.

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