Antimicrobial resistance (AMR) is defined as “the resistance of a microorganism to an antimicrobial medicine to which it was originally sensitive. Resistant organisms (including bacteria, fungi, viruses and some parasites) are able to withstand attack by antimicrobial medicines, such as antibiotics, antifungals, antivirals and antimalarials, so that standard treatments become ineffective and infections persist, increasing risk of spread to others”.

Antimicrobials, in particular antibiotics, are an essential tool for modern medicine. They are used for the treatment of infections which often led to death before their discovery, including meningitis, tuberculosis, sepsis, and pneumonia. They are also used to prevent infection in surgical procedures and other medical conditions, such as cancer. Antimicrobial resistance poses a threat to the individual, and also wider society as it can be transferred between asymptomatic and symptomatic individuals.

Professor Dame Sally Davies said: “Antimicrobial resistance is a very real threat. If we have no suitable antibiotics to treat infection, minor surgery and routine operations could become high risk procedures.”

The growing threat of antimicrobial resistance continues to make national news headlines. In the UK, 80% of antibiotic prescribing occurs in primary care,\(^1\) with over half for respiratory tract infections. In secondary care, at any one time, approximately 30% of in-patients are receiving one or more antimicrobials.\(^2\) The development of resistance is linked to antimicrobial use; responsible use is therefore pivotal to reducing the threat of AMR.

The importance of everyone acting promptly was highlighted in the Chief Medical Officer’s annual report and the UK Five Year Antimicrobial Resistance Strategy 2013-2018, which sets out priorities and objectives for the UK. Seven key areas for action are highlighted in the strategy:

1. Improving infection prevention and control practices*
2. Optimising prescribing practice*
3. Improving professional education, training and public engagement*
4. Developing new drugs, treatments and diagnostics
5. Better access to and use of surveillance data*
6. Better identification and prioritisation of AMR research needs
7. Strengthened international collaboration

Much work is already under way within Public Health England (PHE) – who lead on the human health and social care elements of four* key areas in England. Information on progress is available via the Department of Health’s website.\(^3\) Some directly relevant work includes:
Antimicrobial stewardship toolkits for primary (TARGET) and secondary care (Start Smart then Focus)
Antimicrobial prescribing and stewardship competences
The English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR)
Activities for European Antibiotics Awareness Day
Development of the Antibiotic Guardian pledge campaign

The 2014 report of the English Surveillance Programme for antimicrobial utilisation and resistance, has highlighted that in England:
- Antibiotic prescribing has increased year on year
- The number of patients with bloodstream infections has increased yearly and increased numbers of these infections are caused by resistant bacteria
- There is significant variability between NHSE Local Areas Teams, with very little diversity in the choice of antibiotics used, hence increasing the selection pressure for antimicrobial resistance to develop
- Many areas with lower rates of prescribing in the community have higher prescribing rates in their secondary care settings. This highlights the importance of a whole healthcare economy approach to tackling antimicrobial consumption and resistance.

While antibiotic resistance cannot be eradicated, everyone in the UK has a responsibility. Actions from all can slow and possibly stop its progression. Within the healthcare setting, many such actions can be driven through the commissioning process. As our choice of antimicrobials decreases, preventing and controlling infections becomes even more important. Some key resources relevant to AMR and important for consideration in commissioning discussions are:
NHS STANDARD CONTRACT
The NHS Standard Contract is a key enabler for commissioners to secure improvements in the quality of services for patients and to hold providers (other than primary care) of NHS funded care to account. Each provider is required to have an Healthcare Associated Infections (HCAI) reduction plan for each contract year (and to comply with its obligations under that plan) that must reflect local and national priorities relating to HCAI including AMR.5

CODE OF PRACTICE IN THE HEALTH AND SOCIAL CARE ACT 2008
Commissioners should be aware that all health and adult social care organisations have a legal duty to implement the Health and Social Care Act 2008 ‘Code of practice’ on the prevention and control of infections and related guidance. As part of this, providers should be able to produce an overview of compliance at any time.

NICE QUALITY STANDARD 61: INFECTION PREVENTION AND CONTROL6
Antimicrobial stewardship is quality statement 1 in the NICE quality standard for infection prevention and control. It states: “a local formulary for antibiotic prescribing, covering all settings, is in place; providers monitor prescribing against the formulary; access to local training for medicines prescribers is available. This could be included in local CQUIN [Commissioning for Quality and Innovation] targets.”

Clinical Commissioning Group and/or public health infection control teams should:
- Ensure that there is access to local training on antimicrobial prescribing for medicines prescribers and dispensers.
- Tools such as the Start Smart Then Focus antimicrobial stewardship toolkit for secondary care, and the Public Health England/ Royal College of General Practitioners (RCGP) TARGET antibiotics toolkit and the Medical Research Council’s STAR educational programme in primary care settings, may be useful
- Monitor local AMR patterns and ensure that this information is communicated regularly to prescribers and those involved with handling medicines

INFECTION PREVENTION AND CONTROL COMMISSIONING TOOLKIT7
The Infection Prevention Society and Royal College of Nursing’s Infection Prevention and Control Commissioning Toolkit, provides information for professionals involved in the commissioning or assurance of health and social care services. It relates specifically to the organisational approach to infection prevention and control. It is an enabling resource that includes both mandatory indicators, and a basket of indicators to consider for inclusion in local commissioning contracts.

THE TARGET TOOLKIT8
The TARGET toolkit has been developed by the PHE Primary Care Unit, the RCGP and the Antimicrobial Stewardship in Primary Care group, to assist and influence personal attitudes, social norms and perceived barriers to optimal antibiotics prescribing. It contains a presentation to be given in the practice setting, and other materials including patient leaflets audits, self-assessment checklists, antibiotic guidance, posters and videos and training modules for personal learning.

THE START SMART THEN FOCUS TOOLKIT9
The Start Smart then Focus Toolkit provides an outline of evidence-based antimicrobial stewardship in the secondary healthcare setting. It recommends a multi-disciplinary quality improvement/audit programme, setting out key criteria which providers should monitor.
European Antibiotic Awareness Day and Antibiotic Guardian

European Antibiotic Awareness Day, which takes place on 18 November, is a European-wide annual event that aims to raise awareness for healthcare professionals and public on how to use antibiotics in a responsible way that will help keep them effective for the future. Public Health England is leading the coordination of activities in England and is working closely with the Department of Health’s Expert Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infections (ARHAI); the Veterinary Medicines Directorate (VMD), the devolved administrations and professional bodies/organisations towards a ‘One Health’ approach.

Several resources that can be used in local campaigns are hosted centrally and available online.10

Public Health England have established the Antibiotic Guardian11 campaign to encourage everyone in the UK (including healthcare professionals, healthcare leaders and the public) to take one personal action to protect antibiotics and to improve knowledge about antibiotic resistance across UK. Commissioners are invited to take action and become an antibiotic guardian via www.antibioticguardian.com (There are specific pledges for healthcare leaders).

STEP 1
Don’t ask for antibiotics for self-limiting infections, consider alternatives to antibiotics and to ask a pharmacist about over the counter remedies that can help treat the symptoms

STEP 2
Take antibiotics exactly as prescribed, never save them for future use, never share them with others

STEP 3
To spread the word and share the video

The discovery of new classes of antibiotics is at an all-time low, therefore, preserving the activity of our current antibiotics is essential. Only through a collaborative whole health economy approach can we tackle inappropriate antimicrobial consumption and subsequently reduce resistance and the threat of a post-antibiotic future.

References:

“Antimicrobial resistance is a very real threat. If we have no suitable antibiotics to treat infection, minor surgery and routine operations could become high risk procedures.”

Professor Dame Sally Davies, Chief Medical Officer