Implementing the UK Five Year Antimicrobial Resistance Strategy 2013-2018

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AMR poses a ‘catastrophic threat’
The Scale of The Challenge

- 25,000 people per year in **Europe** die of infections caused by resistant bacteria.
- 23,000 deaths/year from sepsis caused by resistant bacteria in **United States** (a conservative estimate).
- **Globally**, by 2050 drug-resistant infections could cause **10 million extra deaths a year** and have a cumulative cost of **US$ 100 trillion**.
- **In the UK** 5,000 patients die of Gram-negative sepsis each year, half with a resistant organism.

Multi-drug resistant bacteria are spreading in the UK and world wide.

Increasing resistance and a lack of new drugs means a risk of infections that cannot be treated and more deaths unless urgent action is taken.
Scientists kick back, 2016

“There is undoubtedly a large clinical and public health burden associated with AMR, but it is challenging to quantify the associated excess morbidity and mortality.”

“Current global estimates of the burden of AMR are not very informative; we need detailed, reliable data to be able to improve AMR control measures, preferably based on comprehensive, population-based surveillance data from low-, middle-, and high-income countries.”

“The AMR Review even acknowledged “that the reported numbers are “broad brush estimates,” and robust work will no doubt be done by academic researchers,” and that there is a lack of data, urging for improvement of infection surveillance.”
The overarching goal of the Strategy is to slow the development and spread of AMR. It will do this by focusing activities around three strategic aims to:

• improve the knowledge and understanding of AMR;

• conserve and steward the effectiveness of existing treatments, and

• stimulate the development of new antibiotics, diagnostics and novel therapies.
Specific focus of the UK AMR Strategy

• **PREVENT** (people from being infected – infection prevention and control)

• **PRESERVE** (the antibiotics we have – good stewardship)

• **PROMOTE** (development of new antimicrobials, new approaches, better diagnostics – the independent review by Lord Jim O’Neill)

**Underpinned by:**
- Surveillance
- R&D
- One Health approach
- International collaboration
Three strands for surveillance of AMR

1. data on *consumption of antibiotics* in both humans and animals, [...] which would help understand the link between antimicrobial use and the development of resistance.

2. data on *resistance rates* for various drug–bug combinations and their impact on patients’ health.

3. *molecular biological data* to explain the biological basis of resistance, through characterisation of the types of resistant bacteria and the genetic reasons for their resistance.

- This information should be *gathered* within a ‘one health’ perspective, covering animals and humans and the environment to provide a complete picture.
HCAI & AMR surveillance

PHE Data Sources

- CoSurv
- Second Generation Surveillance System (SGSS)
- Notations of Infectious Diseases (NOIDS)
- Modular Open Laboratory Information System (MOLIS)
- Data Capture System
- BSAC Resistance Surveillance Project
- European Antimicrobial Resistance Surveillance Network (EARS-Net)
- Norovirus Outbreak Reporting Tool
- C. difficile Ribotyping Network (CDRN)
- Surgical Site Infection Surveillance Service (SSISS)

Key
- PHE data collections
- Other national/international schemes
UK AMR High Level Steering Group

• The UK programme is overseen by an Interdepartmental High Level Steering Group (HLSG), chaired and supported by the DH.

• The Government cannot deliver the actions alone, contributions are needed across sectors:
  Human Health and Social Care
  Livestock, food retail and veterinary
  Research councils, other research funders and academics
  The pharmaceutical industry.

• The group drives change, ensuring there is progress across all sectors and that momentum is maintained.
The role of Departments and their agencies

DH - lead on research prioritisation and collaboration, international collaboration; managing global funds; signposting to clinical trial platforms; overall strategy coordination

Defra - coordinate activity relating to the animal health and environmental aspects of the strategy including IPC, prescribing practice, reducing antimicrobial use in livestock production in real terms.

PHE - coordinate activity relating to the human health aspects, working with Defra re the human/animal health interface; support on IPC, prescribing, evidence based behaviour change interventions and surveillance.

NHS England - working with NHS Improvement to deliver ambitions for improved IPC and antibiotic prescribing in the NHS, utilising levers and incentives to ensure that improved IPC and reductions in prescribing are sustainable. Delivery of the vision for diagnostics and AMR.

NHS Improvement – mobilising providers of care in local health systems and holding providers to account.
UK AMR High Level Steering Group (HLSG)

Meets three times a year to drive and oversee delivery against strategic aims. Tasked with publishing an implementation plan, detailed outcome metrics and an annual report on progress.

Chair: Vacant;
Members: PHE, Defra, DH, BIS, DFID, DAs, PHE, NHS England, NHS Improvement, NICE, HEE, MHRA, FCO, CO, (HMT), FSA.

Sub-group – Diagnostics and AMR, Chaired by Sue Hill

UK AMR Programme Management Office, DH
Global Public Health Group

Expert Advisory Groups - ACDP, ARHAI, DARC, ACMSF.
Commissioned by DH, Defra and FSA to undertake specific work, including outcome measures, to support the HLSG.

NHS England AMR Strategy Implementation Group
SRO: Mike Durkin

NHS Improvement:
SRO: Paul Cosford

PHE AMR Programme Delivery Board. Meets 6 weekly. 11 PHE work-streams report into the group.
Chair: Duncan Selbie. NHS England, NHS I, HEE, NICE, RCGP, RCN, Defra, DAs, LGA, ADPH, ARHAI, VMD, RCPath, AMRC, DH

HEE– AMR working group
SRO: Julie Screaton/ Ged Byrne

Human Health and Social Care sectors
PHE leads coordination in 4 action areas across England; IPC, optimised prescribing, awareness and surveillance. SRO: Paul Cosford

Animal Health, Agriculture, Food and the Environment
Defra leads on animal health, agriculture, food and the environment.
SRO: Pete Borriello
VMD leads on animal health aspects across the Strategy

AMR policy and coordination
DH leads on 3 action areas: new drugs, treatments and diagnostics; research and international.
DH AMR Programme Group oversee DH led work.
SRO: Helen Shirley-Quirk (DH)

AMR Cross -Whitehall International Steering Group
Responsible for delivery of the international element of the UK AMR Strategy.
Chair: Julien Braithwaite FCO. DH, Defra VMD, DFID, BIS, HMT

AMR Research Funders Forum – The Medical Research Council leads to coordinate and align efforts in AMR research. Supports all aspects of Strategy implementation.
Members: all 7 Research Councils, the Wellcome Trust, DH, NIHR, Innovate UK, Defra/ VMD, PHE, the FSA and other UK Health Departments

DARC – Defra antimicrobial resistance coordination group; ACDP - Advisory Committee on Dangerous Pathogens; ARHAI – Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection; ACMSF – Advisory Committee on Microbiological Safety of Food; ESPAUR – English Surveillance Programme for Antimicrobial Usage and Resistance;
Making the case for action

- **Evidence** - extending the evidence base and analysis to get AMR placed on our **national security risk assessment**
- **Leadership** - intellectual and clinical leadership by CMO
- **Economics** - the **independent review** on AMR
- **Good Governance** - High Level Steering Group on AMR attended by relevant departments and representatives from our Devolved Administrations - holds parties to account for delivering their parts of the strategy and produces a report on an annual basis.
The NHS: The Impact of Resistant Infections

- Over 5 years - an extra 6,000 deaths attributable to pan-resistant Gram-negative bloodstream infections.

- Extra NHS costs to manage resistant infections: estimated to be £280 million.

- Estimated cost of treating Gram-negative infection
  – For a straightforward case = at least £3,000
  – For a highly resistant case = at least £6,000

- Cost of £1m per resistant infections outbreak in a hospital.
Fighting ‘AMR’ outbreaks is hugely expensive

Superbug outbreak costs an NHS hospital one million pounds, says new study
by Kate Wighton
06 November 2015

Manchester trust struggling to contain hospital bug

Efforts to contain the spread of highly resistant bacteria have cost a Manchester hospital trust more than £5m in eight months.
Published the formal response in September, setting out proposed action including:

• Halving the inappropriate prescription of antibiotics in human health by 2020;
• Halving the number of healthcare associated bloodstream infections that pose the biggest risk – such as *E. coli* - by 2020;
• Antibiotic use in livestock and fish farmed for food to 50mg/kg, by 2018.
• Working with the global finance and health community to develop a global system that rewards companies that develop new, successful antibiotics and make them available to all who need them.
Future sustainability

• Government ambitions for infection rates, inappropriate prescribing and use of antibiotics in animals,
• Patient safety agenda
• NSRA
• Making the economic case
• Continuing to promote on the international stage G7, G20
• Evaluating the 2013-2018 strategy and developing the next one.
AMR Achievements - National

- Inclusion on government risk registers
- UK Strategy + Cross-party support (APPG)
- Prime Minister Commission of an Independent Review of the Drug Pipeline for Antimicrobials
- Longitude Prize
- Fleming Fund
PROGRESS – Prevent

• Published a revised **Code of Practice** on the prevention and control of infections.

• Using AMR indicators on “fingertips” PHE & NHSImprovement leading plans to improve infection prevention and reduce bloodstream infections; data at CCG, Trust and GP level by April 2017.

• Leadership, new National Infection lead, Dr Ruth May.

• New Incentives – new QP and CQUIN will come in operation from April 2017.
Quality Premium, 2017-19

- The Quality Premium (QP) scheme is about **rewards** Clinical Commissioning Groups (CCGs) for improvements in the quality of the services they commission.

- The scheme also **incentivises** CCGs to improve patient health outcomes and reduce inequalities in health outcomes and improve access to services.

<table>
<thead>
<tr>
<th>Quality Premium Measure</th>
<th>Reducing Gram Negative Bloodstream Infections (GNBSIs) and inappropriate antibiotic prescribing in at risk groups</th>
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<tbody>
<tr>
<td></td>
<td>This Quality Premium measure consists of three parts:</td>
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<td>Part a) reducing gram negative blood stream infections (BSI) across the whole health economy</td>
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<td>Part b) reduction of inappropriate antibiotic prescribing for urinary tract infections (UTI) in primary care</td>
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<td>Part c) sustained reduction of inappropriate prescribing in primary care</td>
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https://www.england.nhs.uk/
Reducing the impact of serious infections, AMR and Sepsis), CQUIN 2017/19

- The Commissioning for Quality and Innovation (CQUIN) framework supports improvements in the quality of services and the creation of new, improved patterns of care

<table>
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<th>National CQUIN</th>
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<th>Indicator weighting (% of CQUIN scheme available)</th>
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<tr>
<td>CQUIN 2a</td>
<td>Timely identification of sepsis in emergency departments and acute inpatient settings</td>
<td>25% of 0.25% (0.0625%)</td>
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<tr>
<td>CQUIN 2b</td>
<td>Timely treatment for sepsis in emergency departments and acute inpatient settings</td>
<td>25% of 0.25% (0.0625%)</td>
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<tr>
<td>CQUIN 2c</td>
<td>Antibiotic review</td>
<td>25% of 0.25% (0.0625%)</td>
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<tr>
<td>CQUIN 2d</td>
<td>Reduction in antibiotic consumption per 1,000 admissions</td>
<td>25% of 0.25% (0.0625%)</td>
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PROGRESS – Preserve


- **Behavioural change pilots** - to influence professional behaviour with regard to prescribing and use of antibiotics.

- **Antimicrobial Stewardship guideline** - NICE, published August 2015.

- **Local AMR indicator data** – available to all via “fingertips”.

- **Prescribing in animal health**: collaboration with BVA and food producers.
PROGRESS- Promote

New Drugs
• The PM’s independent Review, led by the economist Jim O’Neil, final report published May 2016.

• Government and industry working collaboratively to explore what can be done in the UK.

Improved diagnostics
• Review of diagnostics across the system for prompt and better diagnostic testing across the NHS.
Underpinned by better data

- **Baseline metrics** for key infections and antimicrobial use.

- Publication of data across General Practices and hospitals for England.

- In animal health we are developing a **data hub** to collect species specific prescribing data.

- Publication of the first **One-Health surveillance report**, July 2015
Underpinned by - Research

• The AMR Research Funders Forum, established in 2014 and led by the Medical Research Council, promotes joint action on AMR. http://www.mrc.ac.uk/research/initiatives/antimicrobial-resistance/antimicrobial-resistance-funders-forum/

• Two new National Institute for Health Research (NIHR) Health Protection Research Units with a focus on healthcare associated infections and AMR established in 2014. http://www.nihr.ac.uk/funding/health-protection-research-units.htm

• A number of NIHR themed calls on AMR. www.nihr.ac.uk
PHE collaborating with academia, 2014-19

- **Health Protection Research Units** in HCAI and AMR
  - Imperial College and PHE *(Alison Holmes and Alan Johnson)*
  - University of Oxford and PHE *(Derrick Crook and Neil Woodford)*

- National research units involving a network of relevant, world class expertise that can comprehensively address the challenges of AMR and HCAI, with the resilience and capacity to respond to emerging issues and public health priorities

- Creating integrated programmes of research to develop new, cost-effective approaches for detection, surveillance, investigation and reduction of HCAI and AMR in the NHS
Underpinned by International Action

- Successes so far:
  - WHO, FAO and OIE resolutions, 2015
  - Global Health Security Agenda – AMR action package
  - Increasing International support at the highest levels
  - UK Fleming Fund
  - Independent AMR Review
  - Diagnostic Prizes
  - United Nations Declaration on AMR, September 2016

- Looking ahead:
  - Implementing the Global Action Plan
  - G20
  - G7
In summary, our focus from 2017

Nationally:
• implement the national ambitions announced in response to the independent review on AMR,
• reinforce stewardship and embed best practice through local leadership,
• continue to work with the public to change behaviours.

Internationally:
• supporting the WHO to implement the GAP / GLASS
• work with FAO and OIE,
• Work with other countries to implement the GHSA AMR action package
• supporting capacity and capability – new Fleming Fund,
• Supporting the UN in 2017 to implement the declaration.