

The AMR challenge and the UK's lead role in the international response



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- The issue
- Why are the FSA involved?
- FSA responsibilities in Govt response to AMR

WITHOUT URGENT,
COORDINATED ACTION, THE
WORLD IS HEADING TOWARDS
A POST-ANTIBIOTIC ERA IN
WHICH COMMON INFECTIONS
AND MINOR INJURIES, WHICH
HAVE BEEN TREATABLE FOR
DECADES, CAN ONCE AGAIN
KILL

WORLD HEALTH ORGANIZATION

It's official: Eating rare meat could kill you thanks to drug-resistant superbugs

New guidelines published after review on the growth of killer bacteria



REPLAY **sky MOVIES**

DISCOVER THE BIGGEST

Christmas

MOVIES



Global Problem

AUSTRALIA

Of the 700 tonnes of antibiotics imported each year, 80% is used to boost agricultural production and treat sick animals.

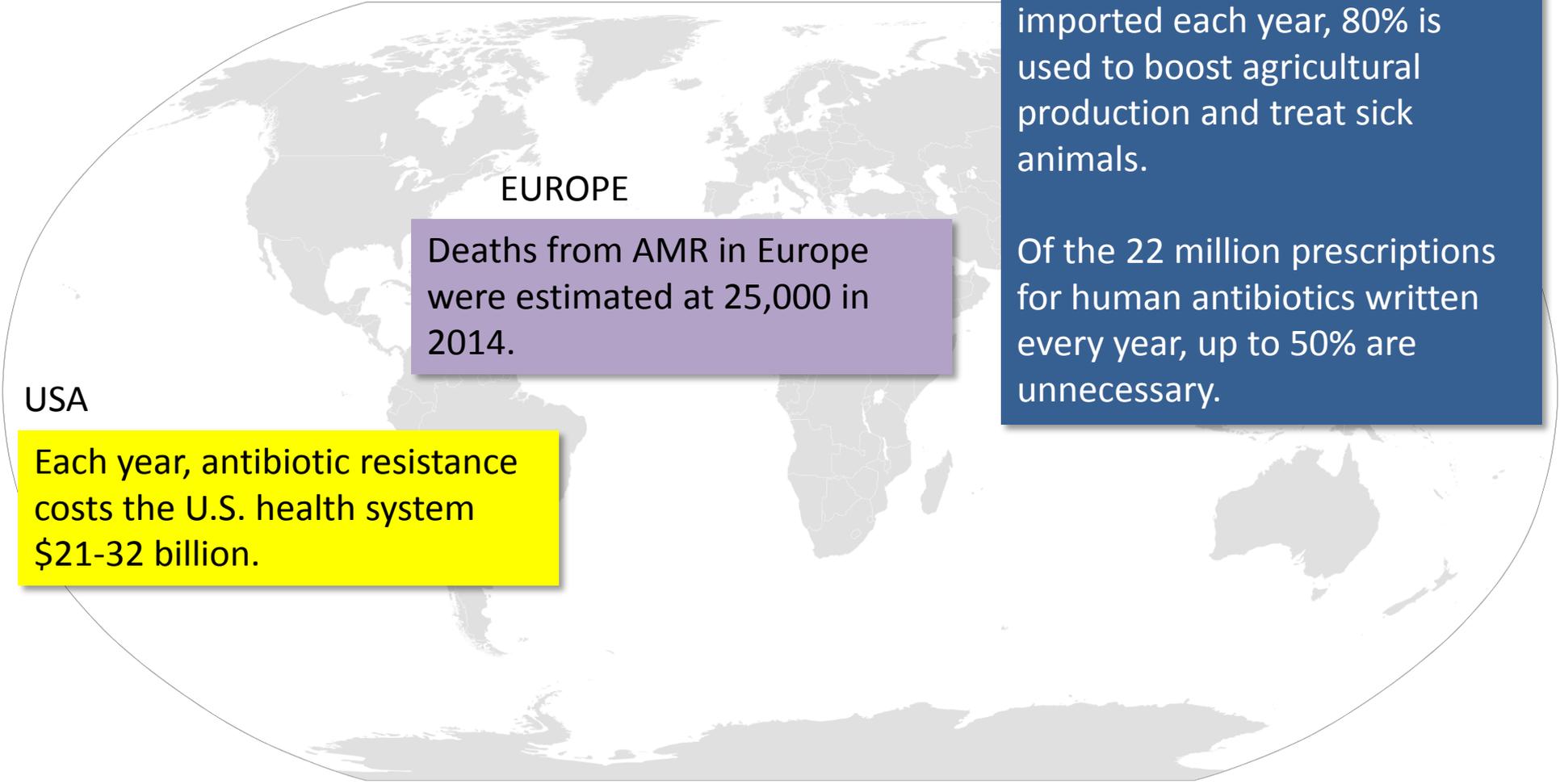
Of the 22 million prescriptions for human antibiotics written every year, up to 50% are unnecessary.

EUROPE

Deaths from AMR in Europe were estimated at 25,000 in 2014.

USA

Each year, antibiotic resistance costs the U.S. health system \$21-32 billion.





ANTIMICROBIALS IN AGRICULTURE AND THE ENVIRONMENT: REDUCING UNNECESSARY USE AND WASTE

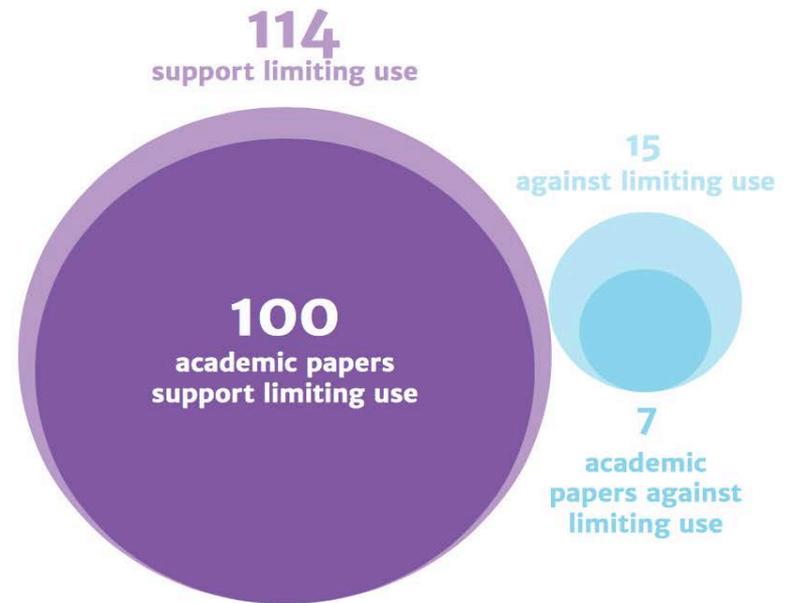
THE REVIEW ON ANTIMICROBIAL RESISTANCE

CHAIRER BY JIM O'NEILL

DECEMBER 2015



MOST PUBLISHED PAPERS PROVIDE EVIDENCE TO SUPPORT LIMITING USE OF ANTIBIOTICS IN AGRICULTURE



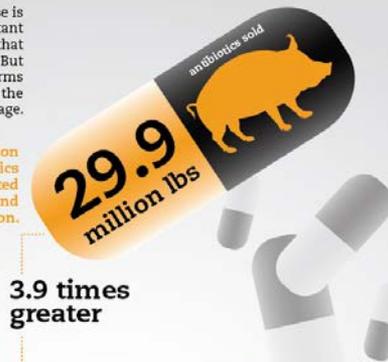
Based on a representative sample using the 280 papers from the NCBI's PubMed database found with the search terms "drug resistance, microbial" AND "agriculture", 88 of which were deemed not to be applicable as they did not address antibiotic use in agriculture. Papers were categorised as 'supportive', if they provided evidence to support limiting antibiotics in agriculture, 'against', if they provided evidence that we should not be concerned with limiting antibiotics in agriculture and 'neutral', if they did not explicitly take a stance. There were 63 papers that were categorised as neutral. Of the papers classified as neutral, 36 were written by academics. Academic papers are defined as those that were written by academics.

AMR in the food chain

Record-High Antibiotic Sales for Meat and Poultry Production

Antibiotic overuse is breeding new, resistant strains of bacteria that infect people. But industrial farms haven't gotten the message.

In 2011, 29.9 million pounds of antibiotics were sold in the United States for meat and poultry production.

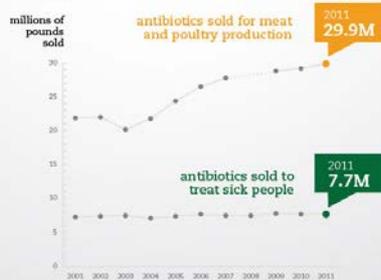


3.9 times greater

Yet, in the same period, only 7.7 million pounds of antibiotics were sold to treat sick people in the United States.



ON THE RISE



We need more detailed information on how widely antibiotics are being used to make animals grow faster and to compensate for overcrowded and unsanitary conditions.

Urge Congress and the FDA to rein in the overuse of antibiotics in food animal production. Visit www.saveantibiotics.org to take action.

*Excluding ionophores, which are used only on animals, 73 percent of antibiotics sold in the United States are intended for use in food animal production.

■ Human Medicine (Source: IMS Health Incorporated)
■ Food Animal Production (Source: Animal Health Institute survey of its members, 2001-2007; U.S. Food and Drug Administration, 2007-2011)



ANTIBIOTIC RESISTANCE

from the farm to the table

RESISTANCE

All animals carry **bacteria** in their intestines

Antibiotics are given to animals

Antibiotics kill most bacteria

But resistant bacteria survive and multiply

SPREAD

Resistant bacteria can spread to...

animal products

produce through contaminated water or soil

prepared food through contaminated surfaces

the environment when animals poop

EXPOSURE

People can get sick with resistant infections from...

contaminated food

contaminated environment

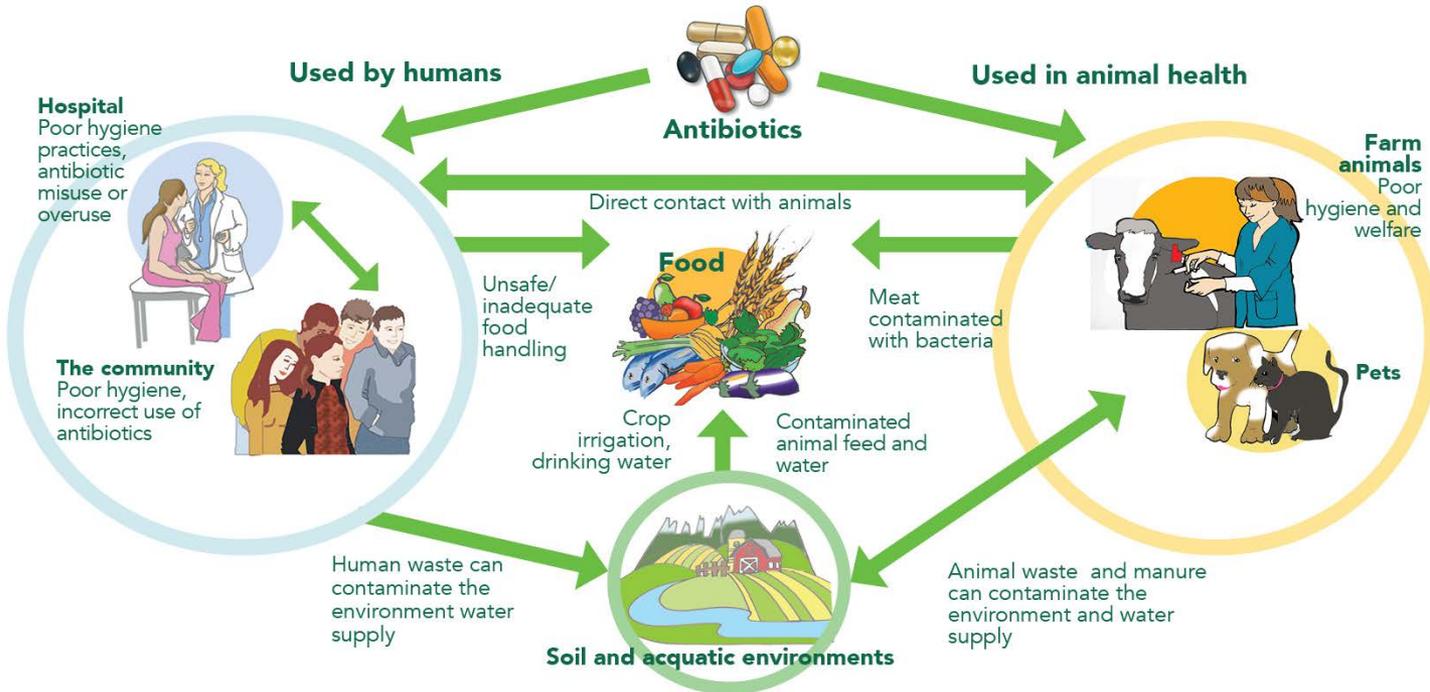
IMPACT

Some resistant infections cause...

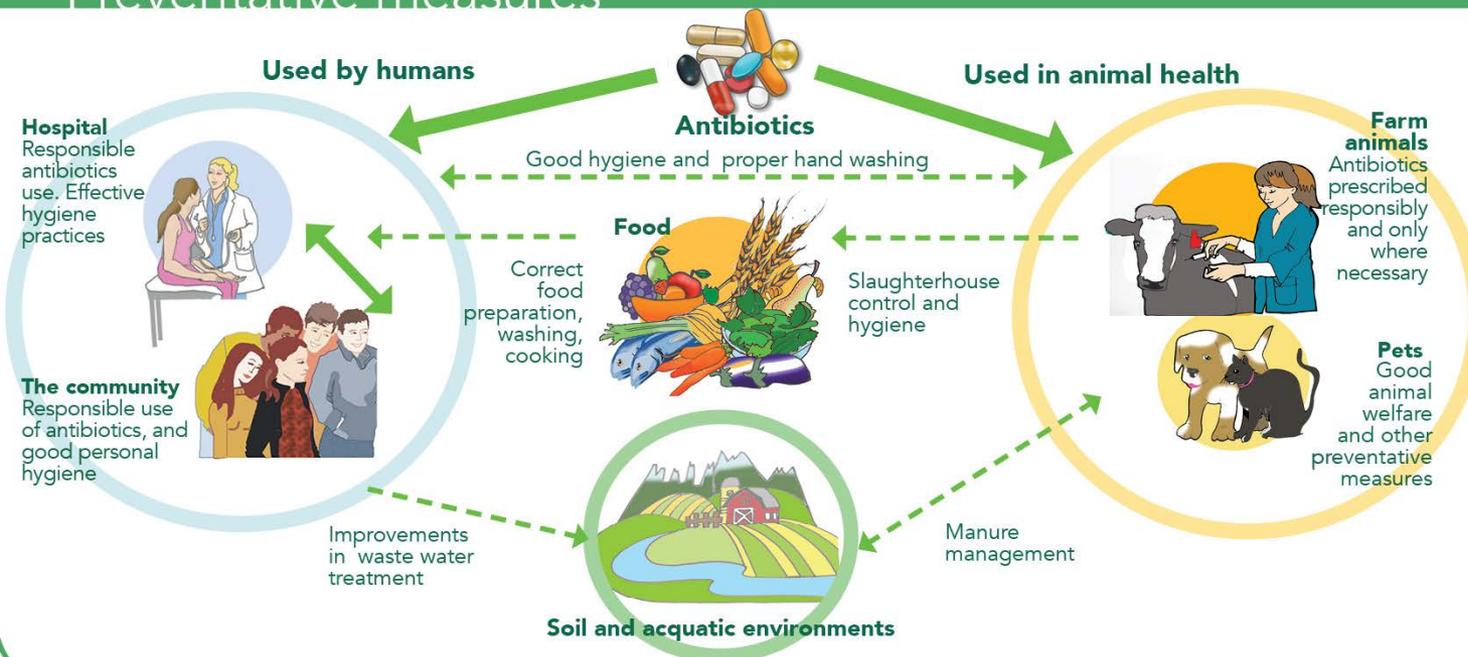
mild illness

severe illness and may lead to death

Learn more about antibiotic resistance and food safety at www.cdc.gov/foodsafety/antibiotic-resistance.html



Preventative measures



Food Standards Agency

- Set up in April 2000 by the Food Standards Act 1999.
- UK remit: to protect public health and interests of consumers in relation to food:

*“The main objective of the Agency in carrying out its functions is to **protect public health from risks which may arise in connection with the consumption of food (including risks caused by the way in which it is produced or supplied)** and otherwise to protect the interests of consumers in relation to food.”(Extract from Section 1 Food Standards Act 1999)*

- Status: non-ministerial government department, governed by a Board accountable to Westminster and the devolved parliament/assemblies, through health ministers.

Consumers interests...



- Food is safe and
- what it says it is.

- Consumers have access to an affordable healthy diet, now and in the future and
- can make informed choices about what to eat.

76% of fresh chickens test positive for food poisoning bug campylobacter

By [PRESS ASSOCIATION](#)

PUBLISHED: 18:58, 19 November 2015 | **UPDATED:** 18:58, 19 November 2015



Just over three-quarters (76%) of fresh shop-bought chickens have tested positive for the food poisoning bug campylobacter in the latest Food Standards Agency (FSA) survey.

However the figure is down from the 83% of samples which tested positive at the same time last year, while the percentage of chickens testing positive for the highest levels of contamination has also dropped to 15% from 22% this time last year.

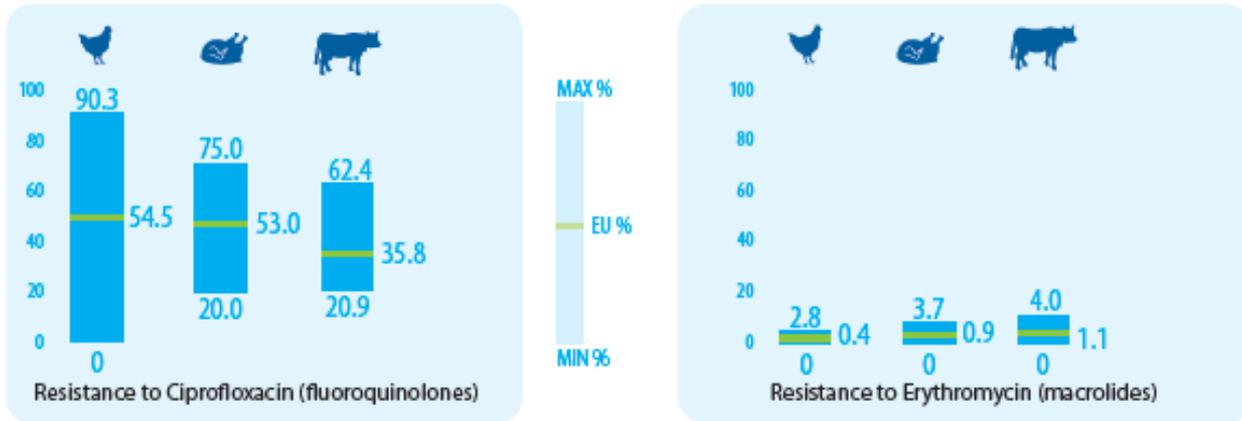
The FSA welcomed the "signs of progress" on the bug, which affects an estimated 280,000 people a year.



- 280,000 affected per year
- Cost to UK economy £900 million
- With AMR – cost could be much higher

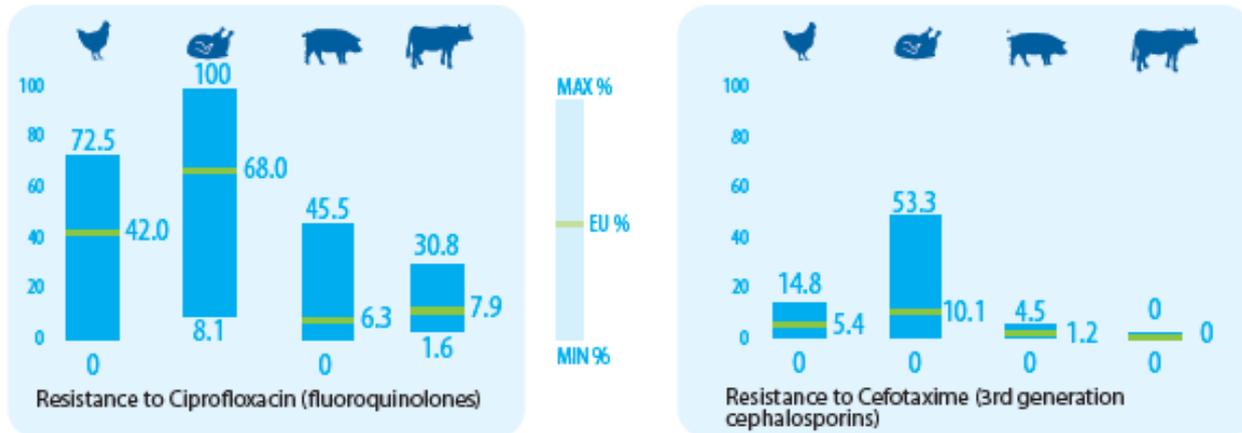
Levels of AMR in the food chain

Campylobacter jejuni



Based on “European Union Summary Report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2013”.

Salmonella



Source: EFSA

Variability in percentage of bacteria presenting microbiological resistance reported by Member States

FSA Approach to Risk

- **Assess** using best scientific advice and acknowledge uncertainties: reassess in the light of new evidence (research)
- **Manage**: consistent, proportionate; not claim to eliminate risk
- **Communicate**: consultation, openness, honesty, role of the media
- Monitor and audit **enforcement** and **outcomes**

WHAT YOU NEED TO KNOW ABOUT

AMR (ANTIMICROBIAL RESISTANCE)



Food
Standards
Agency
food.gov.uk

1

THE FACTS ABOUT AMR

An antibiotic is an antimicrobial drug used to treat bacterial infections in humans and animals. However, bacteria can change and find ways to survive the effects of an antibiotic. The more we use and misuse antibiotics could increase the resistance of bacteria to them. This is known as antimicrobial resistance (AMR).

AMR is a serious threat to public health. It could mean that antibiotic treatment won't be able to help, the next time you are ill.



The economic cost of AMR, in terms of lost global production, between now and 2050 is estimated at US\$100 trillion.



The O'Neill report estimates that almost 700,000 people worldwide die annually from AMR.



1 MILLION
PEOPLE

The global impact of AMR could be 10 million deaths annually by 2050.



Science advice to government

- Scientific Advisory Committees help government collect scientific information and make judgements about it.
- They review, and sometimes commission, scientific research, and offer independent expert judgement, including where facts are missing or uncertainties exist.

ACMSF History

- The ACMSF was set up in 1990 on the recommendation of the “Richmond Committee” to advise the UK Health and Agriculture Ministers.
- In 2000 the Committee was required to advise the newly-formed Food Standards Agency.
- Terms of reference - *“To assess the risk to humans of microorganisms which are used or occur in or on food and to advise the Food Standards Agency on any matters relating to the microbiological safety of food.”*



Website: <http://acmsf.food.gov.uk>

Current Working Groups

- Surveillance Working Group
- Newly Emerging Pathogens Working Group
- Antimicrobial Resistance Working Group (2013)
- Eggs working group (from February 2015)

ACMSF subgroup on AMR

Role

- Established in July 2013 to assess the risks to humans from foodborne transmission of antimicrobial resistant microorganisms and provide advice to the FSA.

Terms of Reference

- To review key documents and identify the risks for the UK food chain in relation to AMR which may have consequences for human health.
- To comment on progress in understanding the issue of AMR since the ACMSF produced its report in 1999 and subsequent reviews.
- To highlight key research or surveillance gaps in relation to AMR microorganisms and the food chain.

FSA research

- Survey of *Campylobacter* contamination in fresh, whole UK produced chilled chicken at retail sale since February 2014, and samples have been taken for one year.
- About 300 *Campylobacter* isolates are to be tested for their resistance to a range of AMR and the results will be shared with the respective retailers for the chicken samples prior to publication.

Resistance of *Campylobacter*

Campylobacter



 Sensitive to all antimicrobials tested (24.7%)

 Resistant to one or more antimicrobials tested (70.7%)

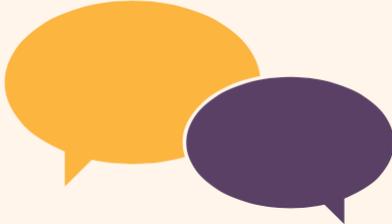
 Resistant to three or more of the antimicrobials tested that are unrelated (4.6%)

Note: As 900 million chickens reared per year in UK – a lot of AMR campylobacter in UK

FSA research

- A Systematic literature review to increase our understanding of the role of food production, processing and consumption in the development and spread of AMR.
- This study is released today (Nov 25th 2016) at this workshop

How can we reduce our exposure to AMR microbes in food?



Consumer advice

The FSA continues to promote the 4Cs (cleaning, avoiding cross-contamination, cooking and chilling) in its food hygiene messaging to both industry and consumers.

Thorough cooking is crucial as it can destroy bacteria that may be present in the foodstuff including those that are AMR.

The FSA 4Cs



Cleaning



Cross-contamination (avoid!)

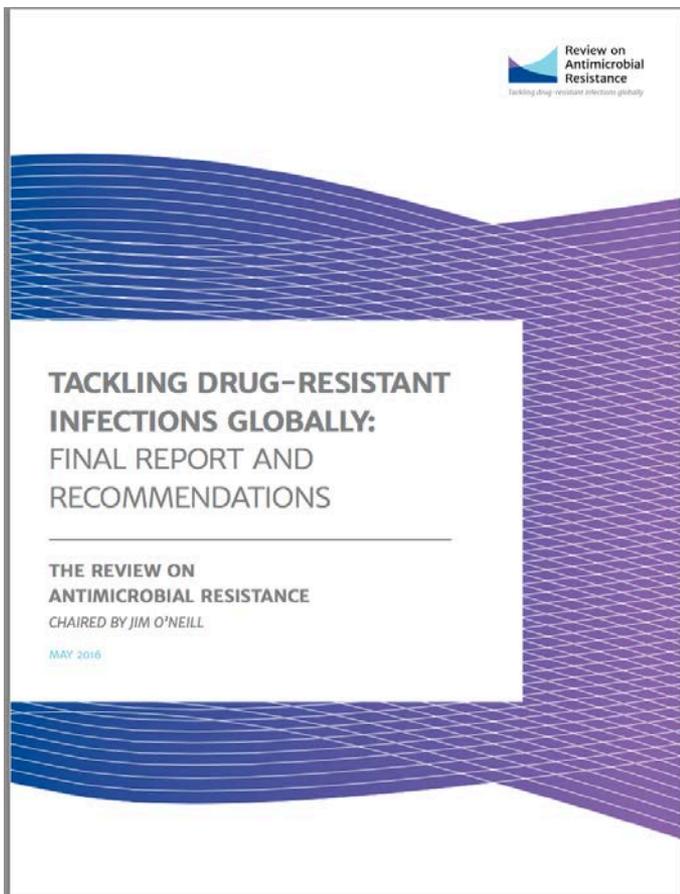


Cooking



Chilling

- Lord O’Neill made 29 recommendations in his report, and the Government has set out its response to each of these. Three of these are particularly relevant to the role and work of the FSA.



We would like to acknowledge the contribution of the following in developing our final report (this list only contains names of people not acknowledged in previous reports).

Dr. Elisabeth Adams, Managing Director and Founder, Aquarius Population Health

Dr. Nimalan Arinaminpathy, Senior Lecturer, Department of Infectious Disease Epidemiology, School of Public Health, Imperial College London

Dr. Seth Berkley, Chief Executive Officer, Gavi, the Vaccine Alliance

Catherine Brown, Chief Executive, Food Standards Agency

Dr. Hannah Christensen, Lecturer in Infectious Disease Mathematical Modelling, University of Bristol

Dr. Claudia Denkinger, Head of Tuberculosis and Hepatitis Programme, Foundation for Innovative New Diagnostics

Dr. Elisabeth Erlacher-Vindel, Deputy Head of Scientific and Technical Department, World Organisation for Animal Health (OIE)

Professor Neil Ferguson, Director, NIHR Health Protection Unit for Modelling Methodology, Imperial College London

Dr. Helen Fifer, Consultant Microbiologist, National Infection Service, Public Health England

John Fitzgerald, Secretary General, Responsible Use of Medicine in Agriculture Alliance (RUMA)

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Greg Perry, Executive Director, Medicines Patent Pool

Professor Guy Poppy, Chief Scientific Adviser, Food Standards Agency

Professor Celine Pulcini, Infectious and Tropical Diseases, University Hospital of Nancy, University de Lorraine

- Recommendation 3.3 calls on UN agencies for human and animal health and for food and agriculture to bring together a global group of experts to help everyone agree those antibiotics that should be banned or restricted from use in agriculture.
- Codex recently agreed the setting up of an AMR Task Force. As a preliminary step in this work, the UK will be hosting a working group, which the FSA will co-chair with Australia and the USA.
- Running from Monday 28th Nov 2016

- Recommendation 3.4 calls on major food producers, retailers and regulators to agree standards for ‘responsible use’ in agriculture, as a basis for labelling or certification schemes.
- The FSA believes that consumers are able to engage with complex food issues if they are given the right support and opportunities to do so. We also believe that providing greater transparency on anti-biotic use will incentivise rapid and comprehensive improvement, support innovation and reward responsible businesses.

- Recommendation 4 calls for improved surveillance. As one of our corporate objectives for this year we are developing a new strategic approach to surveillance, and we will apply this approach to surveillance for AMR in food.
- Workshop on Tuesday 29th Nov

4

HOW THE FSA IS TACKLING AMR

We are funding research to find out about AMR microbes in the food chain and help us fill in the gaps in our knowledge.



We are working with other government departments and industry as they develop action plans to reduce the levels of AMR microbes in food.



Our Advisory Committee on the Microbiological Safety of Food has established an AMR sub-group to consider issues in the food chain.



We are also working with consumers to raise awareness of AMR and food, and provide practical advice.



For more information, visit food.gov.uk/amr and nhs.uk/nhsengland/arc/pages/aboutarc.aspx

Join the conversation on  [food.gov.uk/facebook](https://www.facebook.com/food.gov.uk) and  [@food.gov.uk/twitter](https://twitter.com/food.gov.uk) using #AMR

 Sign up to our alerts on food.gov.uk/email

 Watch us on food.gov.uk/youtube

 View our pins on pinterest.com/foodgov

Sources

- O'Neill Review on Antimicrobial Resistance, 2014 (see www.amr-review.org)
- CSA Report #4
- www.nhs.uk/nhsengland/arc/pages/aboutarc.aspx

For more information, visit food.gov.uk