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DEBATE PACK

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World Antibiotics Awareness Week

By Dr Sarah Barber
Nikki Sutherland

This pack has been prepared ahead of the debate to be held in Westminster Hall on Thursday 16 November 2016 from 1.30-3.30pm on World Antibiotics Awareness Week. The subject for the debate has been selected by the Backbench Business Committee and the debate will be opened by Julian Sturdy MP.

See also Commons Library Briefing Paper CBP 8141, Antimicrobial resistance for detailed background.

Contents

1. News items

Independent

Antibiotic resistance: Scientists find vulnerability that may hold key to killing superbugs

Study in major healthcare infection bug E.coli found it was evading destruction in 'completely unexpected' ways

13 November 2017

http://www.independent.co.uk/news/health/antibiotics-superdrugs-resistance-tactics-new-drugs-research-hospitals-mrsa-ecoli-salmonella-a8052286.html

Telegraph

Three quarters of GPs still wrongly prescribing antibiotics even though fewer patients now ask for drugs

13 November 2017

http://www.telegraph.co.uk/science/2017/11/13/three-quarters-gps-still-wrongly-prescribing-antibiotics-even/

Pulse

GPs to test patients' blood before prescribing antibiotics in pilot scheme

2 November 2017

http://www.pulsetoday.co.uk/clinical/prescribing/gps-to-test-patients-blood-before-prescribing-antibiotics-in-pilot-scheme/20035530.article

Guardian

Farming sector aims to cut antibiotics use to help tackle human resistance

Taskforce from UK's pig, dairy and poultry farming sectors will aim to bring down use seen as major cause of increasing antibiotic resistance

27 October 2017

https://www.theguardian.com/environment/2017/oct/27/farming-sector-aims-to-cut-antibiotics-use-to-help-tackle-human-resistance

Guardian

Antibiotic resistance could spell end of modern medicine, says chief medic

Prof Dame Sally Davies says action is needed around the world to tackle 'hidden' problem that is already claiming lives

13 October 2017

https://www.theguardian.com/society/2017/oct/13/antibiotic-resistance-could-spell-end-of-modern-medicine-says-chief-medic

BBC News Online

Should you finish a course of antibiotics?

It is time to reconsider the widespread advice that people should always complete an entire course of antibiotics, experts in the BMJ say.

27 July 2017

http://www.bbc.co.uk/news/health-40731465

2. Press releases

World Health Organisation

Stop using antibiotics in healthy animals to prevent the spread of antibiotic resistance

7 November 2017

WHO is recommending that farmers and the food industry stop using antibiotics routinely to promote growth and prevent disease in healthy animals.

The new WHO recommendations aim to help preserve the effectiveness of antibiotics that are important for human medicine by reducing their unnecessary use in animals. In some countries, approximately 80% of total consumption of medically important antibiotics is in the animal sector, largely for growth promotion in healthy animals.

- WHO guidelines on use of medically important antimicrobials in food-producing animals

Over-use and misuse of antibiotics in animals and humans is contributing to the rising threat of antibiotic resistance. Some types of bacteria that cause serious infections in humans have already developed resistance to most or all of the available treatments, and there are very few promising options in the research pipeline.

> A lack of effective antibiotics is as serious a security threat as a sudden and deadly disease outbreak,

says Dr Tedros Adhanom Ghebreyesus, Director-General of WHO.

> Strong, sustained action across all sectors is vital if we are to turn back the tide of antimicrobial resistance and keep the world safe.

A systematic review published today in *The Lancet Planetary Health* found that interventions that restrict antibiotic use in food-producing animals reduced antibiotic-resistant bacteria in these animals by up to 39%. This research directly informed the development of WHO's new guidelines.

WHO strongly recommends an overall reduction in the use of all classes of medically important antibiotics in food-producing animals, including complete restriction of these antibiotics for growth promotion and disease prevention without diagnosis. Healthy animals should only receive antibiotics to prevent disease if it has been diagnosed in other animals in the same flock, herd, or fish population.

Where possible, sick animals should be tested to determine the most effective and prudent antibiotic to treat their specific infection. Antibiotics used in animals should be selected from those WHO has listed as being "least important" to human health, and not from those classified as "highest priority critically important". These antibiotics are often the last line, or one of limited treatments, available to treat serious bacterial infections in humans.

> Scientific evidence demonstrates that overuse of antibiotics in animals can contribute to the emergence of antibiotic resistance,

says Dr Kazuaki Miyagishima, Director of the Department of Food Safety and Zoonoses at WHO.

> The volume of antibiotics used in animals is continuing to increase worldwide, driven by a growing demand for foods of animal origin, often produced through intensive animal husbandry.

Many countries have already taken action to reduce the use of antibiotics in food-producing animals. For example, since 2006, the European Union has banned the use of antibiotics for growth promotion. Consumers are also driving the demand for meat raised without routine use of antibiotics, with some major food chains adopting "antibiotic-free" policies for their meat supplies.

Alternative options to using antibiotics for disease prevention in animals include improving hygiene, better use of vaccination, and changes in animal housing and husbandry practices.

WHO's *Guidelines on use of medically important antimicrobials in food-producing animals* build on decades of expert reports and evaluations of the role of agricultural antibiotic use in the increasing threat of antibiotic resistance. They contribute directly to the aims of the *Global action plan on antimicrobial resistance* adopted by the World Health Assembly in 2015 and the *Declaration of the High-Level Meeting of the United Nations General Assembly on Antimicrobial Resistance*, adopted in 2016.

Note to editors:

Since 2005, WHO has published a list of critically important antimicrobials for human medicine, with regular revisions, to be used as a basis for promoting their prudent use. The list groups all antibiotics currently used in humans and animals into three categories – "important", "highly important" and "critically important" – based on their importance to human medicine.

- Critically important antimicrobials for human medicine

The overall objective is to encourage prudent use to slow down antimicrobial resistance and preserve the effectiveness of the most critical antibiotics for medicine. The guidelines issued today incorporate this objective in its recommendations for antibiotic use in agriculture.

In the 5th revision of the list published in April 2017, the antibiotics considered highest priority amongst the critically important antimicrobials are quinolones, 3rd and higher generation cephalosporins, macrolides and ketolides, glycopeptides and polymyxins (also known as colistin). These antibiotics are essential as last-resort treatments for multidrug-resistant infections in humans.

Department for Environment, Food & Rural Affairs, Veterinary Medicines Directorate, and Department of Health

Record low for sales of antibiotics for use in animals

27 October 2017

27 per cent drop in use of antibiotics in food-producing animals since 2014 meets a government commitment two years early.

Sales of antibiotics for use in animals in the UK have fallen to their lowest level since records began, exceeding a government target to combat the threat of antibiotic resistance (AMR) two years early.

A Defra report released today shows sales of antibiotics for use in food-producing animals dropped by 27%, from 62 mg/kg in 2014 to 45mg/kg in 2016, surpassing a government target of 50 mg/kg set following recommendations in the 2016 O'Neill Review on Antimicrobial Resistance.

Antibiotic resistance is a major threat to modern medicine with estimates suggesting it could be responsible for ten million deaths per year by 2050 and cost the global economy $100 trillion.

In 2013 the UK government launched a strategy to reduce the development and spread of antibiotic resistance in animals and humans. As part of the strategy the government has provided expert advice to the farming industry and veterinary profession, encouraging more responsible use of antibiotics to safeguard them for the future.

Defra Minister for Rural Affairs and Biosecurity, Lord Gardiner, welcomed the report's findings:

> The UK is at the forefront of global efforts to tackle antibiotic resistance. The fact we have overtaken our target two years ahead of schedule demonstrates our commitment to preventing the inappropriate use of antibiotics and shows our approach is working.
>
> Our farmers and vets must be commended for setting an excellent example for others around the world to follow, upholding the UK's position at the forefront of international efforts to keep antibiotics available for future generations.
>
> Now we must continue making progress and set our sights on reducing use even further. Ambitious specific reduction targets in different sectors will be yet another positive step towards safeguarding antibiotics.

Sales of all the highest-priority antibiotics - considered critically important for human health - have also dropped, accounting for less than 1% of all antibiotics sold for use in animals in 2016. This includes an 83% reduction in sales of Colistin.

The UK's Chief Veterinary Officer, Nigel Gibbens, said:

> These results are immensely positive to see and show the combined efforts of vets and farmers to reduce antibiotic use are paying off. Vets are taking accountability for their prescribing decisions and farmers are investing in disease prevention.

> We need solidarity across the profession; no veterinary professional must offer an easy route to access antibiotics where they are not justified. Tackling antibiotic resistance requires a commitment across all areas of animal health, together with work on human use by colleagues in the medical professions, and our work together to tackle the issue at global level.

The UK's Chief Medical Officer, Professor Dame Sally Davies said:

> Drug resistant superbugs are not just a problem confined to human health—it is an issue that spans humans, animals and the environment, so we must take a One Health approach to address it. If we act in isolation, we will fail.
>
> This is a commendable achievement from our agricultural and veterinary sector to reduce the inappropriate use of antibiotics. It shows the entire world what can be done when we join forces and work with focus and passion.
>
> But we cannot rest on our laurels. This progress demonstrates the commitment is there, but we need to build on this momentum and continue to do more, in every sector, and in every country, to stay ahead of superbugs.

Everyone working with animals has a role to play, together with those in the medical profession, in the global fight against antibiotic resistance to monitor use and reduce it wherever possible. Good farm management, biosecurity and animal husbandry systems are vital to achieve this.

Later today a task force established by the industry alliance Responsible Use of Medicines in Agriculture (RUMA) will publish robust targets on antibiotic use to show how each farming sector will build on the excellent progress made to date.

Further information

- Sales of antibiotics for use in animals in the UK have fallen to their lowest level since data were first published by the Veterinary Medicines Directorate in 1993.
- The UK Veterinary Antibiotic Resistance and Sales Surveillance (VARSS) report is published annually by Defra's Veterinary Medicines Directorate. The report provides the previous year's data on the quantity of authorised antibiotics for use in animals sold throughout the UK, and results from surveillance programmes looking at antibiotic resistance in animals. The 2016 VARSS report will be available at 11am on Friday 27 October.
- As well as the overall reduction, the report shows a further drop in sales of the highest priority antibiotics that are critically important for humans. Sales of these accounted for less than 1% of all antibiotics sold for use in animals in 2016. This included an 83% reduction in the use of Colistin, an antibiotic of last resort for use in people. Colistin use is now at from an already very low level of use, 0.02mg/kg, putting it considerably below the European Medicines Agency's target of 1mg/kg.

- RUMA (Responsible Use of Medicines in Agriculture) is an agricultural and food industry alliance which promotes responsible use of medicines in farm animals. It established a Task Force in December 2016 to identify meaningful objectives to reduce, refine or replace antibiotic use in all UK livestock sectors.

Public Health England

Taking antibiotics when you don't need them puts you at risk

24 October 2017

It is estimated that at least 5,000 deaths are caused every year in England because antibiotics no longer work for some infections.

As the Chief Medical Officer and experts around the world warn of a 'post-antibiotic apocalypse' and 'the end of modern medicine', Public Health England launches a major new campaign to help 'Keep Antibiotics Working'.

The campaign warns people that taking antibiotics when they are not needed puts them at risk of a more severe or longer infection, and urges people to take their doctor's advice on antibiotics.

Public Health England's ESPAUR report reveals that as antibiotic resistance grows, the options for treatment decrease. Worryingly, 4 in 10 patients with an E.coli bloodstream infection in England cannot be treated with the most commonly used antibiotic in hospitals.

Antibiotics are essential to treat serious bacterial infections, such as meningitis, pneumonia and sepsis, but they are frequently being used to treat illnesses, such as coughs, earache and sore throats that can get better by themselves.

Taking antibiotics encourages harmful bacteria that live inside you to become resistant. That means that antibiotics may not work when you really need them. It is estimated that at least 5,000 deaths are caused every year in England because antibiotics no longer work for some infections and this figure is set to rise with experts predicting that in just over 30 years antibiotic resistance will kill more people than cancer and diabetes combined.

The 'Keep Antibiotics Working' campaign urges the public to always trust their doctor, nurse or pharmacist's advice as to when they need antibiotics and if they are prescribed, take antibiotics as directed and never save them for later use or share them with others. The campaign also provides effective self-care advice to help individuals and their families feel better if they are not prescribed antibiotics.

Professor Paul Cosford, Medical Director at Public Health England, comments:

> Antibiotic resistance is not a distant threat, but is in fact one of the most dangerous global crises facing the modern world today.

> Taking antibiotics when you don't need them puts you and your family at risk of developing infections which in turn cannot be easily treated with antibiotics. Without urgent action from all of us, common infections, minor injuries and routine operations will become much riskier. PHE's 'Keep Antibiotics Working' campaign helps to explain the risks of antibiotic resistance to the public. It is important for people to understand that if they are feeling under the weather and see their GP or a nurse, antibiotics may not be prescribed if they are not effective for their condition, but they should expect to have a full discussion about how to manage their symptoms.

Professor Dame Sally Davies, Chief Medical Officer, comments:

> Without effective antibiotics, minor infections could become deadly and many medical advances could be at risk; surgery, chemotherapy and caesareans could become simply too dangerous. But reducing inappropriate use of antibiotics can help us stay ahead of superbugs. The public has a critical role to play and can help by taking collective action. I welcome the launch of the 'Keep Antibiotics Working' campaign, and remember that antibiotics are not always needed so always take your doctor's advice.

Health Minister Steve Brine said:

> Following on from the global Call to Action conference held this month, we are asking people to help so we can make sure antibiotics keep working. This government is firmly committed to combatting drug resistant infections and refuses to allow modern medicine to grind to a halt – simple steps can make a huge difference.

Dr Chris Van Tulleken, TV and of infectious diseases doctor at University College London Hospitals, comments:

> As an infectious diseases doctor, I see first-hand what happens if antibiotics don't work – and it's scary. Antibiotics are not just vital for treating serious bacterial infections, they're needed to help with other treatments like chemotherapy. Antibiotic resistance is a problem that will affect every one of us, so we all have a role to play. As GPs we are often asked to prescribe antibiotics by patients who think that they will cure all their ills. The reality is that antibiotics are not always needed so you shouldn't expect to be prescribed them by your doctor or nurse. Always take their advice and remember that your pharmacist can recommend medicines to help with your symptoms or pain.

Public Health England's new campaign is part of a wider cross-government strategy, involving the agricultural, pharmaceutical and healthcare sectors, which tackles the threat of antibiotic resistance by increasing supply and reducing inappropriate demand.

To help keep this precious resource in the fight against infections working, the public are asked to play their part and urged to always take their doctor, nurse or pharmacist's advice on antibiotics.

For further information on antibiotics, their uses and the risk of resistance, search 'NHS Antibiotics' online.

Background

- The campaign will run from Monday 23 October across England for 8 weeks and will be supported with advertising, partnerships with local pharmacies and GP surgeries, and social media.
- Additional data from Public Health England's ESPAUR report illustrates: * four in 10 patients with an E.coli bloodstream infection in England cannot be treated with the commonest antibiotic (co-amoxiclav) used in hospitals; in addition, almost 1 in 5 of these bacteria were resistant to at least 1 of 5 other key antibiotics * of the 1 million antibiotic resistant bacteria causing urinary tract infections identified in NHS laboratories in 2016, trimethoprim resistance was very common (37%) but the current recommended first line treatment, nitrofurantoin, remains effective (3%) * between 2012 and 2016, antibiotic prescribing reduced by 5%, when measured as defined daily doses per 1000 inhabitants per day * the number of antibiotic prescriptions dispensed in General Practice decreased by 13% between 2012 and 2016 (-2% from 2015 to 2016) * dental practices dispensed 1 in 5 fewer prescriptions in 2016 compared to 2012 and more than 99% of prescribed antibiotics were in accordance with dental treatment guidelines * hospital prescribing has increased year on year, but has reduced use of the last resort antibiotics (piperacillin/tazobactam and carbapenems) by 4% between 2015 and 2016
- Self-care advice provided by the 'Keep Antibiotics Working' campaign in leaflets and materials distributed in GP surgeries and pharmacies across England includes: * ask your pharmacist to recommend medicines to help with symptoms or pain * get plenty of rest * drink enough fluids to avoid feeling thirsty * use paracetamol if you or your child are uncomfortable as a result of fever – which is a sign of the body fighting infection, and normally gets better by itself in most cases * use tissues for your nose and wash your hands frequently to avoid spreading your infection to family and friends
- If you or your child has any of these symptoms, are getting worse or are sicker than you would expect (even if your or their temperature falls), trust your instincts and seek medical advice urgently from NHS 111 or your GP. If a child under the age of 5 has any of symptoms 1 to 3, go to A&E immediately or call 999: * if your skin is very cold or has a strange colour, or you develop an unusual rash * if you feel confused or have slurred speech or are very drowsy * if you have difficulty breathing; signs can include: * breathing quickly * turning blue around the lips and the skin below the mouth * skin between or above the ribs getting sucked or pulled in with every breath * if you develop a severe headache and are sick * if you develop chest pain * if you have difficulty swallowing or are drooling * if you cough up blood * if you are feeling a lot worse
- You can download all campaign assets including the TV advert and campaign imagery.
- The campaign is part of a wider cross-government strategy to help preserve antibiotics. The government's UK Five Year Antimicrobial Resistance Strategy 2013 to 2018 set out 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. In July 2014, the Prime Minister announced a review of antimicrobial resistance chaired by the economist Jim O'Neill. The subsequent report, published in 2016, recommended a number of actions to be taken globally to manage the rise of antimicrobial resistance, including public awareness campaigns.

- PHE's 'Keep Antibiotics Working' campaign targets the general public and is aligned Antibiotic Guardian which urges healthcare professionals and engaged members of the public to take one of a number of pledges to help personal and organisational commitment to preserve antibiotics.

National Institute for Health and Clinical Excellence

Antibiotic resistance is now "common" in urinary tract infections

23 October 2017

The number of urinary tract infections (UTIs) caused by drug resistant bacteria is increasing, new data shows.

The 'English Surveillance Programme for Antimicrobial Utilisation and Resistance' (ESPAUR) report says more than one million UTI samples were analysed in NHS laboratories across England last year (2016), and that resistance was a "common" observation.

One in three (34%) of the samples analysed were found to be resistant to an antibiotic called trimethoprim, compared to 29.1% in 2015.

Trimethoprim was once the first choice treatment for UTIs before Public Health England (PHE) recommended switching to a different antibiotic called nitrofurantoin. Only 3% of the UTI samples showed resistance to nitrofurantoin, the report says.

Inappropriate use of antibiotics, such as taking them for viral conditions like flu, or for mild infections that may clear-up without treatment is known to fuel resistance.

NICE recently updated its guidance for managing UTIs in children. New recommendations focus on using urine dipstick tests to identify whether antibiotic treatment is needed.

Professor Gillian Leng, deputy chief executive at NICE said: "

> Antibiotic resistance is one of the greatest dangers to our health, which is why we must all work together to fight it.
>
> Making sure that we use these medicines properly, only when they are really needed, is vital. And our guidance is here to help healthcare professionals navigate these sometimes difficult decisions.

This year saw the launch of NICE's 'Management of Common Infections' (MoCI) guidelines. The suite of new guidance seeks to provide evidence-based advice on how common infections can be managed, with the purpose of tackling antibiotic resistance. UTIs are

one of the common infections the NICE MoCI committee will be looking into.

> I hope this new advice from NICE will help to support better ways of using our current antibiotics as well as protecting new antimicrobials for future generations Professor Leng added.

Wellcome Institute

Global leaders urged to address 'fragile progress' on tackling superbugs

12 October 2017

GLOBAL efforts to counter the threat of dangerous superbugs must move faster and with more focus, health leaders are warning.

Government ministers, scientists, industry and civil society leaders are meeting in Berlin for an international conference to discuss how to accelerate efforts to tackle rising drug-resistant infections – which already kill 700,000 people a year worldwide.

The Call to Action event in Berlin on October 12 and 13 is organised by the Wellcome Trust, in partnership with the UK, Thai and Ghanaian Governments and the United Nations Foundation.

Analysis by Wellcome and the UN Foundation shows that while 151 of 195 countries are developing an action plan to tackle drug-resistant infections, only half address the threat across human and animal health and the environment. Just 1 in 5 commit to reducing antibiotic use, improving hygiene and preserving antibiotics of last resort and only 5 per cent are adequately funded and monitored.

Dr Jeremy Farrar, Director of the Wellcome Trust said:

> Political and societal recognition of the threat superbugs pose has definitely increased. But the progress is fragile. We need to make sure we all convert that welcome high-level commitment into real action that makes a tangible difference to people lives. There is no doubt that together, we can stop the superbugs which could undermine the whole of modern medicine. But the impact is now and the time to act is now, we need to bring real urgency to this.

If not effectively addressed, numbers dying from drug-resistant infections could rise to 10 million within a generation, with economic costs reaching US $100 trillion.

Professor Dame Sally Davies, Chief Medical Health Officer for England said:

> Superbugs will be a defining medical challenge of our age, and despite knowing about the problem for decades we have still not made enough progress to address it. Political commitments and recognition are a huge first step. But this conference is about accelerating the tangible and concrete next steps so we can stay ahead of superbugs.

The Call to Action event will highlight the need to co-ordinate the range of different initiatives begun and address key critical gaps in global action, including:

- Reducing inappropriate antibiotic use in human and animal healthcare, and in food and the environment.
- Improving access to existing and new antibiotics and treatments to make sure they are available in all countries for patients who need them.
- Building new partnerships across industry, governments and civil society to ensure that there is proper collaboration.

Last year, the UN General Assembly recognised drug-resistant infections as one of the greatest threats facing humanity. In July, G20 leaders reiterated their countries' commitment to sustained action.

Last month, a World Health Organization report was the latest in a series to warn that the world is running out of antibiotics, as drug development fails to keep up with the rise of drug resistance.

Kathy Calvin, President and CEO of the UN Foundation, said:

> Following the UN General Assembly's focus on antimicrobial resistance last year, the UN is setting the global agenda by providing countries critical technical support on this urgent health challenge. We must all work together - private industry, philanthropy, citizens, and government - to ensure a healthy future for generations to come.

The actions shared at the event will support the work of the UN taskforce - the Inter-Agency Coordination Group (IACG) on AMR.

- Wellcome and the UN Foundation have published a progress report - Sustaining global action on antimicrobial resistance – on what has been achieved in the last year since the UN General Assembly 2016 declaration.
- Actions will be shared with the hashtags #StopSuperbugs and #ctaAMR17.

World Health Organisation

WHO publishes list of bacteria for which new antibiotics are urgently needed

27 February 2017

WHO today published its first ever list of antibiotic-resistant "priority pathogens" – a catalogue of 12 families of bacteria that pose the greatest threat to human health.

The list was drawn up in a bid to guide and promote research and development (R&D) of new antibiotics, as part of WHO's efforts to address growing global resistance to antimicrobial medicines.

The list highlights in particular the threat of gram-negative bacteria that are resistant to multiple antibiotics. These bacteria have built-in abilities to find new ways to resist treatment and can pass along genetic material that allows other bacteria to become drug-resistant as well.

> This list is a new tool to ensure R&D responds to urgent public health needs,

says Dr Marie-Paule Kieny, WHO's Assistant Director-General for Health Systems and Innovation.

> Antibiotic resistance is growing, and we are fast running out of treatment options. If we leave it to market forces alone, the new antibiotics we most urgently need are not going to be developed in time.

The WHO list is divided into three categories according to the urgency of need for new antibiotics: critical, high and medium priority.

The most critical group of all includes multidrug resistant bacteria that pose a particular threat in hospitals, nursing homes, and among patients whose care requires devices such as ventilators and blood catheters. They include *Acinetobacter*, *Pseudomonas* and various Enterobacteriaceae (including *Klebsiella*, *E. coli*, *Serratia*, and *Proteus*). They can cause severe and often deadly infections such as bloodstream infections and pneumonia.

These bacteria have become resistant to a large number of antibiotics, including carbapenems and third generation cephalosporins – the best available antibiotics for treating multi-drug resistant bacteria.

The second and third tiers in the list – the high and medium priority categories – contain other increasingly drug-resistant bacteria that cause more common diseases such as gonorrhoea and food poisoning caused by *salmonella*.

G20 health experts will meet this week in Berlin. Mr Hermann Gröhe, Federal Minister of Health, Germany says

> We need effective antibiotics for our health systems. We have to take joint action today for a healthier tomorrow. Therefore, we will discuss and bring the attention of the G20 to the fight against antimicrobial resistance. WHO’s first global priority pathogen list is an important new tool to secure and guide research and development related to new antibiotics.

The list is intended to spur governments to put in place policies that incentivize basic science and advanced R&D by both publicly funded agencies and the private sector investing in new antibiotic discovery. It will provide guidance to new R&D initiatives such as the WHO/Drugs for Neglected Diseases initiative (DNDi) Global Antibiotic R&D Partnership that is engaging in not-for-profit development of new antibiotics.

Tuberculosis – whose resistance to traditional treatment has been growing in recent years – was not included in the list because it is targeted by other, dedicated programmes. Other bacteria that were not included, such as *streptococcus* A and B and chlamydia, have low levels of resistance to existing treatments and do not currently pose a significant public health threat.

The list was developed in collaboration with the Division of Infectious Diseases at the University of Tübingen, Germany, using a multi-criteria decision analysis technique vetted by a group of international experts. The criteria for selecting pathogens on the list were: how deadly the infections they cause are; whether their treatment requires long hospital stays; how frequently they are resistant to existing antibiotics when people in communities catch them; how easily they spread between animals, from animals to humans, and from person to person; whether they can be prevented (e.g. through good hygiene and vaccination); how many treatment options remain; and whether new antibiotics to treat them are already in the R&D pipeline.

> New antibiotics targeting this priority list of pathogens will help to reduce deaths due to resistant infections around the world,

says Prof Evelina Tacconelli, Head of the Division of Infectious Diseases at the University of Tübingen and a major contributor to the development of the list.

> Waiting any longer will cause further public health problems and dramatically impact on patient care.

While more R&D is vital, alone, it cannot solve the problem. To address resistance, there must also be better prevention of infections and appropriate use of existing antibiotics in humans and animals, as well as rational use of any new antibiotics that are developed in future.

<u>WHO priority pathogens list for R&D of new antibiotics</u>

Priority 1: CRITICAL

- *Acinetobacter baumannii*, carbapenem-resistant
- *Pseudomonas aeruginosa*, carbapenem-resistant
- *Enterobacteriaceae*, carbapenem-resistant, ESBL-producing

Priority 2: HIGH

- *Enterococcus faecium*, vancomycin-resistant
- *Staphylococcus aureus*, methicillin-resistant, vancomycin-intermediate and resistant
- *Helicobacter pylori*, clarithromycin-resistant
- *Campylobacter* spp., fluoroquinolone-resistant
- *Salmonellae*, fluoroquinolone-resistant
- *Neisseria gonorrhoeae*, cephalosporin-resistant, fluoroquinolone-resistant

Priority 3: MEDIUM

- *Streptococcus pneumoniae*, penicillin-non-susceptible
- *Haemophilus influenzae*, ampicillin-resistant
- *Shigella* spp., fluoroquinolone-resistant

3. Parliamentary material

Debate

Westminster Hall debate: O'Neill Review

HC Deb 07 March 2017 | Vol 622 cc246-271WH

https://hansard.parliament.uk/Commons/2017-03-07/debates/1B8509FC-2F59-4147-AC67-3573D7627AC6/O%e2%80%99NeillReview

PQs

Livestock: *Antibiotics*

Asked by: Lord Greaves

To ask Her Majesty's Government what is their assessment of the contribution of animal farming in the UK to the growing resistance to antibiotics; and whether they have set targets for the reduction of antibiotics use in animal farming.

Answering member: Lord Gardiner of Kimble | Department: Department for Environment, Food and Rural Affairs

Bacteria naturally adapt and find new ways to survive the effects of an antibiotic; any use of an antibiotic accelerates the risk that bacteria will develop resistance. In its response last year to the Independent Review on Antimicrobial Resistance, the Government set a target to reduce antibiotic use by 20% across all food-producing species from 2014 baseline data to 50mg/kg by 2018. Latest data show that antibiotic use in 2016 was 45 mg/kg. Defra also undertook to work with the livestock industry to set sector-specific targets for reducing antibiotic use by the end of this year. These targets have now been published which can be found here: http://www.ruma.org.uk/wp-content/uploads/2017/10/RUMA-Targets-Task-Force-Report-2017-FINAL.pdf

HL Deb 08 November 2017 | PQ HL2571

Antibiotics: Drug Resistance

Asked by: Lord Hunt of Chesterton

To ask Her Majesty's Government how cures and treatments in the NHS are being developed to reduce the danger in hospitals of anti-microbial resistance.

Answering member: Lord O'Shaughnessy | Department: Department of Health

The UK Antimicrobial Resistance (AMR) Strategy published in 2013 set out the key actions needed to tackle AMR: preventing infections, making appropriate use of the treatments available, and promoting the development of new treatments. In 2016 the government announced ambitions to halve healthcare-associated Gram-negative bloodstream infections and inappropriate prescribing of antimicrobials by 2020-2021. To promote the development of new drugs, diagnostics and alternative treatments we have established unprecedented levels of research collaboration, together with increased investment, including the £50 million Global AMR Innovation Fund. The Government is committed to 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.

HL Deb 07 November 2017 | PQ HL2590

Antibiotics: Drug Resistance

Asked by: Brake, Tom

To ask the Secretary of State for Health, what budget was allocated to combating antibiotic-resistant bacteria (a) before 23 June 2017 and (b) currently.

Answering member: Steve Brine | Department: Department of Health

The UK Five Year Antimicrobial Resistance (AMR) strategy, 2013-2018, published in September 2013, had no associated funding to support implementation. All activity has been supported from within existing business plans of the organisations committed to tackling AMR.

A record of what is spent directly on tackling AMR is not centrally maintained but examples of funded initiatives include NHS England's use of Quality Premium and Commissioning for Quality and Innovation programmes to drive down inappropriate prescribing and a range of AMR research investments and awareness raising initiatives.

HC Deb 06 November 2017 | PQ 110154

Antibiotics: Research

Asked by: Lord Moonie

To ask Her Majesty's Government how they are co-operating with other EU nations in the development of new antibiotics.

Answering member: Lord O'Shaughnessy | Department: Department of Health

The United Kingdom Government considers international inter-governmental co-operation to be essential to overcoming the existing market failure in the development of new antibiotics. European Union

nations have a major role to play, which is why the UK has advocated for EU support for this objective at G20 and its inclusion in regional priorities around antimicrobial resistance and research and development.

To support the development of new antibiotics, we continue to work closely with EU nations to increase investment, co-fund and improve coordination of research and development and share best practice around national purchasing arrangements.

HL Deb 02 November 2017 | PQ HL2535

Antibiotics: Research

Asked by: Lord Moonie

To ask Her Majesty's Government what is their policy on international intergovernmental co-operation to offset market failures in the development of new antibiotics.

Answering member: Lord O'Shaughnessy | Department: Department of Health

The United Kingdom Government considers international inter-governmental co-operation to be essential in the development of new antibiotics.

Through international forums, in particular the G20, the UK Government is advocating tangible actions that will incentivise pharmaceutical companies to produce effective, accessible and affordable new antibiotics. The Government is also investing internationally in early-stage research and development to address antimicrobial resistance, in partnership with other countries and organisations, through projects such as the Global Anti-Microbial Resistance Innovation Fund.

HL Deb 01 November 2017 | PQ HL2220

Topical Questions

Asked by: Kevin Hollinrake

Antibiotic resistance is a major threat to humanity. Will the Minister outline the progress we have made in opening up the £50 million global antimicrobial resistance innovation fund to applications?

Answered by: Steve Brine | Department: Health

I thank my hon. Friend for that. We expect the first launch to be the bilateral UK-China partnership £10 million fund, which we expect to go live early in 2018. Further information on the calls for the remaining £40 million will be announced in due course.

HC Deb 10 October 2017 | Vol 629 c162

Game: *Antibiotics*

Asked by: Shannon, Jim

To ask the Secretary of State for Environment, Food and Rural Affairs, what advice his Department gives to gamekeepers to reduce the use of antibiotics on game birds.

Answering member: George Eustice | Department: Department for Environment, Food and Rural Affairs

The Veterinary Medicines Directorate has been working closely with the Game Farmers Association (GFA) to raise awareness and foster good stewardship of antibiotics in the sector. The GFA and other sector representatives are committed to bringing down antibiotic use, while ensuring bird health and welfare are preserved. A comprehensive voluntary exercise to measure the use of antibiotics throughout the game sector is being carried out, and antibiotic reduction targets will be announced by the end of 2017.

HC Deb 19 September 2017 | PQ 9997

Topical Questions

Asked by: Tony Lloyd (Rochdale) (Lab)

May I return to the issue of animal welfare? The Secretary of State will recognise that the use of antibiotics in farming is part of an animal welfare regime. However, there is massive concern that overuse of antibiotics is destroying their effectiveness, both for animals and humans. What can be done to reverse this trend?

Answering member: George Eustice | Department: Environment, Food and Rural Affairs

The Veterinary Medicines Directorate and our chief vet have been working very closely with the Department of Health on plans to reduce the use of antibiotics. Great success has been achieved in sectors such as poultry, where there has been a substantial reduction of some 40% to 50% in antibiotics use. Often it is about adopting different approaches to husbandry to reduce reliance on antibiotics, but although a lot of progress has been made, there is more to do.

HC Deb 20 July 2017 | Vol 627 c973

General Practitioners

Asked by: Kevin Hollinrake

GPs are the first line of defence against antibiotic resistance, which has the potential to be an uncontrollable global new black death. Will the Minister confirm that the UK will retain its position as a world leader on this issue, and will he tell us when the global antimicrobial resistance innovation fund will open for applications and when the pilot reimbursement model for drug development will begin operating?

Answered by: Steve Brine | Department: Health

The Government have committed £50 million of official development assistance towards setting up the global antimicrobial resistance innovation fund. We are one of the world-leaders on this subject. I am meeting my hon. Friend and my hon. Friends the Members for Stafford (Jeremy Lefroy) and for York Outer (Julian Sturdy) shortly, when we can take this forward.

HC Deb 04 July 2017 | Vol 626 c1008

4. Useful links and further reading

O'Neill *Review on Antimicrobial Resistance*

https://amr-review.org/

Government response to the Review on Antimicrobial Resistance September 2016

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/553471/Gov_response_AMR_Review.pdf

World Health Organisation *Global Action Plan on Antimicrobial Resistance*

http://www.who.int/antimicrobial-resistance/global-action-plan/en/

DEFRA, DoH, PHE, VMD *Information and resources on the government's plans to slow the growth of antimicrobial resistance*

https://www.gov.uk/government/collections/antimicrobial-resistance-amr-information-and-resources

UK 5 Year Antimicrobial Resistance Strategy 2013 to 2018

https://www.gov.uk/government/publications/uk-5-year-antimicrobial-resistance-strategy-2013-to-2018

Public Health England *Antimicrobial Resistance: resource handbook*

provides a list and links to all national antimicrobial resistance, (AMR), antimicrobial stewardship (AMS) and infection prevention and control (IPC) resources (aimed primarily at healthcare professionals).

https://www.gov.uk/government/publications/antimicrobial-resistance-resource-handbook

Public Health England, *Health matters: preventing infections and reducing antimicrobial resistance*, 13 November 2017

https://www.gov.uk/government/publications/health-matters-preventing-infections-and-reducing-amr/health-matters-preventing-infections-and-reducing-antimicrobial-resistance

Public Health England Public Health Matters blog *Preventing infections and reducing AMR* 13 November 2017

https://publichealthmatters.blog.gov.uk/2017/11/13/health-matters-preventing-infections-and-reducing-amr/

'English Surveillance Programme for Antimicrobial Utilisation and Resistance' (ESPAUR) report 2017

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/656611/ESPAUR_report_2017.pdf

Longitude Prize Antibiotics Challenge

https://longitudeprize.org/challenge/antibiotics

European Centre for Disease Prevention and Control *Antimicrobial resistance strategies and action plans*

http://ecdc.europa.eu/en/healthtopics/Healthcare-associated_infections/guidance-infection-prevention-control/Pages/antimicrobial-resistance-strategies-action-plans.aspx

CARB-X (The Combating Antibiotic Resistant Bacteria Biopharmaceutical Accelerator

http://www.carb-x.org/home

The creation of CARB-X was prioritized in the 2015 US National Action Plan on Combating Antibiotic-Resistant Bacteria (CARB), which called for a biopharmaceutical accelerator to spur pre-clinical product development.

Annual Report 2016-17 *The race against superbugs: Investing to develop new antibiotics and other life-saving products to treat drug-resistant bacteria.*

http://www.carb-x.org/files/2016_CARB-X-Annual_Report.pdf

BMJ *The antibiotic course has had its day*
BMJ 2017; 358 doi: https://doi.org/10.1136/bmj.j3418 (Published 26 July 2017) Cite this as: BMJ 2017;358:j3418

http://www.bmj.com/content/358/bmj.j3418

Centers for Disease Control and Prevention *Transatlantic Taskforce on Antimicrobial Resistance (TATFAR)*

https://www.cdc.gov/drugresistance/tatfar/index.html

ECDC/EFSA/EMA *second joint report on the integrated analysis of the consumption of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from humans and food-producing animals* Joint Interagency Antimicrobial Consumption and Resistance Analysis (JIACRA) Report 28 June 2017

European Centre for Disease Prevention and Control (ECDC),

European Food Safety Authority (EFSA) and

European Medicines Agency (EMA)

http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2017.4872/epdf

EU Heads of Medicines Agencies Task Force (Veterinary) on Antimicrobial Issues

http://www.hma.eu/tfvet_antimicrobialissues.html

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