Change the Course

Taking action against antibiotic resistance to help protect us now and in the future

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Antibiotic resistance – why should I care?

In 2020 we have come to understand how quickly a pandemic can change our lives

The deadly consequences of the pandemic are a reflection of what happens when there is a disease, in this case a virus, which can affect anybody and for which we have no effective medical solution or cohesive system to address on a global scale. We have experienced how our wellbeing can be dependent on the health and behaviour of those around us. It’s made us much more aware of the importance of the NHS, but it has also highlighted social inequalities and issues with access to healthcare along with the deadly consequences this can have. These are the same things we’ll need to consider when we think about antibiotic resistance and our ability to prevent infections now and in the future.

This taskforce was convened to think about how we can all "take action" to address antibiotic resistance. Taking an interdisciplinary approach, we collaborated to identify areas for action where individuals could contribute and which over time could have considerable impact on the problem of antibiotic resistance.

While this report is aimed at a UK audience, it should be viewed in the context of antibiotic resistance as a global problem because antibiotic resistant bacteria, like the coronavirus, can spread rapidly across the world. We need to work harder to understand the experiences of individuals and communities and the impact of antibiotic resistance on their lives in order to design better interactions and interventions. Antibiotic resistance is not a problem that can be permanently fixed – we can’t stop bacteria evolving and becoming resistant to antibiotics. But we can change our relationship with antibiotics and recognise antibiotic resistance as a health issue we have to live with and work hard, continuously, to keep at bay.

There are three clear areas for action

1. Reduce the number of infections
2. Discover new antibiotic treatments
3. Change the way we use antibiotics

This report is designed to encourage educators, engagement professionals, media, community leaders and everyone concerned about antibiotic resistance to talk about how they can take action to help change the course of antibiotic resistance.
Why now?

Having witnessed how interactions between scientists, government, media and the public can save or jeopardise lives, it has become critical to call for meaningful action on antibiotic resistance. In this report we have:

- Taken an **interdisciplinary approach**, acknowledging this is not just an issue for medical scientists to address—social scientists and humanities experts have an important role to play as well.

- Recommended **actions which are not definitive**, but are the beginning of a conversation about what action we can take.

- Reflected on **what information individuals need from experts and vice versa**, in order to take action and be part of a society that is calling for transparency, progress and fair access to healthcare for all.

- Recognised that not everyone is able to take action in the same way. While no one can completely avoid the risk of resistant infections, some people are at greater risk than others (e.g. compromised immune system) or may not have the resources necessary to act on health advice (e.g. access to washing facilities). Part of the solution is to **ensure everyone can experience better health outcomes**, which in turn will reduce these infections.

With public awareness and knowledge about pandemics at an all-time high, now is the time to work together and take action on antibiotic resistance.

The taskforce

Leading experts from different specialities were invited to share their insights and provide independent commentary that has informed this report.

- **Prof Christine Bond**
  University of Aberdeen and Trustee and Education Committee Chair, Antibiotic Research UK

- **Dr Carla Brown**
  CEO and Founder
  Game Doctor Ltd

- **Prof Colin Garner**
  Chief Executive
  Antibiotic Research UK

- **Philip Graves**
  Behavioural psychologist and Managing Director
  Shift Consultancy

- **Sara Kenney**
  Engagement Strategist and Creative Director
  Wowbagger Productions

- **Dr Ulla McKnight**
  Research Fellow
  University of Sussex

- **Dr Adam P. Roberts**
  Microbiologist
  Liverpool School of Tropical Medicine
People are already experiencing antibiotic resistant infections and here are some of their stories.

**Lisa’s Story**

Lisa experienced a number of antibiotic resistant infections— including lung infections like pneumonia and surgical site infections. Recurring infections where she ends up in hospital or unwell have a huge impact on Lisa’s mental health too, and also her wider family who worry about passing other infections onto her. Lisa had to shield during the COVID-19 pandemic, worrying that she would also develop a secondary bacterial infection if she caught the virus.

**Sheila’s Story**

Sheila’s story tells how constant urinary tract infections have caused her depression, anxiety and dread; and how nothing has changed over the last 50 years as she has suffered and searched for a cure.

**Amer’s Story**

Amer contracted a serious kidney infection while studying for his masters. During his final exam, Amer felt severe pain in his kidney and went straight to hospital. Originally Amer was sent home, but after collapsing he was rushed back to hospital and diagnosed with septic shock. The doctors said there was an 80% chance that Amer wouldn’t have survived, but fortunately he was given the right antibiotic at the right time. Amer hopes that other people like him will continue to have access to life saving antibiotics.

The stories included here were provided by Antibiotic Research UK and Pfizer UK with permission from the individuals who shared them.
Finding out that you, or someone you love, might have an antibiotic-resistant infection can feel very daunting.

Antibiotic Research UK are the only charity with a dedicated Patient Support service for people with antibiotic-resistant infections. If you want to be pointed in the direction of reliable resources or just have a friendly chat, be put in touch with other patients with a similar condition, or just find out more, then contact Arlene:

Telephone: 07367 784114
Email: patient.support@antibioticresearch.org.uk

Calls are charged at your usual mobile or landline rate. However, you can request a call back from Arlene by text, email or by leaving a message.
What can I do to take action?

Help change the course of antibiotic resistance to protect future generations.
It starts with action to take antibiotics responsibly and help prevent infections.

Here’s the advice you should follow when it comes to your health and the health of those around you.

Prevent infections

Experiencing this pandemic has taught us how important it is to prevent infections where we can by regularly washing hands, preparing food hygienically, taking extra precautions when caring for loved ones that are unwell, practicing safer sex, and keeping vaccinations up to date. We all have different caring responsibilities, living circumstances, family obligations and financial constraints but we can act in these ways to help prevent infections.

Have a conversation

If you are prescribed antibiotics, we encourage you to have a conversation with your healthcare professional. Talk to them about any questions you might have about the length of your course or how to take them correctly.

Not all infections are bacterial

It’s important to remember that not all infections are bacterial. Many common infections such as coughs and sore throats are caused by a virus and taking an antibiotic won’t help. Even bacterial infections don’t always need to be treated by an antibiotic as most infections will clear on their own and treating symptoms is all that is needed.

Never share or use leftover antibiotics

Never share or use leftover antibiotics. Instead, hand them into your local pharmacy where they can dispose of them responsibly. If antibiotics end up in our environment or water supply this is another path by which bacteria can become resistant.

Get informed

Familiarise yourself with the guidelines on antibiotic prescribing that inform the advice given by your healthcare professional.

Seek support

Seek the support of healthcare advocates if you would like to discuss further. Many health charities can offer support and guidance on preventing and treating infections. You can also contact the Patient’s Association national helpline (0800 345 7115) to talk about your experiences in the NHS and social care systems and get helpful advice.

Share this advice with people around you who might benefit from this knowledge.
Spread the word

Start talking about the threat of antibiotic resistance and what we can do about it

It's surprising how many people have been affected by antibiotic resistance. Chances are if you have ever had to take more than one antibiotic to treat an infection or have experienced an infection that keeps coming back, you have been infected by bacteria that have become resistant to antibiotics. It's important to remember that bacteria become resistant – not people. Therefore, we must face this issue together.

"Antibiotic resistance threatens the most vulnerable people in society: the very young, the very elderly, those with weakened immune systems that are less able to fight infections. But it also threatens us all. Anyone undergoing surgery or chemotherapy and facing an increased risk of infection is vulnerable. And we are already seeing common infections such as gonorrhoea and urinary tract infections become increasingly difficult to treat, sometimes leading to serious complications including sepsis and even death."

The Wellcome Trust

Consider how you and others are affected

Just as you are affected by antibiotic resistance, so is everyone around you. Consider how you and others are affected by this issue and try to talk about it with others. It could be a family member, a friend, a community group or charity, a customer or a client. By sharing ideas and finding ways to talk positively about the action you're taking, you can help make a difference.

Share this report to start a conversation

Conversations are a great way to spread big ideas. If you are concerned about antibiotic resistance and want to do something about it then take a moment to share this report with at least two other people you know. It could be a family member, a friend, a community group or charity, a customer or a client. By sharing ideas and finding ways to talk positively about the action you're taking, you can help make a difference.

Join others already talking about the issue

Each year, people take to social media during World Antimicrobial Awareness Week from 11-24 November to help make others aware of antibiotic resistance. By sharing posts on social media, in your workplace, your school or local area you can help be part of a global movement to spotlight this issue and call for action. You can start by following these trusted sources and sharing their content using the #WAAW20 hashtag.

About the World Health Organization awareness campaign: Click here

COVID-Safe fundraising ideas Click here

Researchers bringing you the latest social science on antibiotic resistance: Click here
Call for action

Help advocate for change on a larger scale

Make your voice heard by speaking out about this issue

There are many organisations and groups addressing antibiotic resistance as an issue. Even so, individuals have an important role to play. There might be an opportunity for you to share your stories, concerns or ideas with your Member of Parliament, local councillors or community leaders.

You can do this by finding out who your MP is, and the best way to contact them. We again draw your attention to three main areas of concern:

1. Everyone needs to be supported to prevent infections. As we have seen from Covid-19, social inequalities make it more challenging to prevent and manage infections. You can call on government leaders to put social, gender, racial and access inequalities front-and-centre in their response to tackling antibiotic resistance so that lessons can be learned in time to mitigate the risks and ensure we leave no-one behind.

2. We need to develop new antibiotics. One of the most critical issues is that the antibiotic pipeline for discovering new drugs is collapsing under a broken business model with few pharmaceutical companies investing in discovering new antibiotics and a lack of funding to support clinical research. You can demand that more action is taken to invest in research for the creation of new antibiotics with a more coordinated global response.

3. We need to change the way that antibiotics are prescribed and used. Interventions are needed to ensure both doctors and patients understand when an antibiotic should be prescribed and how to report antibiotic-resistant infections.

Find out how antibiotics are used in food production

The use of antibiotics in the food chain is an area people can ask questions about. Consumers have successfully launched a conversation about the use of plastic bags and changed the way we use them. The same can be done about the use of antibiotics in our food. Antibiotics are often inappropriately used in meat, fish, fruit and vegetable production. The resulting resistant bacteria are transmitted to humans through direct or indirect contact with these animals and produce. We all have a responsibility to interrogate this and figure out how we can do things more responsibly to create a better relationship with antibiotics.

While antibiotics are sometimes needed to treat sick livestock, intensive farming combined with complex, international supply chains creates new opportunities for antibiotic resistance to spread. Scientists have already shown that antibiotic-resistant bacteria are gaining a stronghold as a result of meat production. There are things you can do to help, like cutting back on your consumption of animal products and staying up to date with news from the Responsible Use of Medicines in Agriculture (RUMA) Alliance.

You can also call for action by starting online conversations and petitions. If you would like to know how antibiotics are being used in the production of the food you purchase, UK farming and food import standards are relatively high with restrictions on the use of antibiotics. While the UK is committed to ensuring the highest animal welfare and food standards, many of our foods continue to be imported from nations around the world which can affect the rate at which antibiotics are being used globally.
Organisations are now calling for people across the country to learn about the real-world issue of antibiotic resistance and what they can do to help manage it in their lifetime. Anyone, at any age can explore the free educational resources available online. These discussions are vital for changing how we live with antibiotics.

Superbugs: Join the Fight developed by Pfizer UK with the National Schools Partnership, provides lesson programmes and online resources for teachers who can also get their class involved in a yearly Nationwide Competition for 5–14 year olds. If you are a teacher, parent or student – why not get in touch with your school to see if this is something they can teach as part of their science curriculum?

e-Bug is Public Health England’s free educational resource for classroom and home use which provides tools for learning about antibiotic resistance. All activities and lesson plans are designed to complement the National Curriculum and you can even earn badges with their Antibiotic Guardian youth programme, or try ‘Beat the Bugs’ with family and community groups.

For other inspiring learning materials that you can use at any time or place, check out:

- **Antibiotics and You** A free course from University of Manchester
- **Drug vs Bugs** board game by Celia Souque
- **The Drugs Don’t Work: A Global Threat** (Penguin Special) by Professor Dame Sally Davies, Dr Jonathan Grant & Professor Mike Catchpole
- **Superbugs** The Game by NESTA

Many antibiotics we currently use are produced naturally by other bacteria and fungi (e.g. penicillin). Citizens, schools and many other groups across the UK have been volunteering to support real research that could help identify new antibiotics. One of these projects that has been particularly successful is “Swab and Send” – a citizen science and crowdfunding initiative asking the public to send in various swabs from anywhere including drains, sinks, floors, houseplants, compost heaps, the bottom of shoes, the back of fridges or puddles to name but a few.

The swabs are then sent back in an envelope provided for processing by the microbiology team at the Liverpool School of Tropical Medicine. The team will then be able to determine if there are any bacteria present on individual swabs that have the ability to kill other, clinically important bacteria, and lead to the development of new antibiotics.

So why not get involved and see how you can play your part in furthering research?
Support the good work

Get behind some of the leading charities and non-profit organisations tackling antibiotic resistance

Support any way you can

Antibiotic Research UK

Antibiotic Research UK is the world’s first charity created to address antibiotic-resistant bacterial infections through research, education and patient support. You can support them by becoming an Antibiotic Research UK member, making a donation or helping them to fundraise. It’s not just about what you can give though. Antibiotic Research UK is also there to support people who are struggling to cope with an antibiotic-resistant infection. If you think you, or someone you know, might be affected then visit their Patient Support page where you can get trusted information or speak to someone about what you’re going through.

British Society for Antimicrobial Stewardship

British Society for Antimicrobial Stewardship (BSAC) is a global educator joining the dots between scientific researchers, medical communities and the wider public to stop the growing threat of antibiotic-resistant infections. You can share their resources online or if you are a GP, researcher or social scientist already committed to fighting infection then you can join as a free member and support their stewardship efforts.

Global Antibiotic Research & Development Partnership

Global Antibiotic Research & Development Partnership (GARDP) is a non-profit organisation developing lifesaving treatments for antibiotic-resistant infections. GARDP works with partners to ensure sustainable access to treatments, promoting responsible use and affordability to all in need. You can sign up to their newsletters, help them spread the word on Twitter, LinkedIn and YouTube, become a partner or donate.
US Consumers Push KFC to Stop Routine Antibiotic Use

In April 2017 KFC announced a significant change to their supplier policies, by 2018 they would no longer supply chicken reared with antibiotics. This unprecedented action however was not driven internally, but by the collective action of individual consumers across the US who demanded that antibiotics be saved.

The campaign which became known as ‘KFC Save Antibiotics’ started with a letter to Greg Reed, CEO of Yum Brand (KFC’s parent company) in January 2016. The letter, devised by US Public Interest Research Group (PIRG) and partners, called on KFC to phase out the use of medically important antibiotics in their meat supply chain. The letter received significant media attention and ignited the beginning of the campaign across the country. Throughout 2016, PIRG canvassers recruited signatures of thousands of US consumers, petitioning for KFC to take action and change their policies. The campaign generated extensive support from the medical community, leading to a signed letter from over 30 health professionals in Kentucky. By August, PIRG delivered 350,000 signatures to KFC headquarters and in September presented their work to the United Nations. KFC responded with a commitment to review their processes. By January 2017, there were 125,000 more signatures and US consumers were using their own social media to create a platform for the campaign.

In April 2017, KFC finally announced that they would no longer supply chicken reared with medically important antibiotics by end of 2018. The collective voice and action of US consumers was the tipping point for the campaign.

Similar initiatives are being conducted in the UK including RUMA (Responsible Use of Medicines in Agriculture Alliance) who launched their ‘Two Years On’ report in 2019 showing a 50% reduction in antibiotic sales in five years.
Case studies for change

Public Supports Crowdfunding Invention to Tackle Plastic Waste

Boyan Slat is a Dutch inventor and entrepreneur who has made it his mission to clean up ocean plastic through his organisation, The Ocean Cleanup.

The story begins in 2013 while on a scuba diving trip to Greece, Slat was surprised to see more plastic than fish. Upon returning, Slat was even more surprised to find that very few strategies were being investigated to address the issue and was driven to dedicate his high school project to the purpose.

Through his research Slat designed a novel system for cleaning up plastic (known now as System 001 or Wilson), that would use ocean currents to trap the plastic.

Despite his efforts, Slat’s technology was extremely ambitious and initially disregarded by the community. However, the fate of the project changed in 2013 when his TEDx video was disseminated by the media and attracted the attention of climate advocates globally, paving the way for a successful crowdfunding campaign of over 2 million dollars in 100 days. The Ocean Cleanup continued to secure investment and formal development of his technology began.

Although Slat has continued to receive scrutiny for his technology, in 2019 System 001 was shown to successfully remove plastic from The Great Pacific and Slat has further ambitions to scale up the technology to clean up rivers.
Student Drives Change In University Policy For Period Products

“You can always start a protest, wherever you are in the world”
Laura Coryton

In March 2020, the UK government announced their plans to abolish the tampon tax. Tampons and period products have long been recognised by the government as ‘luxury items’, resulting in them being taxed at approximately 2%. This moment has been long awaited by campaigner and women’s advocate, Laura Coryton, who has fought for accessible period products since 2014.

Laura was studying at Goldsmiths University in 2014 when she first came across the ‘tampon tax’. Disappointed about the lack of action against this issue, Laura decided to start her own campaign from her bedroom. [The Stop Taxing Periods](https://www.change.org) campaign petitioned for governments to abolish the tampon tax and make period products accessible to everyone. The campaign gathered significant interest from the community, receiving over 300,000 signatures and support from sister projects globally. In 2015, the campaign experienced a significant landmark with the Government agreeing to divert all revenue generated from the tampon tax to women’s charities. In 2016, David Cameron debated the petition and regulations around tampon tax with the European Union. The campaign platform was also used to start important conversations around issues related to the tampon tax such as period poverty.

For example, the [Homeless Period Project](https://www.change.org) was launched to lobby companies like Bodyform to send surplus products to homeless shelters and food banks. This incredible momentum and movement caught the interest from several politicians, including Labour MP Paula Sheriff who joined the campaign against the tampon tax. In 2016, Sheriff became the first backbench MP to have an amendment to a government budget resolution successfully adopted when her motion to abolish the “Tampon Tax” was passed, with a start date of 2018. However, the impact of Brexit delayed this policy. Despite this knockback, Laura continued to build her campaign and work with politicians to disseminate the message. In 2017, Tesco cut the prices of their period products by 5% to account for the cost of the tax.

In March 2020, Laura finally received the news she had been waiting six years for – Rishi Sunak, Chancellor of the Exchequer, announced the tampon tax will be ditched when the UK’s Brexit transition period ends on Dec. 31, 2020.

This result has done nothing to stop Laura on her mission; Laura has started another campaign, ‘Period Watch’ to audit the government and ensure these changes are made by the promised date.
What next?

An incredible amount of work is happening across the UK and globally to help tackle antibiotic resistance. We’ve spotlighted a few here but there’s still plenty more that needs to happen, drawing on a range of disciplines to create change. Medical science is vital but social sciences, the arts and humanities are also key to dealing with this global problem.

**Antibiotic Research UK** is endeavouring to bring many UK medical research charities together to speak with one voice about the problem of antibiotic resistance.

**The Financial Times** is working with the Wellcome Trust to raise awareness of the growing threat posed by antibiotic resistance.

**The UK Government’s Department of Health and Social Care** is pioneering a scheme to assess the value of antibiotics to society. The scheme will provide new antibiotics to NHS patients by offering to pay pharmaceutical companies upfront for their work. It’s expected that NHS patients could benefit from new antibiotic treatments as early as 2022.

**The AMR Action Fund** is aiming to bring 2-4 new antibiotics to patients by 2030.

**The Longitude Prize** run by NESTA is running a challenge with a £10 million prize fund, including an £8 million payout to the winner who can help reduce the global problem of antibiotic resistance by inventing rapid diagnostics tests.

**The NIHR** is providing a range of support to life sciences industry, charities and other funders looking to conduct antibiotic resistance research in the UK.

**The Scottish Antimicrobial Prescribing Group** is working with NHS boards across health and care settings in Scotland to improve antibiotic use, optimise patient outcomes and minimise harm to individuals and to wider society.

**The GRAM Project** is collecting data from all over the world to create a map of disease and deaths caused by antibiotic-resistant infections.

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Investing more in education to grow the pool of research talent and improve career prospects for microbiologists and other experts dedicated to tackling antibiotic resistance.

Improving how we prevent infections among those who are disproportionately at risk and aren’t always receiving the health and care they need due to social, gender, racial and access inequalities (as seen with COVID-19).

Reporting on deaths from antibiotic resistance by campaigning for death certificates to include antibiotic resistant infections as a cause of death that can be tracked and reported in the public domain.

Continuing to invest in basic research to identify new potential antibiotics treatments that can be brought to market within the next 10-20 years.

Investing in applied health research to understand how we change people’s behaviour and protect the antibiotics we have now.

Tackling the black market by identifying where fake and substandard antibiotics are being created and distributed across the globe.

Establishing a new business model that balances access needs, appropriate use and adequate return to companies responsible for researching and developing antibiotics.

Improving how we engage with the public so that everyone understands how antibiotics should be used (and not used) and no one is excluded from the conversation, with campaigns measured for others to learn from in the future.
Want to know more?

This directory of useful websites and resources is for those who would like to find out more about antibiotic resistance:

### Useful Weblinks

- **The Academy of Medical Sciences**: has lots of useful resources and reports about antibiotic resistance, with a particular focus on policy changes.
- **The AMR programme** is made up of researchers in the UK, Thailand, and Uganda undertaking studies into the nature of our reliance on antimicrobials in order to make recommendations for ways to reduce the threat of resistance.
- **The ATLAS Surveillance Program** provided by Pfizer is a fully searchable data-sharing website and mobile application enabling rapid access – by anyone – to critical resistance information.
- **The Bureau of Investigative Journalism** is an independent, not-for-profit organisation that holds power to account. They tackle big subjects, including antibiotic resistance through in-depth reporting.
- **CARB-X** is one of the world’s largest public-private partnerships focused on preclinical discovery and development of new antibacterial products to help address the threat of antibiotic resistance.
- **The Global Antibiotic Research and Development Partnership (GARDP)** is a not-for-profit organization developing new treatments for drug-resistant infections that pose the greatest threat to health. GARDP works with partners to ensure sustainable access to treatments, promoting responsible use and affordability to all in need.
- **The Joint Programming Initiative on Antimicrobial Resistance** is a global collaborative organisation and platform, engaging 28 nations to curb antibiotic resistance with a One Health approach.
- **The Norwegian Cancer Society** offers useful information about our new antibiotic resistance is "the biggest threat to cancer treatment."
- **The Pew Charitable Trusts** uses evidence-based, nonpartisan analysis to solve today’s challenges and creates a list each year on antibiotics currently in development.
- **RAND Europe** together with the University of Exeter and University of East Anglia, has been commissioned to provide a fresh perspective on antibiotic resistance by using a historical and comparative approach.
- **ReAct** is based at Uppsala University in Sweden and is one of the first international independent networks to articulate the complex nature of antibiotic resistance and its drivers.
- **The Review on Antimicrobial Resistance (AMR)**, was commissioned in July 2014 by the UK Prime Minister, who asked economist Jim O’Neill to analyse the global problem of rising drug resistance and propose concrete actions to tackle it internationally.
- **The Wellcome Trust** is a politically and financially independent charitable foundation with a team working on antibiotic resistant infections. Their site features research, thought pieces and many useful articles and links.
- **The World Health Organization** has extensive resources about antibiotic resistance including fact sheets, FAQs, and Global Action Plans.

### Films, books and podcasts

- **The AMR Studio** is a podcast dedicated to highlighting the multidisciplinary research on antimicrobial resistance that is happening around the world.
- **Catch** is a short drama film about antibiotic resistance.
- **Drugs Don't Work** is a book written by Professor Dame Sally Davies, Dr. Jonathan Grant and Professor Mike Catchpole.
- **Resistance** is a radio drama by Val Mcdermid, which originally aired on BBC radio, but is available as a digital audiobook or CD.
- **Surgeon X** is a comic book for mature readers, about a surgeon working in 2036 when antibiotics are no longer working.
- **The Truth about Hawaii** is a multi-award-winning radio drama by Oliver Emanuel.
- **The Waiting Rooms** is an acclaimed fiction novel by Eve Smith about decades of spiralling drug resistance which have unleashed a global antibiotic crisis.
- **What do we do when the antibiotics don’t work anymore?** is a poignant Ted Talk by author and journalist Maryn McKenna. You can also check out her book, *Big Chicken: The Incredible Story of How Antibiotics Created Modern Agriculture and Changed the Way the World Eats.*
CHANGE THE COURSE
of antibiotic resistance