

AMR Awareness Tools for schools

Promoting antimicrobial awareness to school-age children: A toolkit for local authorities



UK Health
Security
Agency



World
Antimicrobial
resistance
Awareness
Week

18th – 24th November

How to use this toolkit

This toolkit aims to provide free, quick and ready-to-use resources to support local authorities to coordinate local antimicrobial awareness campaigns for children and young people during World Antimicrobial Awareness Week (WAAW) and beyond. It includes a wide variety of suggestions for engagement with healthcare professionals, educators, children, parents, carers and the public.

What is in the toolkit?

This toolkit provides a range of evidence-based public health interventions reviewed and selected from a range of different sources.

The toolkit focusses on digital messaging to support sustainability, and ease of communication.

Who is the toolkit for?

The toolkit was developed for Local Authority teams in the East of England with a lead for or interest in children and young people's health and wellbeing.

How should the toolkit be used?

Each page contains resources for a specific group who work with Children and Young People (CYP). Each resource can be accessed by clicking on the hyperlink. Local authorities can select a suite of activities from the different resources to promote good health practices and to prevent antimicrobial resistance across a number of community settings.

**We should only
take antibiotics
when we really
need them.**

NHS

What sources does the toolkit use?

Sources include e-Bug, UK Health Security Agency (UKHSA) WAAW resources, UKHSA Antibiotic Guardian resources, NHS Health Education for England eLearning for Health, Imperial College London Health Protection Research Unit, the Seriously Campaign, and the UK Paediatric Antimicrobial Stewardship (UK-PAS) network.

Who developed the toolkit?

The toolkit was developed in partnership with East of England teams in NHS England, Integrated Care Boards, Local authorities and UKHSA.

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Introduction to Antimicrobial Resistance (AMR)

There is a wealth of information available to support AMR awareness campaigns. This toolkit brings together these relevant, free, publicly available resources into one place to support local authorities to promote awareness of AMR to children and young people in their local communities

What is antimicrobial resistance (AMR)?

AMR occurs when microbes, such as bacteria, fungi or viruses, change in a way that makes the drugs used to treat them ineffective. Every time an antibiotic is used, we put pressure on bacteria to evolve and develop antibiotic resistance.

These resistant microbes can then survive, multiply and be passed on to other people and animals meaning that antimicrobial resistant infections can spread rapidly.

Without effective drugs, routine medical procedures, minor injuries and common illnesses can become life-threatening.



10 million people could die every year, by 2050, due to drug resistant infections.

Why is AMR in children important?

Children experience a greater burden from AMR and infections compared with adults. Antibiotic use in children is also high.

Antibiotics are prescribed to children for a range of reasons including the perceived vulnerability of children, concern about a rapid change in clinical state, and to mitigate a perceived risk of future hospital admissions and complications

Yet, antibiotic use can have harmful short-term adverse effects, such as vomiting and diarrhoea, as well as long-term effects, including increased risk of [atopic dermatitis](#), allergic symptoms, [food allergies](#), allergic [rhinoconjunctivitis](#), [wheeze](#), asthma, increased weight gain, obesity, [juvenile idiopathic arthritis](#), [psoriasis](#), and [neurodevelopment](#) disorders and evidence shows that for some infections, the risk of complications is low and not prevented by prescribing antibiotics.

Reference: [Antibiotic exposure and adverse long-term health outcomes in children: A systematic review and meta-analysis – ScienceDirect](#)

What can we do to prevent AMR?

Raising awareness of AMR is important to encourage collective action to help us reduce the associated risks

Every year WAAW takes place from 18 to 24 November and is led globally by the World Health Organization (WHO). It aims to increase awareness of global AMR and to encourage best practices to avoid the further emergence and spread of drug-resistant infections

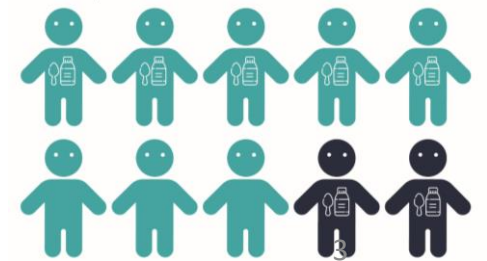
These campaigns support the aims of the [UK 20-year vision for AMR](#) and [5-year national action plan \(NAP\)](#)



How can we raise awareness of AMR in Children and young people?

The key to raising awareness of AMR in children and young people is through engagement with and participation from local communities, building on local assets to educate and inform people about the global risks of AMR and the prevention and management of infection in children and young people. By working together we can reduce the risk of AMR in children and for future generations

Only 2 out of 10 children actually need antibiotics for tonsillitis. ...but 7/10 get antibiotics.



Tools for educators

In building the resilience of future generations, educators can make a positive impact by communicating AMR messages to children and young people. To engage educators there are a number of resources we can encourage educators to use

Training: Encourage educators to [Become an e-Bug educator](#) to teach CYP how to prevent the spread of infections and how to use antibiotics responsibly

Letter to schools: Share a letter with school headteachers, introducing WAAW and how they can get involved to raise awareness of AMR.

Newsletter items:

Share a newsletter item to ensure the AMR message is shared across the school.

Share [resources for parents](#) with schools so they can be added to newsletters or communications

Lesson plans: Encourage schools to use [e-Bug](#) resources. e-Bug (operated by the UKHSA) provides lesson plans and resources for school-aged children split into [Key Stage 1](#), [Key Stage 2](#), [Key Stage 3](#), [Key Stage 4](#). These include:

- Instructions and discussion points for the presenter
- Interactive whiteboard sessions
- A range of activities
- Aids for discussion

Vaccination guidance: Ensure that educators have up to date guidance on [routine childhood immunisations](#), [flu vaccinations for CYP](#) and the [adolescent vaccination programme](#) for secondary schools to share with parents and carers.

Vaccines can help prevent the spread of infections. Fewer infections mean fewer antimicrobials are used – reducing the risk of AMR and drug-resistant infections

Start infection prevention
early!
Schools & Communities
can learn too.
#AntibioticGuardian
#KeepAntibioticsWorking



Tools for educators and primary school-aged children

Resources can be used to introduce children aged 5-11 years to positive behaviours (such as hand washing, respiratory, and oral hygiene), microbes and the importance of vaccinations to help to prevent infection and reduce the need for antibiotics

Lesson plans

Suggested e-Bug lesson plans designed to complement the National Curriculum. Key Stage 1 and 2

[KS1 Introduction to Microbes](#)

[KS2 Harmful Microbes](#)

[KS2 Antibiotics](#)

[KS2 Vaccinations](#)

Activities

[Additional e-Bug resources](#) including sports games, experiments, word games, comic strips

Co-production opportunities

Co-production challenges can be run to engage children (see Box 1 for an example suggested by The Antimicrobial Guardian Campaign)



Box 1: Poster co-production for schools

Develop an eye-catching poster to show others how and why they should protect antibiotics. Young people should be encouraged to focus on one area they feel strongly about:

- Microbes
- Hand Washing
- Respiratory Hygiene
- Spread of infection
- Not using antibiotics for viral infections
- Going to the pharmacy before a GP for colds, coughs and sore throats
- Getting vaccinated to prevent getting ill

How to use the posters:

- Make a display of posters in schools and newsletters.
- Encourage young people to take posters home and present to family
- Send to your local Public Health team, community centre, library pharmacy or hospital to share with others in the community

Tools for educators and secondary school aged children

Resources can be used with children aged 11-16 years to inform them about useful and harmful microbes; hand, respiratory and food hygiene; vaccinations, and antibiotics and the role these play in AMR

Lesson plans

Suggested lesson plans designed to complement the National Curriculum Key Stage 3 and 4

[KS3 Antimicrobial Resistance](#)

[KS4 Antimicrobial Resistance](#)

[KS3 Vaccinations](#)

[KS4 Vaccinations](#)

Activities

[Additional eBug resources](#) includes sports games, experiments, word games, comic strips

[Quizzes and crosswords](#)

[Debate kits](#) (with teacher instructions) on antibiotic resistance and vaccinations

[Seriously AMR Education Campaign](#) includes comic strips, word searches and board games

Training events

[Antibiotic Guardian Schools Ambassador Toolkit](#) use to connect with local schools and promote a toolkit of lesson resources.

[Antibiotic Guardian Youth Badge \(e-bug.eu\)](#) to engage young people on antibiotic resistance and motivate them to keep antibiotics working through reducing infections and using antibiotics responsibly.

Mycobacterium tuberculosis Tub-A-Mo-Virus Max size (mm): 4,000 Number of species: 9 Danger to humans: 100 Usefulness to humans: 0 Antibiotic resistance: 100 Tuberculosis (TB) is caused by the bacterium <i>Mycobacterium tuberculosis</i> and is one of the top 10 causes of death worldwide. Although treatable with antibiotics, many strains of TB are becoming resistant to multiple antibiotics.	Influenza A Flu-A-Mo-Virus Max size (mm): 100 Number of species: 126 Danger to humans: 12 Usefulness to humans: 34 Antibiotic resistance: N/A Influenza is a group of viruses that infect plants, the most common being tobacco mosaic virus, which infects tobacco and other plants. This virus has been very useful in scientific research.
Flavivirus Flu-A-Mo-Virus Max size (mm): 1,000 Number of species: 1 Danger to humans: 100 Usefulness to humans: 0 Antibiotic resistance: N/A Yellow fever is a disease most commonly caused by the virus <i>Flavivirus</i>. It is one of the most dangerous viruses known to humans. It is a type of virus that causes a fever and rash. It is a type of virus that causes a fever and rash. It is a type of virus that causes a fever and rash.	Lymphocryptovirus Lym-Cryp-Virus Max size (mm): 110 Number of species: 7 Danger to humans: 57 Usefulness to humans: 2 Antibiotic resistance: N/A The Epstein-Barr virus, a type of lymphocryptovirus, causes an illness known as the kissing disease or glandular fever. Symptoms include sore throat and swollen glands. Transmission requires close contact such as kissing.
Lymphocryptovirus Lym-Cryp-Virus Max size (mm): 100 Number of species: 10 Danger to humans: 74 Usefulness to humans: 6 Antibiotic resistance: N/A The Epstein-Barr virus, a type of lymphocryptovirus, causes an illness known as the kissing disease or glandular fever. Symptoms include sore throat and swollen glands. Transmission requires close contact such as kissing.	Rotavirus Rot-A-Mo-Virus Max size (mm): 200 Number of species: 2 Danger to humans: 64 Usefulness to humans: 0 Antibiotic resistance: N/A Rotavirus is one of the most common causes of severe diarrhoea in young children. It is a type of virus that causes a fever and rash. It is a type of virus that causes a fever and rash. It is a type of virus that causes a fever and rash.

Science Debate Kit: Antibiotic Resistance

For more activities and debate kits in this series go to debate.imascientist.org.uk

Debate Kit: Antibiotic Resistance
Should the NHS tell GPs to give back-up prescriptions instead of immediate antibiotics wherever possible?

A structured practice debate on a controversial topic. The different 'rounds' of the debate help students think through the issues and reconsider their opinions. The structure also shows them how to build a discussion and back up their opinions with facts.

You can use all eight characters, or fewer, as you wish.

The minimum is this four essential characters (in bold), this gives two for and two against.

Characters	For back-up prescriptions	Against back-up prescriptions
• Rosena Brown – GP	• Angie Smolenska – Antibiotic Researcher	
• Gen Rowland – Medical Historian	• Barry Ashdown – Business Owner	
• Rebecca Preece – Granddaughter	• Martin Upton – Computer Programmer	
• Jeremy Smart – Farmer	• Sarah Menna – Retired GP	

Facilitation tips
Ensure pupils know there is no right or wrong answer. Be observant of those who want to speak and are not getting a chance. Encourage students to give a reason for their opinions.

For groups who may need extra support you can put the following prompt sentences upon the board:
"I think is the most important point to think about."

Learning notes

Learning objectives:	Other learning outcomes:	Curriculum points covered:
• To practice discussing and debating issues and expressing an opinion.	• Consider social, ethical and factual issues in an integrated way.	• Working scientifically.
• Understand more of the technical, social and ethical issues around antibiotics and antibiotic resistance.	• Think about different points of view.	• Societal aspects of scientific evidence.
	• Learn to back up their opinions with facts.	• Developing an argument.
		• Substantive.
		• Explore the issues around the use of antibiotics to control infection, and the spread of antibiotic resistance.

Designed for 11-16 years

Tools for educators and secondary school aged children

Resources can be used as part of sex education lessons for young people to highlight the implications of drug-resistant sexually transmitted infections (STIs).

Target groups

Young people aged 15 to 24 years old experience the highest diagnosis rates of the most common STIs.

Young women are more likely to be diagnosed with an STI than young men.

Lesson plans

Suggested lesson plans designed to complement the National Curriculum Key Stage 3 and 4

[KS3 Sexually Transmitted Infections](#)

[KS4 Sexually Transmitted Infections](#)

[Communicable disease – BBC bitesize](#)

Activities

[#NotInOurLifetime](#) includes films to watch focussed on AMR and the link to sexually transmitted infections

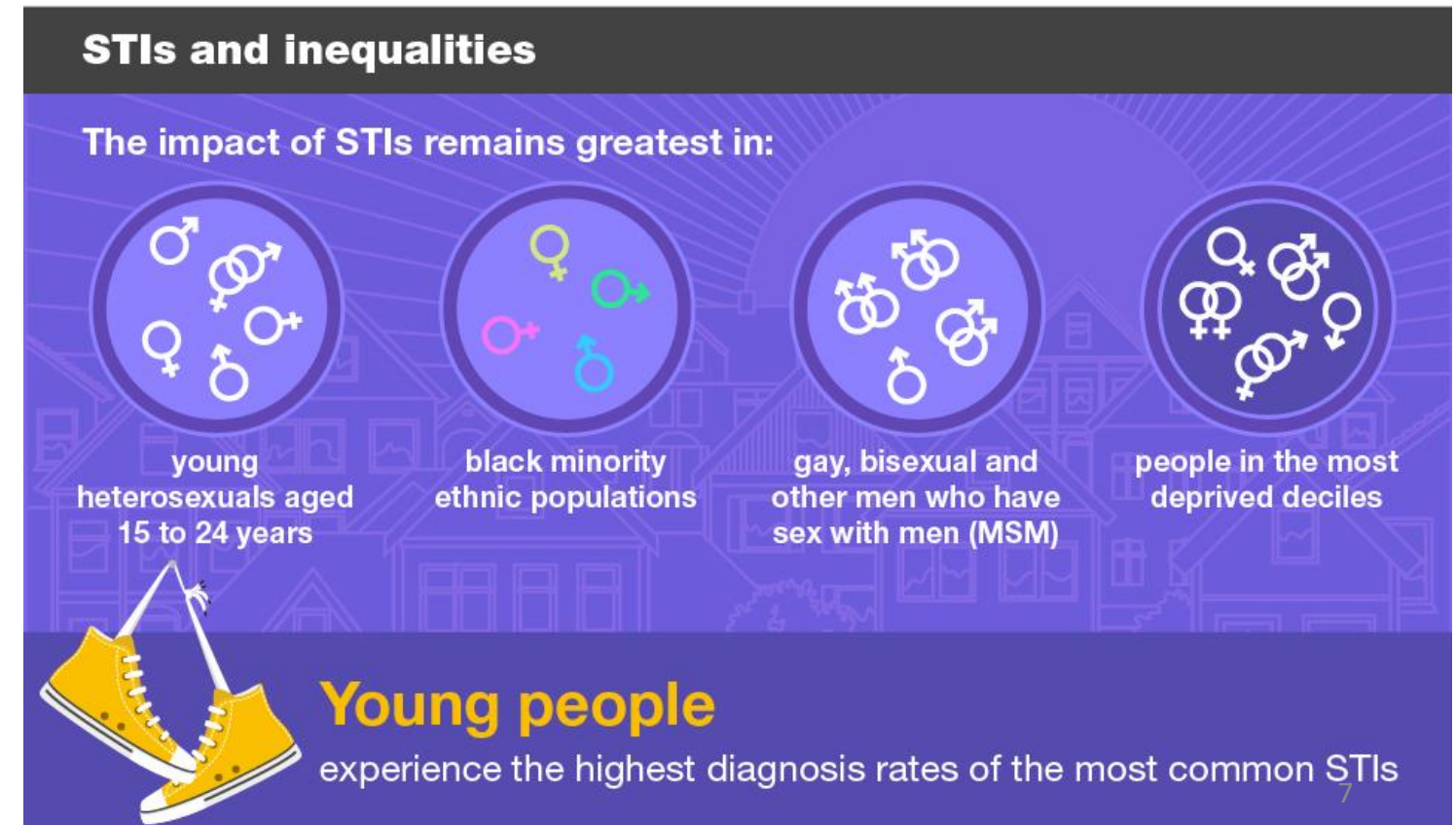
Further information

[Health Matters: Preventing STIs](#)



Public Health England

Health Matters



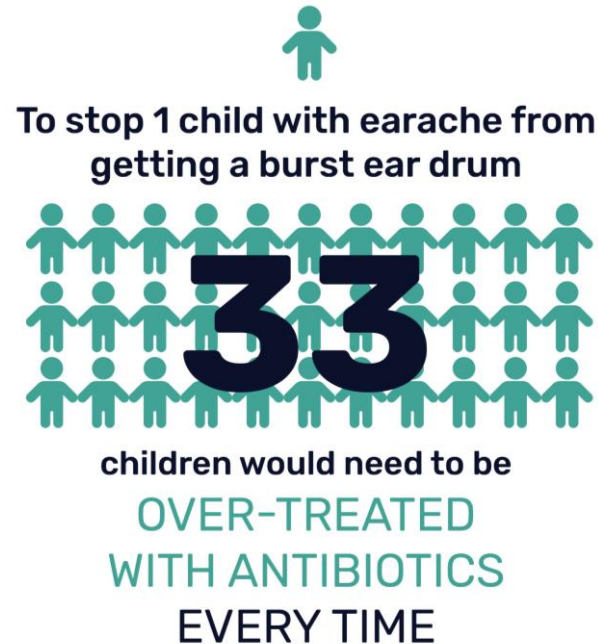
Tools for health care professionals working with CYP

By working in partnership with health care professionals we can prevent serious infections and AMR through promoting control measures, encouraging the uptake of vaccinations, and reducing inappropriate antibiotic use

Raise awareness of current guidance

To avoid inappropriate antibiotic prescribing, UKHSA recommend that healthcare professionals:

- Follow current NICE guidance - [Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use](#)
- Explain to patients that antibiotics do not prevent or treat viral infections, that antibiotics can cause side-effects, and that their use can increase the risk of spreading infections that are caused by bacteria resistant to antibiotics
- Encourage patients to return unused medicines to a pharmacy, not to share or keep unused medicines
- Consider the use of solid dosage forms when prescribing antibiotics for children: [Using solid oral dosage form antibiotics in children – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice](#)



Encourage HCPs to Join a professional Network such as the [UK Paediatric Antimicrobial Stewardship](#)

Encourage HCPs to complete training

[TARGET tools to train prescribers: TARGET antibiotic toolkit training resources | RCGP Learning](#)

[Learning resources for prescribers: Webinars | RCGP Learning](#)

To improve their ability to teach CYP

[Health Educator Training](#)

[e-Bug Educator Training](#)

To help HCPs to understand the threats and management of antimicrobial resistance

[Antimicrobial-Resistance and Infection Programme](#)

Tools for parents, carers, the public and community groups

The outcome of AMR awareness campaigns with children and young people can be strengthened with the active engagement of the public, and in particular parents and carers.

Share guidance on tablet swallowing:

Swallowing tablets is preferable to IV antibiotics to reduce AMR and can be taught to children aged 4yrs+

[Teaching your child to swallow tablets: Healthier Together](#)

[Helping your child to swallow tablets – Medicines For Children](#)

Share guidance on managing infections:

Share this [caring for children with cough leaflet](#) as many coughs and respiratory tract infections do not respond to antibiotics

General guidance on antibiotics and AMR:

[General advice about antibiotics leaflet](#)

[Antimicrobial Resistance - what can I do as a parent](#)

Box 2: WAAW daily themes

Day 1: 'Prevention' theme (including infection prevention and vaccination).

Day 2: 'Antimicrobials in clinical practice' and engagement with patients and the public.

Day 3: 'Optimising diagnostics'

Day 4: 'Tackling health inequalities'

Day 5: 'One Health and research'



#AntimicrobialResistance is one of the most urgent global threats to the public's health. Antibiotics can cause side-effects, including nausea and diarrhoea and contribute to the development of

#antibioticresistance.



**BECOME AN
ANTIBIOTIC GUARDIAN**
Keep Antibiotics Working



#AntibioticGuardian #KeepAntibioticsWorking #WAAW

Daily themes:

WAAW has one theme per day (see Box 2).

[Resources for the daily themes](#) can be used for media communications each day

Media messaging resources:

[Infographics](#)

[Twitter / X posts](#)

[Social media posts](#)

[Digital sticky notes for social media](#)

[Tips for working with your local comms teams](#)

Tools for local authority workforce

AMR is an issue that can affect everyone. Additional resources are available to raise awareness among adult populations groups and those working in local authorities

Vaccines can also help prevent the spread of infections. Fewer infections mean fewer antimicrobials are used – therefore reducing the risk of antimicrobial resistance and drug-resistant infections. It is important to ensure that awareness campaigns include immunisation awareness information

Additional AMR toolkits and guidance

[World Antimicrobial Resistance Awareness Week \(WAAW\) and European Antibiotic Awareness Day \(EAAD\) - GOV.UK](#)

[Dental antimicrobial stewardship: toolkit - GOV.UK](#)

Training for LA workforce

[Beat the Bugs](#) is a six-week community hygiene course aiming to equip people with information to keep themselves and others healthy by preventing the spread of infection and learning about treating infection

[NHSE elfh Hub](#) Antimicrobial Resistance Training Programme and Toolkit (free access but requires sign in)

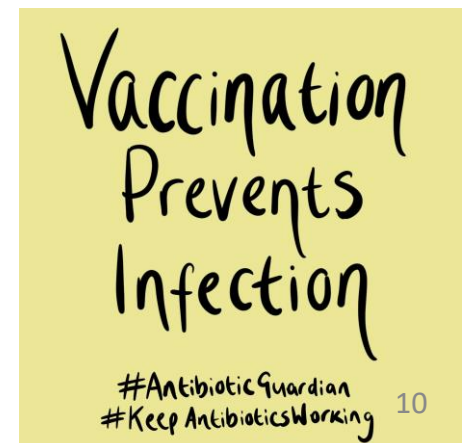
Vaccination guidance and resources

[Adolescent vaccination programme: briefing for secondary schools 2024 to 2025 - GOV.UK](#)

[Flu vaccination in schools - GOV.UK](#)

[Childhood Immunisations Campaign Resource Centre - GOV.UK](#)

[Digital sticky note](#) to use social media comms



Resources from local authority WAAW campaigns

WAAW is marked across the country. Here are some examples of good practice from local authority campaigns in different regions that can be adapted locally



[Web resource and posters - NHS Cheshire and Merseyside](#)

[Your Gut Friends Poster -Hampshire and Isle of Wight ICB](#)

[YouTube video - Portsmouth Hospital University](#)

Tools for improving sustainability and addressing inequalities

Improving sustainability and addressing health disparities and inequalities are two of the cross-cutting themes underpinning all 5 days of the WAAW campaign

Ways to help reduce environmental contamination:

The incorrect disposal of antimicrobials can have an adverse effect on the environment if they get into the ecosystem. Ways to help include:

- Raise awareness of the environmental effects of not disposing of antimicrobials safely
- Encourage individuals to return unused antimicrobials to a pharmacy for safe disposal and not to flush antimicrobials down the toilet
- Run a local [antibiotic amnesty campaign](#)
- Use [Antibiotic Amnesty Resources](#)
- Use [AMR and environmental sustainability](#) resources

No new antibiotics
in the pipeline.
Don't throw them down the
drain - Protect the environment.

#AntibioticGuardian
#KeepAntibioticsWorking



Ways to help improve the sustainability of an AMR campaign

Try to reduce the environmental impact of the campaign by

- Going paperless
- Only using digital resources
- Conducting virtual webinars and meetings

Standardised blood
Culture pathways
=
Fewer health
Inequalities.

#AntibioticGuardian
#KeepAntibioticsWorking

Ways to address inequalities

Healthcare professionals, including those in the pharmacy profession, are ideally placed in community and hospital settings to raise awareness of how inequalities impact infection management and resistance rates (e.g., using standardised blood culture pathways), as well as advocating for equity of access in Core20PLUS5 populations

Use the WAAW [key messages](#) to reach out to certain populations and vulnerable groups to provide information that is clear and concise and can encourage conversations and raise awareness of AMR

Use the [leaflets, poster and social media resources](#) that have been translated into 12 languages to engage with different community groups

Use e-Bug [Translated lesson plans](#)¹²

Antibiotic Guardian Schools Ambassadors toolkit



Through the Antibiotic Guardian Schools Ambassadors programme, public health and healthcare professionals, vets, vet nurses and scientists are invited to connect with local schools and community groups.

Ambassadors are encouraged to provide a teaching session, promote a toolkit of lesson planning resources, and/or provide an article on important public health topics such as microbes, hygiene, infection prevention and antibiotics for schools to include in their newsletter.

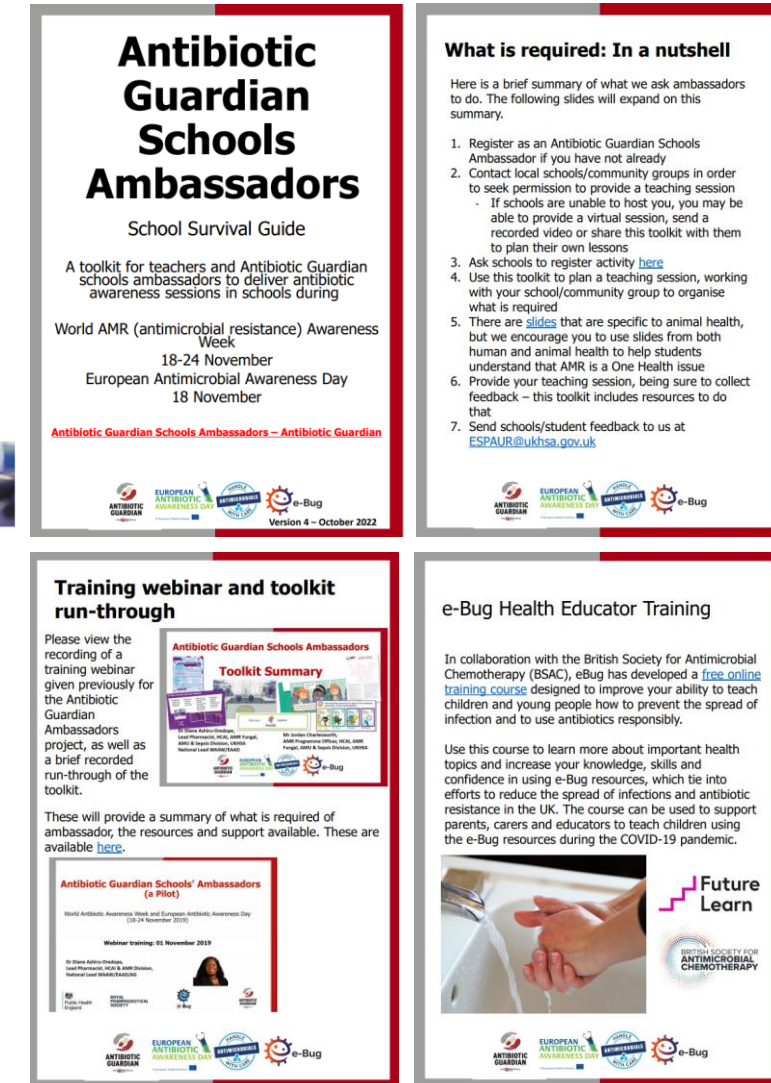
The toolkit and newsletter item resources will be provided automatically to those that register to become an AG Schools Ambassador. Further information on the programme and registration is available on the [Antibiotic Guardian Schools Ambassadors: registration and feedback page](#).

Send schools/student feedback to us at ESPAUR@ukhsa.gov.uk



How will this benefit your local school/community?

- Improve hygiene and subsequent illness in schools/communities
- Use evidence-based resources linked to the English National Curriculum
- Receive expert advice and experience on important public health topics
- Support application for Healthy Schools status
- Raise awareness of the importance of responsible use of antibiotics in animals



Videos for children and young adults



Antibiotic song [Keep Antibiotics Working 2018](#)

Keep Antibiotics Working



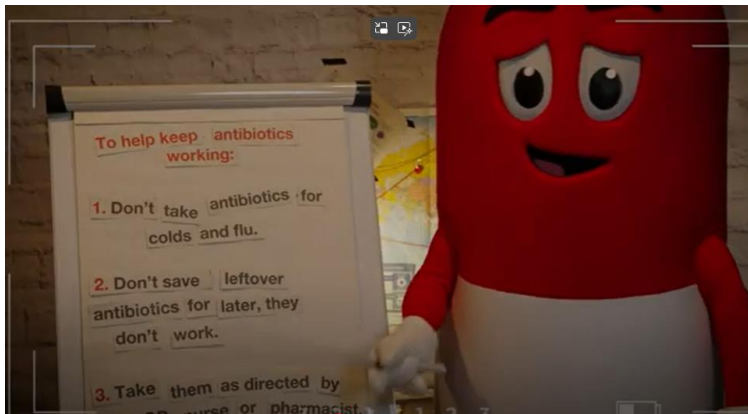
The Keep Antibiotics Working campaign offers a suite of digital, print and social assets to help raise awareness of the correct and incorrect ways to use antibiotics, supporting people to take antibiotics correctly, keep antibiotics working, and tackle antimicrobial resistance (AMR).

[Keep Antibiotics Working | Campaigns | Campaign Resource Centre](#)

https://youtu.be/UN_6kgjiNv0

<https://youtu.be/YzrRpbURCyG>

<https://youtu.be/IZkJJtmn0p0>



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For more information, please contact
caroline.wright2@dhsc.gov.uk naomifleming@nhs.net



UK Health
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Agency

Author: Caroline Wright

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