



Public Health
England

Protecting and improving the nation's health

Antibiotic Awareness: Key messages

World Antibiotic Awareness Week
European Antibiotic Awareness Day
Antibiotic Guardian

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, research, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

Public Health England
133-155 Waterloo Road
Wellington House
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: @PHE_uk
Facebook: www.facebook.com/PublicHealthEngland

Prepared by: Dr Diane Ashiru-Oredope (on behalf of Antibiotic Guardian and EAAD planning group)

For queries relating to this document, please contact: espaur@phe.gov.uk



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Key messages

General

Antibiotics are essential medicines for treating bacterial infections in both humans and animals.

Antibiotics are losing their effectiveness at an increasing rate.

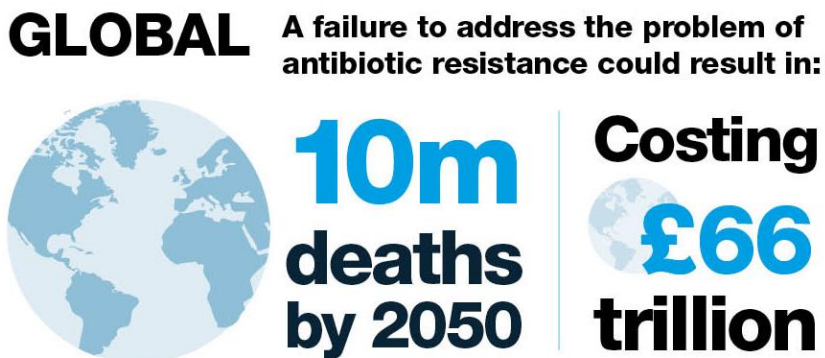
Bacteria can adapt and find ways to survive the effects of an antibiotic. They become 'antibiotic resistant' so that the antibiotic no longer works. The more you use an antibiotic, the more bacteria become resistant to it.

Antibiotics should be taken as prescribed, never saved for later or shared with others; it is important we use antibiotics in the right way, the right drug, at the right dose, at the right time for the right duration. Appropriate use of antibiotics will slow down the development of antibiotic resistance.

There are very few new antibiotics in the development pipeline, which is why it is important we use our existing antibiotics wisely and make sure these life-saving medicines continue to stay effective for us, our children and grandchildren.

The independent review of antimicrobial resistance, the AMR Review¹ commissioned by the Government in 2014 and chaired by Lord Jim O'Neill, in its analysis of the global issue estimated that a failure to address the problem of antibiotic resistance could result in:

- an estimated 10 million deaths globally by 2050
- a cost of £66trillion (\$100trillion) to the global economy



¹ AMR Review. <http://amr-review.org/Publications>

Many antibiotics are prescribed and used for mild infections when they don't need to be.

All colds and most coughs, sinusitis, otitis media (earache) and sore throats get better without antibiotics.

Community pharmacists are well placed to help provide advice on over the counter medicines to manage symptoms and help with self-care.

Keep Antibiotics Working raises awareness of antibiotic resistance amongst the general public and encourages greater trust in doctors' advice when it comes to whether to take antibiotics or not.

Individuals (the public, healthcare professionals, educators and leaders) can take action by choosing a pledge and becoming an Antibiotic Guardian: www.antibioticguardian.com



Strategy

Antibiotic resistance is a complex global public health issue. An integrated cross-sector One Health approach (human, animal and environment) across national, European and international levels is required to combat the spread of antibiotic resistance.

The [UK's 2019-2024 national action plan for tackling AMR](#) and NHS long term plan set targets to ensure progress to our [20-year vision on AMR](#), in which resistance is effectively contained and controlled. These are underpinned by actions such as reducing infections, strengthening stewardship, improve surveillance and boosting research.

Targets include to:

- halve healthcare associated Gram-negative blood stream infections by 2024
- reduce the number of specific drug-resistant infections in people by 10% by 2025
- reduce UK antimicrobial use in humans by 15% by 2024
- reduce UK antibiotic use in food-producing animals by 25% between 2016 and 2020
- be able to report on the percentage of prescriptions supported by a diagnostic test or decision support tool by 2024

The concerns around the impact of AMR led to AMR being added to the UK National Risk Register of Civil Emergencies in 2015.²

The UK supports the **WHO Global Action Plan on AMR** which aims to ensure, for as long as possible, continuity of successful treatment and prevention of infectious diseases with effective and safe medicines that are quality-assured, used in a responsible way, and accessible to all who need them.

The independent AMR review³ commissioned by the Government published its final recommendations in May 2016.

The review, which discusses the mounting problem of resistance and why action is required to combat it, provides an overview of solutions that could be implemented to curtail unnecessary use and increase the supply of new antimicrobials. It highlights the need for public awareness campaigns and the need to improve sanitation and hygiene, reduce pollution from agriculture and the environment, improve global surveillance, introduce rapid diagnostics and vaccines and the need to increase the number of specialists working in the area

Keep Antibiotics Working highlights to the public that taking antibiotics when - they are not need them puts them and their families at risk. To help keep antibiotics working people are urged to always take their doctor, pharmacist or nurse's advice on antibiotics. **Resources** are available at no cost for healthcare professionals to use in local awareness campaigns and includes leaflets, posters and digital resources.

Reports and tools

PHE is responsible for coordinating the antimicrobial awareness activities in England and is working with Department of Health's Expert Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infections (ARHAI); the Veterinary Medicines Directorate (VMD) of the Department for Environment Food and Rural Affairs (Defra), NHS England and NHS Improvement, the devolved administrations and professional bodies/organisations towards the "One Health"⁴ initiative.

The AMR resource handbook identifies current national policy, guidance and supporting materials in relation to the infection prevention and control of healthcare associated

² Cabinet Office. 2015. National Risk Register of Civil Emergencies
<https://www.gov.uk/government/publications/national-risk-register-for-civil-emergencies-2015-edition/national-risk-register-of-civil-emergencies-chapter-1-main-types-of-civil-emergency>

³ <http://amr-review.org/Publications>

⁴ One Health is the collaborative effort of multiple disciplines — working locally, nationally, and globally — to attain optimal **health** for people, animals and the environment.

infections (HCAI) and antimicrobial stewardship in order to aid in the reduction of antimicrobial resistance. It is designed to assist local health and social care professionals in quickly retrieving relevant information provided by Public Health England, the Department of Health and a wide variety of key stakeholders.

In 2014, the **first report of the English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR)** led by PHE brought together for the first time, national and regional surveillance of antibiotic resistance and antibiotic use trends in humans; the ESPAUR report is published yearly during World Antibiotic Awareness Week.

Antimicrobial prescribing guidelines

Cough (acute) Published: February 2019	Bronchiectasis (non-cystic fibrosis), acute exacerbation Published: December 2018	Chronic obstructive pulmonary disease (acute exacerbation) Published: December 2018
Urinary tract infection (catheter-associated) Published: November 2018	Lower UTI Published: October 2018	Pyelonephritis (acute) Published: October 2018
Recurrent UTI Published: October 2018	Prostatitis (acute) Published: October 2018	Otitis media (acute) Published: March 2018
Sore throat (acute) Published: January 2018	Sinusitis (acute) Published: October 2017	

National Institute for Health and Care Excellence (NICE) guidance (NG15) August 2015: Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use <https://www.nice.org.uk/guidance/ng15> provides good practice recommendations on systems and processes for effective use of antimicrobials. Since October 2017 NICE and PHE have also produced **antibiotic prescribing guidelines** which cover a range of topics.

The Royal College of General Practitioners hosts a **web-based TARGET antibiotics toolkit** which includes a patient information leaflet to assist primary care prescribers and

aims to help influence prescribers' and patients' personal attitudes, social norms and perceived barriers to optimal antibiotic prescribing.

A **dental antimicrobial stewardship toolkit** has been developed by the Dental Subgroup of the English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) in collaboration with Faculty of General Dental Practice (FGDP) and British Dental Association (BDA).

An **improvement hub for gram negative blood stream infections** (GNBSI) is available to develop local collaborative actions to reduce GNBSI.

Antimicrobial Resistance Indicators: indicators on antimicrobial resistance, antibiotic prescribing, healthcare associated infections (HCAs), infection prevention and control (IPC) and antimicrobial stewardship are now available as part of the PHE Fingertips portal. The data can be used for local benchmarking and developing local AMR plans.

The **AMR local indicators on PHE Fingertips** provide a range of trust level data sets on antimicrobial resistance, healthcare associated infections, antibiotic prescribing, infection prevention and antimicrobial stewardship that can be used.

The number of Antibiotic Guardians per 100,000 population for each CCG is also available via PHE Fingertips and by Local authority.

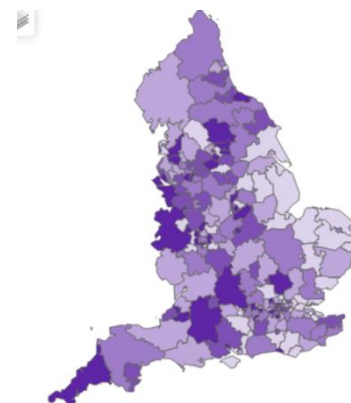


Map of CCGs in England for Antibiotic Guardians per 100,000 population per calendar year by CCGs (Crude rate - per 100,000, 2016)

Areas: All in Central Midlands NHS region All in England [Export table as image](#)

Antibiotic Guardians per 100,000 population per calendar year by CCGs 2016

Area	Count	Value
England	12,755	23.3
NHS Bath And North East S...	248	134.1
NHS Chorley And South Rib...	227	131.6
NHS South Reading CCG	130	117.1
NHS Southwark CCG	295	95.5
NHS Wolverhampton CCG	233	91.6
NHS Dudley CCG	252	79.6
NHS Greater Huddersfield...	192	78.7
NHS Southampton CCG	193	77.3
NHS Birmingham Crosscity...	522	70.5
NHS Hammersmith And Fulha...	121	67.4
NHS Sutton CCG	130	65.0
NHS Central Manchester CC...	115	60.9
NHS Wiltshire CCG	282	58.0
NHS Leicester City CCG	179	52.2
NHS Harrogate And Rural D...	82	52.2
NHS South Tees CCG	137	49.9
NHS Liverpool CCG	237	49.5
NHS West London (K&C & QP...	107	47.4
NHS Surrey Heath CCG	44	45.9



A range of tools and resources are available for healthcare professionals to help contribute to achieving the national ambitions of halving HA-GNBSI and inappropriate antibiotic prescribing through the collaborative work of [NHS England](#) and [NHS Improvement](#), [Health Education England](#), [NICE](#) and [Public Health England](#). The [Royal Pharmaceutical Society AMR campaign](#) and [CPPE](#) provide specific resources for pharmacists.

One Health⁵

The second [One Health Report](#) published in 2019 brought together the most recently available UK data from 2013-2017, on antibiotic resistance in key bacteria that are common to animals and humans; it also included detail on the amount of antibiotics sold for animal health and welfare and antibiotics prescribed to humans.

The integrated 'One Health' approach strategy includes surveillance of antibiotic resistant infections, promoting responsible prescribing and use of antibiotics, and good infection control measures to prevent their spread in both humans and animals.

AMR [resources and toolkits](#) for veterinary medicine and livestock professionals have been collated and are available via <http://antibioticguardian.com/Resources/veterinary-medicine-livestock/>.

Antibiotic awareness campaigns

The theme of the WAAW campaign, Antibiotics: Handle with Care, reflects the overarching message that antibiotics are a precious resource and should be preserved. They should be used to treat bacterial infections, only when prescribed by a certified health professional. Antibiotics should never be shared and should be taken as directed and not saved for the future.

European Antibiotic Awareness Day (EAAD) was initiated by the European Centre for Disease Prevention and Control (ECDC) in 2008 and is held on 18 November every year aiming to raise awareness on how to use antibiotics in a responsible way that will help keep them effective for the future.

As part of UK activities for antimicrobial awareness, and in support of the [UK 5-year national action plan for AMR](#), PHE developed the [Antibiotic Guardian campaign](#)⁶ in

⁵ One Health is the collaborative effort of multiple disciplines — working locally, nationally, and globally — to attain optimal **health** for people, animals and the environment.

⁶ <http://antibioticguardian.com>

2014 as an ongoing resource to move from raising awareness to engagement and to stimulate behaviour change.

The Antibiotic Guardian campaign acts as a driver to increase engagement and provide an outcome measure. A pledge system will help people feel that they have taken concrete personal and collective action to help keep antibiotics active. This may in turn act as a catalyst for behaviour change that is measured through follow up.

The impact/evaluation study of the Antibiotic Guardian campaign demonstrated that the campaign increased commitment to tackling AMR in both healthcare professionals and members of the public, increased self-reported knowledge and changed self-reported behaviour particularly among people with prior AMR awareness.⁷

A public facing media campaign on AMR called Keep Antibiotics Working (using TV, radio and social media) runs in Winter.

The messaging for the campaign aims to move patients to a better understanding that taking antibiotics when they don't need them puts them and their family at serious risk and to trust their doctors and healthcare professionals advice regarding the best appropriate treatment for them.

Leaflets and posters, including the Target Treat your Infection Pad, will be distributed to healthcare settings including GP surgeries and pharmacists. Resources are available free for HCPs to order to use in local awareness campaigns e.g. during WAAW or at other times from the [PHE campaign resource centre](#).

To ensure there is a co-ordinated public facing approach, there will be greater alignment between the look and feel of Keep Antibiotics Working and Antibiotic Guardian. The goal is to bring together the purpose and credibility of the Antibiotic Guardian

Programme with the scale and recognition of the nationwide consumer campaign to establish Keep Antibiotics Working as PHE's unifying brand to manage AMR for the public. Both campaigns share objectives which support the government ambition to reduce inappropriate prescribing in the UK by half by 2020.

A [public facing video with a presenter](#) highlighting the antibiotic resistance issue with a call to action to become antibiotic guardians through three key steps is available via the Antibiotic Guardian website:

⁷ Chaintarli et al Impact of a United Kingdom-wide campaign to tackle antimicrobial resistance on self-reported knowledge and behaviour change [BMC Public Health](#). 2016 May 12;16:393
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4866421/>

- step 1: don't ask for antibiotics, consider alternatives to antibiotics and to ask a pharmacist about over the counter remedies that can help in the first instance.
- step 2: take antibiotics exactly as prescribed, never save them for future use, never share them with others
- step 3: to spread the word and share the video

Health students are encouraged to learn more about and raise awareness of antimicrobial resistance with peers especially non-health students during World Antibiotics Awareness Week and become Antibiotic Guardian Champions. This includes the opportunity to earn a digital badge that can be added to their LinkedIn accounts on completion of a number of tasks including a [short e-learning AMR module developed by Health Education England](#).

Materials for school children and their families are available via e-bug, Junior and Family Antibiotic Guardian, which educate on infection prevention and control as well as microbes, their spread and use of antibiotics with schools. Furthermore, students are invited to attend the [national students' AMR conference](#) held during World Antibiotic Awareness Week each year in November.

[Veterinary Medicines Directorate, Defra and a number of veterinary bodies](#) are raising awareness of these campaigns through various activities to further promote responsible use of antibiotics by veterinarians, farmers and pet owners (animal keepers). PHE has published a range of materials on its website for use and local adaptation to help support EAAD activities and initiatives.⁸

⁸<https://www.gov.uk/government/publications/european-antibiotic-awareness-day-key-messages-on-antibiotic-use>

Additional messages

The table below is an excerpt of the TARGET Antibiotic Toolkit “Guide to treat your infection” and shows you how long these common illnesses normally last, what you can do to ease your symptoms and when you should go back to your GP or contact NHS Direct⁹

TREATING YOUR INFECTION - RESPIRATORY TRACT INFECTION (RTI)

Patient name It is recommended that you self-care

Your infection	Most are better by	How to look after yourself and your family	When to get help
Middle-ear infection	8 days	<ul style="list-style-type: none"> • Have plenty of rest. • Drink enough fluids to avoid feeling thirsty. • Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both). • Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol if you or your child are uncomfortable as a result of a fever. • Use a tissue and wash your hands well to help prevent spread of your infection to your family, friends and others you meet. • Other things you can do suggested by GP or nurse: 	<p>The following are possible signs of serious illness and should be assessed urgently:</p> <ol style="list-style-type: none"> 1. If your skin is very cold or has a strange colour, or you develop an unusual rash. 2. If you feel confused or have slurred speech or are very drowsy. 3. If you have difficulty breathing. Signs that suggest breathing problems can include: <ul style="list-style-type: none"> • 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. 4. If you develop a severe headache and are sick. 5. If you develop chest pain. 6. If you have difficulty swallowing or are drooling. 7. If you cough up blood. 8. If you are feeling a lot worse. <p>If you or your child has any of these symptoms, are getting worse or are sicker than you would expect (even if your/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 1-3 go to A&E immediately or call 999.</p> <p>Less serious signs that can usually wait until the next available appointment:</p> <ol style="list-style-type: none"> 9. If you are not starting to improve a little by the time given in the 'Most are better by' column. 10. In children with middle-ear infection: if fluid is coming out of their ears or if they have new deafness. 11. Mild side effects such as diarrhoea, however seek medical attention if you're concerned 12. Other
Sore throat	7-8 days		
Sinusitis	14-21 days		
Common cold	14 days		
Cough or bronchitis	21 days		
Other infection: days		

Back-up antibiotic prescription to be collected after days only if you are not starting to feel a little better or you feel worse.

Collect from: Pharmacy General practice reception GP, nurse, other

• Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
 • Taking antibiotics encourages bacteria that live inside you to become resistant. That means that antibiotics may not work when you really need them.
 • Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.
 • Find out more about how you can make better use of antibiotics and help keep this vital treatment effective by visiting www.nhs.uk/keepantibioticsworking

Never share antibiotics and always return any unused antibiotics to a pharmacy for safe disposal.

TREATING YOUR INFECTION - RESPIRATORY TRACT INFECTION (RTI)

Patient name Self-care advice provided

Product(s) suggested / supplied Patient advised to contact GP

Your infection	Without antibiotics most are better by	How to look after yourself and your family	When to get help
Middle-ear infection	8 days	<ul style="list-style-type: none"> • Have plenty of rest • Drink enough fluids to avoid feeling thirsty • Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both). • Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol if you or your child are uncomfortable as a result of a fever. • Use a tissue and wash your hands well to help prevent spread of your infection to your family, friends and others you meet. • Other things you can do suggested by your pharmacy team: 	<p>The following are possible signs of serious illness and should be assessed urgently:</p> <ol style="list-style-type: none"> 1. If your skin is very cold or has a strange colour, or you develop an unusual rash. 2. If you feel confused or have slurred speech or are very drowsy. 3. If you have difficulty breathing. Signs that suggest breathing problems can include: <ul style="list-style-type: none"> • 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. 4. If you develop a severe headache and are sick. 5. If you develop chest pain. 6. If you have difficulty swallowing or are drooling. 7. If you cough up blood. 8. If you are feeling a lot worse. <p>If you or your child has any of these symptoms, are getting worse or are sicker than you would expect (even if your/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 1-3 go to A&E immediately or call 999.</p> <p>Less serious signs that can usually wait until the next available appointment:</p> <ol style="list-style-type: none"> 9. If you are not starting to improve a little by the time given in the 'Most are better by' column. 10. In children with middle-ear infection: if fluid is coming out of their ears or if they have new deafness. 11. Mild side effects such as diarrhoea, however seek medical attention if you're concerned 12. Other
Sore throat	7-8 days		
Sinusitis	14-21 days		
Common cold	14 days		
Cough or bronchitis	21 days		
Other infection: days		

• Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
 • Taking antibiotics encourages bacteria that live inside you to become resistant. That means that antibiotics may not work when you really need them.
 • Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.
 • Find out more about how you can make better use of antibiotics and help keep this vital treatment effective by visiting www.nhs.uk/keepantibioticsworking

Never share antibiotics and always return any unused antibiotics to a pharmacy for safe disposal.

⁹<http://www.rcgp.org.uk/TARGETantibiotics>

TREATING YOUR INFECTION - URINARY TRACT INFECTION (UTI)

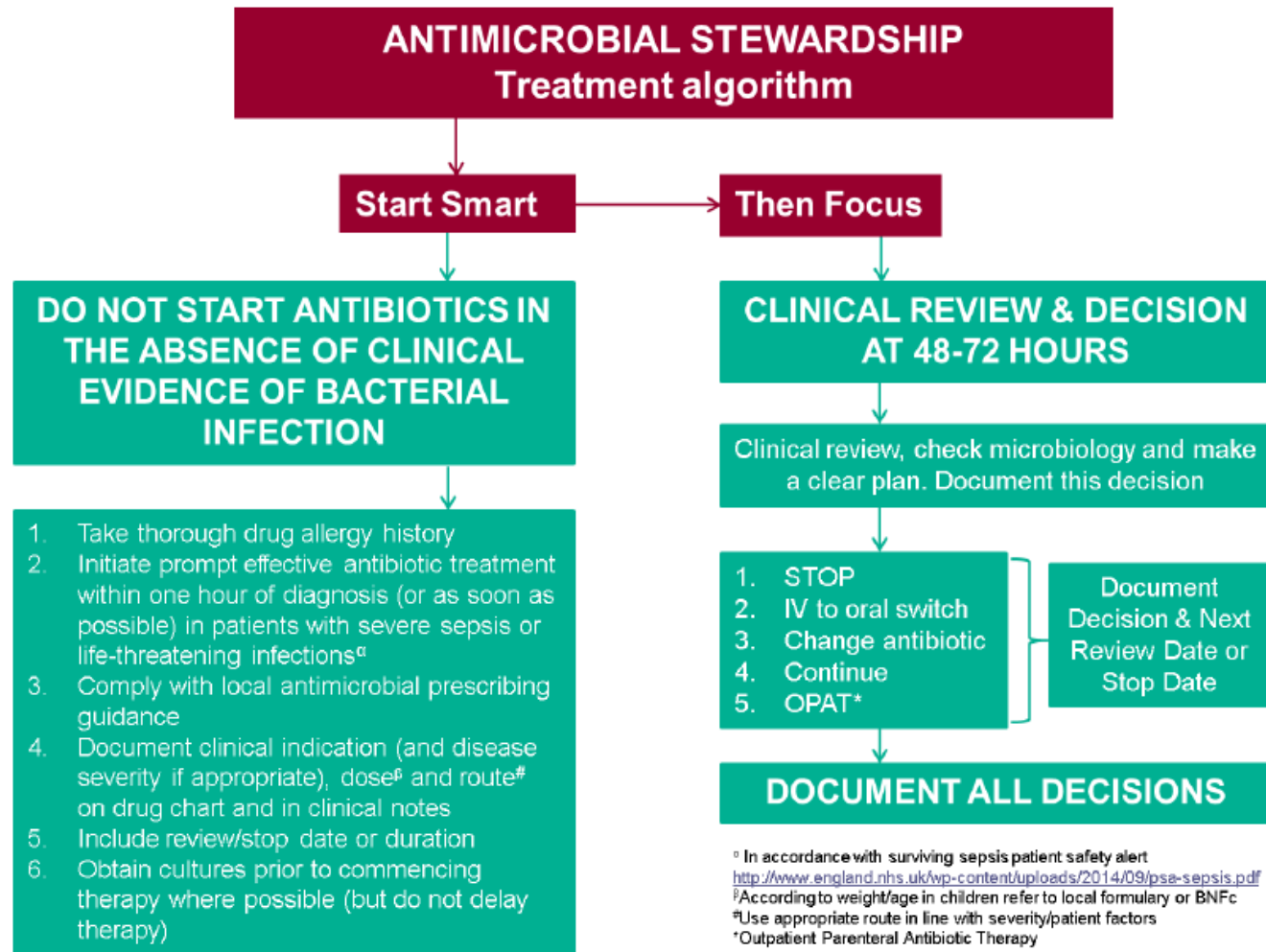
For women under 65 years with suspected lower urinary tract infections (UTIs) or lower recurrent UTIs (cystitis or urethritis)

Possible urinary signs & symptoms	The outcome	Recommended care	Types of urinary tract Infection (UTI)
<p>Key signs/symptoms: Dysuria: Burning pain when passing urine (wee) New nocturia: Needing to pass urine in the night Cloudy urine: Visible cloudy colour when passing urine</p> <p>Other severe signs/symptoms: Frequency: Passing urine more often than usual Urgency: Feeling the need to pass urine immediately Haematuria: Blood in your urine Suprapubic pain: Pain in your lower tummy</p> <p>Other things to consider: Recent sexual history • Inflammation due to sexual activity can feel similar to the symptoms of a UTI. • Some sexually transmitted infections (STIs) can have symptoms similar to those of a UTI.</p> <p>Changes during menopause • Some changes during the menopause can have symptoms similar to those of a UTI.</p>	<p>All women: <input type="checkbox"/> If none or only one of: dysuria, new nocturia, cloudy urine; AND/OR vaginal discharge</p> <ul style="list-style-type: none"> • Antibiotics less likely to help. • Usually lasts 5 to 7 days. • You may need a urine test to check for a UTI. <p>Non-pregnant women: <input type="checkbox"/> If 2 or more of: dysuria, new nocturia, cloudy urine; OR bacteria detected in urine; AND NO vaginal discharge</p> <ul style="list-style-type: none"> • Antibiotics are more likely to help. • You should start to improve within 48 hours • Symptoms usually last 3 days. <p>Pregnant women: Always request urine culture <input type="checkbox"/> If suspected UTI.</p>	<p><input type="checkbox"/> Self-care and pain relief. • Symptoms may get better on their own.</p> <p><input type="checkbox"/> Delayed or backup prescription with self-care and pain relief. Start antibiotics if symptoms: • Get worse. • Do not get a little better with self-care within 48 hours.</p> <p><input type="checkbox"/> Immediate antibiotics prescription plus self-care.</p> <p><input type="checkbox"/> If mild symptoms, delayed or back-up antibiotic prescription plus self-care.</p> <p><input type="checkbox"/> Immediate antibiotic prescription.</p>	<p>UTIs are caused by bacteria getting into your urethra or bladder, usually from your gut. Infections may occur in different parts of the urinary tract.</p> <p>Kidneys (make urine) Infection in the upper urinary tract • Pyelonephritis (pie-lo-nef-right-is). Not covered in this leaflet and always needs antibiotics.</p> <p>Bladder (stores urine) Infection in the lower urinary tract • Cystitis (sis-tight-is).</p> <p>Urethra (takes urine out of the body) Infection or inflammation in the urethra • Urethritis (your-ith-right-is).</p>

Self-care to help yourself get better more quickly	When should you get help? Contact your GP practice or NHS 111	Options to help prevent a UTI	Antibiotic resistance
<ul style="list-style-type: none"> • Drink enough fluids to stop you feeling thirsty. Aim to drink 6 to 8 glasses including water, decaffeinated and sugar-free drinks. • Take paracetamol or ibuprofen at regular intervals for pain relief, if you have had no previous side effects. • You could try taking cranberry capsules or cystitis sachets. These are effective for some women. There is currently no evidence to support their use. • Consider the risk factors in the 'Options to help prevent UTI' column to reduce future UTIs. 	<p>The following symptoms are possible signs of serious infection and should be assessed urgently.</p> <p>Phone for advice if you are not sure how urgent the symptoms are.</p> <ol style="list-style-type: none"> 1. You have shivering, chills and muscle pain. 2. You feel confused, or are very drowsy. 3. You have not passed urine all day 4. You are vomiting. 5. You see blood in your urine. 6. Your temperature is above 38°C or less than 36°C. 7. You have kidney pain in your back just under the ribs. 8. Your symptoms get worse. 9. Your symptoms are not starting to improve within 48 hours of taking antibiotics. 	<p>It may help you to consider these risk factors: Stop bacteria spreading from your bowel into your bladder. Wipe from front (vagina) to back (bottom) after using the toilet. Avoid waiting to pass urine. Pass urine as a soon as you need a wee. Go for a wee after having sex to flush out any bacteria that may be near the opening to the urethra. Wash the external vagina area with water before and after sex to wash away any bacteria that may be near the opening to the urethra. Drink enough fluids to make sure you wee regularly throughout the day, especially during hot weather.</p> <p>If you have a recurrent UTI, also consider the following:</p> <ul style="list-style-type: none"> • Cranberry products and D-mannose: Some women find these effective, but there is currently poor evidence to support this. • After the menopause: You could consider topical hormonal treatment, for example, vaginal creams. 	<p>Antibiotics can be lifesaving. But antibiotics are not always needed for urinary symptoms.</p> <p>Antibiotics taken by mouth, for any reason, affect our gut bacteria making some resistant.</p> <p>Antibiotic resistance means that the antibiotics cannot kill that bacteria.</p> <p>Antibiotic resistant bacteria can remain in your gut for at least a year after taking an antibiotic.</p> <p>Common side effects to taking antibiotics include thrush, rashes, vomiting and diarrhoea. Seek medical advice if you are worried.</p> <p>Keep antibiotics working, only take them when advised by a health professional. This way they are more likely to work for a future UTI.</p>

Antimicrobial stewardship in secondary care

A Start Smart – then Focus approach is recommended for all antibiotic prescriptions in secondary care



Everyone has a role in tackling antimicrobial resistance



Patients

Antibiotic resistance is a threat to your health.

Good hygiene is essential in reducing the risk of spread of infections and is especially important in households with individuals who have chronic illnesses.

Antibiotics do not work for ALL colds, or for most coughs, sore throats or earache. Your body can usually fight these infections on its own.

Taking antibiotics encourages harmful bacteria that live inside you to become resistant. That means that antibiotics may not work when you really need them. This puts you and your family at risk of a more severe or longer illness. Take your doctor, pharmacist or nurse's advice when it comes to antibiotics.

Antibiotics are important medicines and should only be taken when prescribed by a health professional.

When antibiotics are prescribed by a health professional it is important that you always take them as directed, never save them for later and never share them with others.

Antibiotics can have side effects as they upset the natural balance of bacteria potentially resulting in diarrhoea and/or thrush. The use of inappropriate antibiotics may also allow other more harmful bacteria to increase. Antibiotics also cause other side effects such as rashes, stomach pains and reactions to sunlight.

Antibiotic resistant bacteria don't just affect you, they can spread to other people (and animals) in close contact with you and are very difficult to treat.

How to look after yourself and your family

If you or a family member are feeling unwell, have a cold or flu and you haven't been prescribed antibiotics, here are some effective self-care ways to help you feel better:

- ask your pharmacist to recommend medicines to help with symptoms or pain
- get plenty of rest
- make sure you or your child drink enough to avoid feeling thirsty.
- fever is a sign that the body is fighting infection and most fevers will get better on their own - use paracetamol if you or your child are feeling uncomfortable
- make sure to use a tissue for your nose and wash your hands frequently to avoid spreading your infection to family and friends

If you're worried, speak to a doctor who will be able to advise you on the best treatment for your symptoms..

For more information on antibiotics visit:

<http://www.nhs.uk/nhsengland/arc/pages/aboutarc.aspx>.

Become an Antibiotic Guardian and protect yourself, your family and friends against the spread of antibiotic resistance at antibioticguardian.com.

Animal keepers/pet owners

Animal keepers and pet owners: bacteria, including those carrying antibiotic resistance, can be transferred between animals and humans and vice versa, therefore it is important to practice good hygiene to minimise this.

Farmers and livestock keepers: Prevent diseases by implementing good herd or flock health and bio-security practices, good nutrition, hygiene and animal welfare.

Follow the advice given by your vet and use any antibiotics prescribed by your vet in accordance with their labelling instructions. Complete the full course prescribed and observe any withdrawal period.

Your vet may not necessarily prescribe newer antibiotics available as older classes of these medicines may be just as effective in treating your animal(s) and may reduce the development of resistance.

Prescribers

Use antibiotics responsibly, when antibiotic treatment is needed, the antibiotic should be tailored for the patient, the likely site of infection and causative organism.

Patients receiving antibiotics should receive the right drug, at the right dose, at the right time and the right duration for the individual.

It is important that antimicrobial therapy is administered within one hour of recognition of severe sepsis or septic shock.

Unnecessary lengthy duration of antibiotic treatment and inappropriate use of broad-spectrum antibiotics should be avoided.

Primary care prescribers continue to be encouraged to only prescribe antibiotics when they are needed for bacterial infections, and not for self-limiting mild infections such as colds and most coughs, sinusitis, earache and sore throats.

Communication is key. Studies show that patients are less likely to ask their GP for antibiotics if advised what to expect in the course of an illness and given a self-care plan. Discussing information on the guide to infection leaflet can facilitate this.

Consider backup/delayed prescriptions when appropriate.

Promote good infection prevention and control measures to reduce cross infection; proactively reducing the number of infections can in turn reduce the frequency of antibiotic prescriptions and have a positive impact on reducing antibiotic resistance. Specific guidance for professionals is available in our **'Start Smart then Focus'** guidance.

This aims to promote best practice on prescribing antibiotics in hospitals. GPs are also encouraged to focus on antimicrobial stewardship and are assisted through an antibiotic toolkit **'TARGET'** (Treat Antibiotics Responsibly, Guidance, Education, Tools,) which is hosted on the Royal College of General Practitioners website at: <http://www.rcgp.org.uk/targetantibiotics/> and includes a range of resources specific for general practice.

Dental prescribers

Clinical intervention should normally be used to manage dental infections rather than the prescription of antibiotics. Antibiotics on their own are ineffective in eradicating infection and pain and dental treatment is normally required to remove the cause.

Dental pain should be managed by definitive management of the cause and where appropriate the use of analgesics.

It is important to discuss with patients the diagnosis and options for management of dental pain.

A **dental antimicrobial stewardship toolkit** which provides a set of resources to help primary care practitioners promote the appropriate use of antibiotics in dental care was published in 2016 by the Dental Subgroup of the English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) in collaboration with Faculty of General Dental Practice (FGDP) and British Dental Association (BDA) and Dental Protection.

Veterinary prescribers

Wherever possible use antibiotics at an early stage, when clinical signs of bacterial disease are first diagnosed and become evident.

Use a narrow spectrum antibiotics wherever possible.

The product's Summary of Product Characteristics (SPC) or product literature instructions and contra-indications must be clearly understood and taken into account, especially when deciding on the dosage and duration of treatment. Do follow the storage advice.

Emphasise to clients the need to follow the antibiotic product's labelling instructions.

Perform antibiotic sensitivity testing on causal bacteria against the antibiotics of choice where possible and particularly prior to treatment with broad spectrum and/or antibiotics considered critically important.

If a treatment does not appear to work, perform further diagnostic tests and report the treatment failure using a yellow form (available from: www.vmd.defra.gov.uk), as a Suspected Lack of Efficacy to the VMD. This is a valuable tool for veterinarians to be part of an alert system to bring an emerging resistance problem to the attention of interested parties.

Veterinary Medicines Directorate, Defra and a number of veterinary bodies are raising awareness of these campaigns through various activities to further promote responsible use of antibiotics by veterinarians, farmers and pet owners (animal keepers).

Additional resources available via Antibiotic Guardian website:

<http://antibioticguardian.com/Resources/veterinary-medicine-livestock/>.