

Using antimicrobial medicines safely and wisely to treat infections

Information for the public
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About this information

NICE guidelines provide advice on the care and support that should be offered to people who use health and care services.

This information explains the advice about using antimicrobial medicines (also known as antimicrobials) safely and wisely that is set out in the NICE guideline on antimicrobial stewardship.

Does this information apply to me?

Yes, this information applies to everyone because everyone will need an antimicrobial at some time in their life.

Why is advice on antimicrobials needed?

Medicines used to treat infection are called antimicrobials. They include medicines for treating bacterial infections (antibiotics), fungal infections, viral infections and parasitic infections.

Antibiotics are antimicrobials that are widely used for treating a range of bacterial infections, including chest infections and urine infections. They are also used to help prevent infection in people who are at higher risk because they are having treatment for cancer or are having surgery.

Widespread use of antimicrobials has been linked to microbes such as bacteria and viruses changing and becoming resistant to treatment. This means that the antimicrobials we have no longer kill all microbes and some survive to cause long-lasting and severe infections. This is known as antimicrobial resistance and the resistant microbes are often known as 'super bugs'. Unfortunately, the discovery of new antimicrobials (which would be more likely to control resistant microbes) has slowed down in recent years. If we are not careful we could face a situation in which the antimicrobials we have won't work against many infections.

Questions to ask about antimicrobials

- What is an antimicrobial?
- What is an antibiotic? Do antibiotics work for all infections?
- What is antimicrobial resistance?
- I've heard about microbes (bugs) becoming resistant to antimicrobials. Could my infection be caused by a resistant bug?

We need to use antimicrobials, particularly antibiotics, safely and wisely to protect our health and the health of future generations.

The NICE guideline on using antimicrobials safely and wisely offers advice on what organisations responsible for health and care services can do to help, and how health professionals who write prescriptions can help. It also offers advice on what organisations

and local groups that make decisions about medicines (local decision-making groups) should think about when new antimicrobials become available.

What should organisations do?

NICE has said that organisations responsible for health and care services should monitor and review how antimicrobials are being used in all settings, including:

- hospitals
- GP practices
- out-of-hours services
- dental practices.

They can do this by selecting key members of staff to monitor antimicrobial prescribing and antimicrobial resistance. These staff may make up a team called the 'antimicrobial stewardship team'.

The staff should review information on what antimicrobials are being prescribed and how often. They should also review information about when antimicrobials are unlikely to work for infections (antimicrobial resistance). They should feed this back to health professionals who prescribe antimicrobials and work with them to look into reasons why in some cases antimicrobials are prescribed more or less often than would be expected. Health professionals who prescribe antimicrobials should know how important it is to use antimicrobials safely and wisely and should have up-to-date information on how to do this.

NICE has said that organisations should:

- use information on prescribing of antimicrobials and information about infections for which antimicrobials have stopped working (antimicrobial resistance) to develop advice (local guidelines) about treating infections in the local area
- make sure that everyone prescribing antimicrobials knows about these guidelines and when anything changes in them.

Organisations should have arrangements for making sure that people who prescribe antimicrobials know about:

- antimicrobial resistance in their local area
- use of antimicrobials:
 - in people admitted to hospital with serious infections
 - in people with severe allergic reactions
 - in people with infections caused by bacteria known as *Clostridium difficile*.

Question to ask about organisations

- Who are organisations and what do they do?
- How are the organisations in my area making sure they use antimicrobials safely and wisely?

Communication

NICE has said that organisations responsible for health and care services should encourage openness about how antimicrobials are used. Organisations should also question prescribing of antimicrobials when prescribers write prescriptions that don't follow guidelines and don't give a reason for this. Organisations should encourage and support health professionals only to prescribe antimicrobials when they are really needed to treat an infection.

They should encourage health and social care staff to:

- share what they know about using antimicrobials safely and wisely
- make sure that patients know that a referral to another service won't necessarily mean they will be prescribed an antimicrobial.

What should prescribers do?

Prescribers (people who write prescriptions for medicines) have an important role in making sure that antimicrobials are used safely and wisely. They should follow guidelines about this and should prescribe an antimicrobial at a dose that will work and for the

shortest time possible.

Question to ask about prescribers

- Who are prescribers and what do they do?
- Who might write me a prescription for an antimicrobial? How will they make sure I'm getting the right treatment?

What prescribers should think about before prescribing an antimicrobial

When considering whether or not to prescribe an antimicrobial, health professionals should think about how this decision might affect how well the medicine works against infection in the future (antimicrobial resistance).

They should check the patient's symptoms and record these in the patient's notes. If the infection isn't severe, health professionals should think about asking the microbiology laboratory to find out what the infection is before prescribing an antimicrobial. But they should only do this if it is safe to delay treatment. If an infection won't go away or keeps coming back, health professionals may also ask the microbiology laboratory to find out what the infection is. But they should go ahead and prescribe an antimicrobial and when the laboratory results come back they should check that the antimicrobial is right for treating the infection.

Tests to find out if an antimicrobial is needed

For patients in hospital, health professionals should take a sample for the microbiology laboratory before they prescribe an antimicrobial for a suspected infection. They should review the prescription when the laboratory results come back and change it if the results show this is needed.

In some cases, health professionals may consider using a test to find out whether an antimicrobial is needed for a chest infection. See [other NICE guidance](#) for details of our guidance on pneumonia.

Discussions before prescribing an antimicrobial

Health professionals should take the time to talk to patients and/or their family members or carers about:

- what the infection is likely to be and what it might be caused by
- why an antimicrobial may not be the best option
- other options for treatment
- the benefits and risks of prescribing an antimicrobial straightaway, including the risk of allergy and severe allergic reactions
- what they should do if their condition gets worse
- whether they need any written information about their medicine.

When an antimicrobial is not needed

Antimicrobials should not be prescribed for infections that are likely to get better on their own without treatment.

If prescribing an antimicrobial is not the best course of action, health professionals should talk to patients and/or their family members or carers about other options, such as:

- buying over-the-counter medicines at the local pharmacy
- prescribing an antimicrobial later if they don't get any better
- other treatments that might help, such as draining (removing pus from) the infection (for some types of infection only).

Questions to ask when an antimicrobial is not needed

- Why have you decided not to give me a prescription for an antimicrobial? What do I do if I go home and my condition gets worse?

- What can I do to help myself get better?
- Do all infections need to be treated with antibiotics?
- Can you tell the difference between a bacterial and viral infection, and if so how?
- What is a back-up prescription and why have you given this to me?
- Can I get a prescription for an antimicrobial from another doctor?
- Why have you decided to stop my repeat prescriptions for antimicrobials?

When an antimicrobial is an option

If an antimicrobial is an option for treatment, health professionals should note in the patient's records the reasons for prescribing or not prescribing an antimicrobial, and the plan for the patient's care. If they decide to prescribe an antimicrobial, they should take the following things into account when deciding which to prescribe:

- how the antimicrobial might interact with other medicines the patient is taking, and with food and drink
- any other illnesses the patient has (for example, kidney disease), which may mean the dose of antimicrobial needs to be changed
- any allergies to medicines the patient may have
- the risk that prescribing the antimicrobial may encourage the growth of bacteria, which are linked to infections in hospitals (for example, infections caused by a bacteria known as *Clostridium difficile*).

If a health professional prescribes an antimicrobial that is not in line with local guidelines, they should note the reason for this in the patient's record.

Questions to ask when an antimicrobial is an option

- Why have you decided to give me a prescription for an antimicrobial?

- Is there a choice of antimicrobial I could take? How do I know I'm getting the right one?
- What should I do if my condition does not improve with the antimicrobial or it gets worse?
- What do I do if I have a bad reaction to the antimicrobial? Is there anything in particular I should look out for?
- Do I need to complete the course of antibiotics or should I stop taking them when I feel better?

When an antimicrobial is needed to prevent an infection

People who are taking antimicrobials to prevent an infection rather than to treat an infection should not have repeat prescriptions for more than 6 months. This should help to reduce antimicrobial resistance and allergic reactions.

Intravenous antimicrobials

For some infections, for example severe infections, patients need to have an antimicrobial by syringe or drip directly into their bloodstream (an intravenous antimicrobial).

After 48 to 72 hours health professionals should check whether the antimicrobial is still needed and if it is whether it can now be taken by mouth (for example, in tablet form).

New antimicrobials

What should organisations responsible for healthcare services do?

When a new antimicrobial becomes available, organisations responsible for healthcare services should think about plans for how it might be used for patients in their care. The

plans may involve a local group that makes decisions about medicines (local decision-making group) and is made up of people who work in different areas of healthcare (for example, local GPs, local hospitals, local dentists) and members of the public (including patients). If involved, the group should discuss if the new antimicrobial is needed and if so how it will be used in practice.

When a new antimicrobial has been approved for use in the local area, organisations responsible for healthcare services should think about monitoring:

- whether it is being used as recommended in local and national guidelines
- how much it is costing the organisation
- how well it is working to treat infections and whether there are any concerns about safety
- how patterns of antimicrobial resistance in the local area are linked to prescribing of antimicrobials.

What should local decision-making groups do?

When local decision-making groups are deciding whether to use a new antimicrobial in the local area, they are likely to ask for help from people with experience of using antimicrobials. These may be members of the antimicrobial stewardship team.

NICE has said that a local decision-making group should think about the following things when deciding whether a new antimicrobial should be used locally:

- whether the new antimicrobial is needed and if so whether the need is urgent
- which patients it will be used for and which types of infection
- the dose, how often it should be given and how (for example, by mouth or by injection)
- the side effects and how these might affect patients taking the antimicrobial as prescribed
- whether there are situations for the patient in which the antimicrobial should not be used (contraindications).

The group should also think about patterns of antimicrobial resistance in the local area and whether the use of the new antimicrobial should be restricted. If the group does decide to restrict use, they should:

- record the reasons why
- record when the new antimicrobial can be used and for which group of patients
- regularly reconsider the decision to make sure the restriction should continue.

The group should make sure that all the information about any restriction is available to the public.

Local decision-making groups should make sure that health professionals who prescribe medicines know where they can find up-to-date information about the new antimicrobial.

Sources of advice and support

- The Patients Association, 0845 608 4455
www.patients-association.org.uk

You can also go to [NHS Choices](#) for more information.

NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

Other NICE guidance

- [Pneumonia](#) (2014) NICE guideline CG191
- [Respiratory tract infections – antibiotic prescribing](#) (2008) NICE guideline CG69

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Accreditation

