



[Home](#) → [Health Topics](#) → Antibiotics

URL of this page: <https://medlineplus.gov/antibiotics.html>

Antibiotics

What are antibiotics?

Antibiotics are medicines that fight bacterial infections [<https://medlineplus.gov/bacterialinfections.html>] in people and animals. They work by killing the bacteria or by making it hard for the bacteria to grow and multiply.

Antibiotics can be taken in different ways:

- Orally (by mouth). This could be pills, capsules, or liquids.
- Topically. This might be a cream, spray, or ointment that you put on your skin. It could also be eye ointment, eye drops, or ear drops.
- Through an injection or intravenously (IV). This is usually for more serious infections.

What do antibiotics treat?

Antibiotics only treat certain bacterial infections, such as strep throat, urinary tract infections [<https://medlineplus.gov/urinarytractinfections.html>] , and E. coli [<https://medlineplus.gov/ecoliinfections.html>] .

You may not need to take antibiotics for some bacterial infections. For example, you might not need them for many sinus infections or some ear infections [<https://medlineplus.gov/earinfections.html>] . Taking antibiotics when they're not needed won't help you, and they can have side effects. Your health care provider can decide the best treatment for you when you're sick. Don't ask your provider to prescribe an antibiotic for you.

Do antibiotics treat viral infections?

Antibiotics **do not** work on viral infections. For example, you shouldn't take antibiotics for:

- Colds [<https://medlineplus.gov/commoncold.html>] and runny noses, even if the mucus is thick, yellow, or green
- Most sore throats [<https://medlineplus.gov/sorethroat.html>] (except strep throat)
- Flu [<https://medlineplus.gov/flu.html>]
- Most cases of bronchitis [<https://medlineplus.gov/acutebronchitis.html>]

What are the side effects of antibiotics?

The side effects of antibiotics range from minor to very severe. Some of the common side effects include:

- Rash [<https://medlineplus.gov/rashes.html>]
- Nausea [<https://medlineplus.gov/nauseaandvomiting.html>]
- Diarrhea [<https://medlineplus.gov/diarrhea.html>]
- Yeast infections [<https://medlineplus.gov/yeastinfections.html>]

More serious side effects can include:

- C. diff infections [<https://medlineplus.gov/cdiffinfections.html>] , which cause diarrhea that can lead to severe colon damage and sometimes even death

- Severe and life-threatening allergic reactions [<https://medlineplus.gov/drugreactions.html>]
- Antibiotic resistance infections [<https://medlineplus.gov/antibioticresistance.html>]

Call your health care provider if you develop any side effects while taking your antibiotic.

Why is it important to take antibiotics only when they're needed?

You should only take antibiotics when they are needed because they can cause side effects and can contribute to antibiotic resistance [<https://medlineplus.gov/antibioticresistance.html>]. Antibiotic resistance happens when the bacteria change and become able to resist the effects of an antibiotic. This means that the bacteria continue to grow.

How do I use antibiotics correctly?

When you take antibiotics, it is important that you take them responsibly:


- Always follow the directions carefully. Finish your medicine even if you feel better. If you stop taking them too soon, some bacteria may survive and re-infect you.
- Don't save your antibiotics for later.
- Don't share your antibiotic with others.
- Don't take antibiotics prescribed for someone else. This may delay the best treatment for you, make you even sicker, or cause side effects.

Centers for Disease Control and Prevention

Start Here

- Antibiotic Use and Antimicrobial Resistance Facts [<https://www.cdc.gov/antibiotic-use/data-research/facts-stats/>]
(Centers for Disease Control and Prevention)
- Antibiotics: When They Can and Can't Help [<https://familydoctor.org/antibiotic-resistance/?adfree=true>]
(American Academy of Family Physicians)
Also in Spanish [<https://es.familydoctor.org/resistencia-a-los-antibioticos/?adfree=true>]
- Healthy Habits: Antibiotic Do's and Don'ts [<https://www.cdc.gov/antibiotic-use/about/>]
(Centers for Disease Control and Prevention)

Diagnosis and Tests

- Therapeutic Drug Monitoring [<https://medlineplus.gov/lab-tests/therapeutic-drug-monitoring/>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/monitorizacion-de-farmacos/>]

Related Issues

- Antibiotic Resistance: MedlinePlus Health Topic [<https://medlineplus.gov/antibioticresistance.html>]
 (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/antibioticresistance.html>]
- Antibiotic-Associated Diarrhea [<https://www.mayoclinic.org/diseases-conditions/antibiotic-associated-diarrhea/symptoms-causes/syc-20352231?p=1>] (Mayo Foundation for Medical Education and Research)
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/antibiotic-associated-diarrhea/symptoms-causes/syc-20352231?p=1>]
- Chest Cold (Acute Bronchitis) Basics [<https://www.cdc.gov/acute-bronchitis/about/>] (Centers for Disease Control and Prevention)
- Ear Infection Basics [<https://www.cdc.gov/ear-infection/about/>] (Centers for Disease Control and Prevention)
- Flu (Influenza) [<https://www.cdc.gov/antibiotic-use/flu.html>] (Centers for Disease Control and Prevention)
- Manage Common Cold [<https://www.cdc.gov/common-cold/treatment/>] (Centers for Disease Control and Prevention)
- Penicillin Allergy [<https://www.mayoclinic.org/diseases-conditions/penicillin-allergy/symptoms-causes/syc-20376222?p=1>]
(Mayo Foundation for Medical Education and Research)
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/penicillin-allergy/symptoms-causes/syc-20376222?p=1>]



Sinus Infection Basics [<https://www.cdc.gov/sinus-infection/about/>] (Centers for Disease Control and Prevention)
Also in Spanish [<https://www.cdc.gov/sinus-infection/es/about/informacion-basica-sobre-la-sinusitis-infeccion-de-los-senos-paranasales.html>]

- Skin Infections [<https://www.cdc.gov/antibiotic-use/skin-infections.html>] (Centers for Disease Control and Prevention)
- Urinary Tract Infection Basics [<https://www.cdc.gov/uti/about/>] (Centers for Disease Control and Prevention)


Specifics

- Know When and How to Use Antibiotics, and When to Skip Them [<https://www.fda.gov/consumers/consumer-updates/know-when-and-how-use-antibiotics-and-when-skip-them>] (Food and Drug Administration)
Also in Spanish [<https://www.fda.gov/consumers/articulos-para-el-consumidor-en-espanol/sepa-cuando-y-como-usar-antibioticos-y-cuando-dejar-de-usarlos>]
- Vaccines & Antibiotics: A Safe Combo? [<https://kidshealth.org/en/parents/vaccines-and-antibiotics.html>] (Nemours Foundation)
Also in Spanish [<https://kidshealth.org/es/parents/vaccines-and-antibiotics.html>]

Videos and Tutorials

- Antibiotics vs. Bacteria: Fighting the Resistance [<https://medlineplus.gov/medlineplus-videos/antibiotics-vs-bacteria-fighting-the-resistance/>]   (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/videos-de-medlineplus/antibioticos-versus-bacterias-combatiendo-la-resistencia/>]

Clinical Trials

- ClinicalTrials.gov: Anti-Bacterial Agents [<https://clinicaltrials.gov/search?intr=%22Anti-Bacterial+Agents%22&aggFilters=status:not%20rec>]  (National Institutes of Health)

Journal Articles


References and abstracts from MEDLINE/PubMed (National Library of Medicine)

- Article: Adherence to Quality-of-Care Indicators and Mortality Outcomes in Patients With MRSA... [<https://www.ncbi.nlm.nih.gov/pubmed/40711789>]
- Article: A Multicenter Randomized Controlled Study on Pharmacokinetic-Guided Vancomycin Use in Children... [<https://www.ncbi.nlm.nih.gov/pubmed/40704610>]
- Article: Effects of erythromycin dosage on clinical outcomes in stable non-cystic fibrosis... [<https://www.ncbi.nlm.nih.gov/pubmed/40696686>]
- Antibiotics -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Anti-Bacterial+Agents%22%5Bmajr%3Anoexp%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+1+Year%22+%5Bedat%5D+AND+%28patient+education+handout%5Bpt%5D+OR+guideline%5Bpt%5D+OR+clinical+trial%5Bpt%5D%29++NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29+AND+free+full+text%5Bsb%5D+>]

Reference Desk

- Glossary (Antibiotics) [<https://apua.org/glossary>] (Alliance for the Prudent Use of Antibiotics)

Find an Expert

- Centers for Disease Control and Prevention [<https://www.cdc.gov/>]
Also in Spanish [<https://www.cdc.gov/spanish/>]
- Food and Drug Administration [<https://www.fda.gov/>]
- National Institute of Allergy and Infectious Diseases [<https://www.niaid.nih.gov/>] 

Children

- Antibiotics (For Parents) [<https://kidshealth.org/en/parents/antibiotics.html>] (Nemours Foundation)
Also in Spanish [<https://kidshealth.org/es/parents/antibiotics.html>]

Danger of Antibiotic Overuse (For Parents) [<https://kidshealth.org/en/parents/antibiotic-overuse.html>]



(Nemours Foundation)

Also in Spanish [<https://kidshealth.org/es/parents/antibiotic-overuse.html>]

- Penicillin Allergy (For Parents) [<https://kidshealth.org/en/parents/penicillin-allergy.html>] (Nemours Foundation)

Also in Spanish [<https://kidshealth.org/es/parents/penicillin-allergy.html>]



MEDICAL ENCYCLOPEDIA

Bacitracin overdose [<https://medlineplus.gov/ency/article/002563.htm>]

Bacitracin zinc overdose [<https://medlineplus.gov/ency/article/002569.htm>]

Pseudomembranous colitis [<https://medlineplus.gov/ency/article/000259.htm>]

Sensitivity analysis [<https://medlineplus.gov/ency/article/003741.htm>]

Related Health Topics

Antibiotic Resistance [<https://medlineplus.gov/antibioticresistance.html>]

Bacterial Infections [<https://medlineplus.gov/bacterialinfections.html>]

Medicines [<https://medlineplus.gov/medicines.html>]

National Institutes of Health

The primary NIH organization for research on *Antibiotics* is the National Institute of Allergy and Infectious Diseases [<http://www.niaid.nih.gov/>]

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