

Supplementary Materials File



TOGETHER WE CAN KEEP ANTIBIOTICS EFFECTIVE

How to manage your respiratory tract infection

This booklet has been endorsed by the National Antibiotic Co-ordinator, Malta, and has been produced as part of a PhD study being undertaken by Anna Sabina Gattafioran of Kermisens Antibiotic Solutions. Thanks to Antibiotic Solutions for contributing to its design.

Notes:

Scan the QR code with your mobile phone to find out more on antibiotic use.



Malta, September 2016
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ALL ABOUT RESPIRATORY TRACT INFECTIONS

Respiratory tract infections (infections of the nose, throat, sinuses, ears or lungs) are caused by:

- Bad Bacteria
- Viruses
- Good Bacteria

DID YOU KNOW?
Bacteria can also be good. Roughly 50 trillion bacteria live on or in our bodies. Fortunately the majority are harmless and actually help our body function properly.

- Common colds, influenza (flu), and most respiratory tract infections are caused by viruses **NOT** bacteria.
- Common colds, influenza (flu), most coughs, sinusitis, ear infections, sore throats and other similar infections most often get better without antibiotics – your body can fight these infections on its own.

How long do respiratory tract infections usually last?

THE INFECTION	CAUSE	USUALLY LASTS	DO ANTIBIOTICS HELP?
Otitis media (infection in one or both ears)	Mainly viral, Sometimes bacterial	4 days	No, however children under two with infection in both ears and any child with an ear infection that is draining are likely to benefit from antibiotics.
Sore throat	Mainly viral, Occasionally bacterial	7 days	No, unless symptoms get worse or last longer than 1 week.
Common cold	Always viral	10 days	No, the common cold is caused by viruses.
Influenza (flu)	Always viral	up to 14 days	No, influenza (flu) is caused by viruses.
Sinusitis	Mainly viral, Sometimes bacterial	10 days	No, however, if symptoms persist or worsen, antibiotics may be needed.
Bronchitis	Always viral	3 weeks	No, taking antibiotics will not help you get better faster.
Pneumonia	Usually bacterial	10 days or more	Most likely, consult your doctor.

*Adapted from the Royal College of General Practitioners' "TARGET" antibiotic booklet (2012)

ANTIBIOTICS – ALL I NEED TO KNOW

Antibiotics are precious medicines used to treat infections caused by bacteria. Antibiotics do not work against infections caused by viruses, such as the common cold; they will not help you get better faster, neither will they prevent you from spreading the infection.

Viruses



No antibiotics needed! Your viral infection will get better on its own WITHOUT antibiotics.

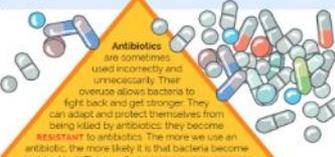
! Taking antibiotics for a viral infection will NOT prevent you from getting a secondary bacterial infection.

The effect of antibiotics on our body

Most antibiotics cause side effects so use them with caution. Side effects can include diarrhoea, rashes, vomiting, etc.

Be aware that antibiotics also kill good bacteria in our body that normally keep us healthy. This can result in other infections such as vaginal thrush (yeast infection). Studies also show that high antibiotic use in children can increase their risk of asthma and obesity.

Using antibiotics can make your own bacteria resistant. This means that if you get another bacterial infection, it may be more difficult to treat.



Antibiotics are sometimes used incorrectly and unnecessarily. Their overuse allows bacteria to fight back and get stronger. They can adapt and protect themselves from being killed by antibiotics: they become **RESISTANT** to antibiotics. The more we use an antibiotic, the more likely it is that bacteria become resistant to it. This is called **antibiotic resistance**.

ANTIBIOTIC RESISTANCE

Bad Bacteria

Good Bacteria

Resistant Bacteria

If YOU use antibiotics incorrectly and unnecessarily it will lead to the development of resistant bacteria that cannot be killed by the most commonly used antibiotics. This leaves us with very few treatment options.

It always starts with YOU!

YOUR antibiotic use may cause YOUR bacteria to change and become resistant.

YOUR resistant bacteria can spread to those around YOU if they get a bacterial infection this will be harder to treat!

The more this happens, the more it will affect the community around YOU.



Antibiotic resistance is a threat and it affects EVERYONE. If YOU use antibiotics responsibly YOU can help slow down the spread of antibiotic resistance. This will keep antibiotics effective now and for future generations.

FEVER is a sign that your body is fighting the infection; it does not necessarily mean that you need antibiotics!

SO WHAT SHOULD I DO?

If you feel that you are getting a cold or the flu:

- Ask a **PHARMACIST** to recommend medicines to help relieve symptoms, e.g. paracetamol, nasal saline, lozenges, etc.
- DRINK plenty of liquids so that you do not get dehydrated. Try to use remedies like hot water with honey and lemon if you need them.
- Use **TISSUES** and **WASH YOUR HANDS** well to prevent spreading the infection to family, friends and others you meet.

REST in order to get better.

Take Care NOT Antibiotics

HOW DO I TAKE ANTIBIOTICS RESPONSIBLY?

- Only take antibiotics when necessary.
- Never pressure doctors or pharmacists to give you antibiotics.
- Follow your doctor's advice on how and when to take the antibiotic.
- Do not skip doses and always complete the entire course, even if you feel better.
- Avoid saving antibiotics; instead ask your pharmacist for advice on how to dispose of any remaining antibiotics correctly.
- Do not use any leftover antibiotics and never give antibiotics to others.

Only take antibiotics if prescribed by a doctor

Figure S1. Six-page patient booklet on how to manage respiratory tract infections appropriately (English version).



Figure S2. Set of four pre-tested posters used during the intervention.

<div style="display: flex; align-items: center;"> <div> <p>Doctor's name:</p> <p>Doctor's mobile number: Reg. no.: <i>(or doctor's rubberstamp)</i></p> </div> </div>	<p>The majority of upper respiratory tract infections (of the nose, throat, sinuses, ears or upper part of the lungs) are caused by viruses. Your body can fight these viral infections on its own within a few days, with just some rest and by drinking plenty of water and warm fluids (e.g. warm water with honey and lemon, tea, etc.). Antibiotics are not effective against viruses. Taking antibiotics for viral infections will only expose you to unnecessary side effects and risk your body's bacteria becoming resistant to the antibiotic. As a consequence the antibiotic will likely be less effective in the future, if you or your family may need it for a serious bacterial infection. If this were to happen, the infection would be much harder to cure.</p> <p>However, if you start feeling worse or fever develops/persists at least two days after having been seen by the doctor, this could indicate a bacterial infection. In this case, you should take this prescription to a pharmacist who will dispense the antibiotic prescribed. If necessary, contact your doctor again.</p>												
<h3>DELAYED ANTIBIOTIC PRESCRIPTION</h3>													
<p>Patient's name:</p> <p>Age: Sex: Locality:</p>													
<p>Diagnosis:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Common cold</td> <td><input type="checkbox"/> Influenza (flu)</td> </tr> <tr> <td><input type="checkbox"/> Acute sore throat</td> <td><input type="checkbox"/> Acute pharyngitis</td> </tr> <tr> <td><input type="checkbox"/> Acute tonsillitis</td> <td><input type="checkbox"/> Acute otitis media</td> </tr> <tr> <td><input type="checkbox"/> Acute laryngitis</td> <td><input type="checkbox"/> Acute tracheitis</td> </tr> <tr> <td><input type="checkbox"/> Acute cough / acute bronchitis</td> <td><input type="checkbox"/> Acute rhinosinusitis</td> </tr> <tr> <td colspan="2"><input type="checkbox"/> Other:</td> </tr> </table>		<input type="checkbox"/> Common cold	<input type="checkbox"/> Influenza (flu)	<input type="checkbox"/> Acute sore throat	<input type="checkbox"/> Acute pharyngitis	<input type="checkbox"/> Acute tonsillitis	<input type="checkbox"/> Acute otitis media	<input type="checkbox"/> Acute laryngitis	<input type="checkbox"/> Acute tracheitis	<input type="checkbox"/> Acute cough / acute bronchitis	<input type="checkbox"/> Acute rhinosinusitis	<input type="checkbox"/> Other:	
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<input type="checkbox"/> Other:													
<p>Date of prescription: / / 20.....</p> <p>Antibiotic name & dose:</p> <p>Frequency & duration:</p> <p>This prescription is valid until: / / 20..... <i>(maximum 4 days after the prescription date)</i></p>													
<p>Antibiotic should only be dispensed if upper respiratory tract infection symptoms persist and/or get worse at least 2 days after the prescription date (especially in the presence of fever).</p> <p><i>L-antibijotiku ghandu jinghata biss, jekk is-sintomi tal-infezzjoni fil-pajp tan-nifs jipperjistu u/few imorru ghall-aghar mill-anqas jumejn wara d-data ta' din ir-ricetta (speċjalment jekk jitlea' d-deni).</i></p>													
<p>Doctor's signature:</p> <p><small><i>This delayed prescription pad has been produced as part of a PhD study being undertaken by Erika Saliba Gustafsson at Karolinska Institutet, Sweden. The study has been endorsed by the National Antibiotic Committee.</i></small></p>													
<p><i>Il-bicċa l-kbira tal-infezzjonijiet fil-pajp tan-nifs (fl-immieher, fil-grizmejn, fis-'sinuses', fil-widnejn jew fil-pajp tan-nifs) huma kkawzati minn 'viruses'. Il-gisem huwa kapaci iffejjaq lilu minnu minn dawn l-infezzjonijiet ikkawzati minn 'viruses' fi ftit jiem, b'naqra mistrieħ u billi wieħed jixrob hafna ilma u likwidi sħan (bħal misħun bl-ghasel u bil-lumi, te, eċċ.). L-antibijotici ma jgħidmex fuq 'viruses'. Jekk tieħu l-antibijotici għal infezzjonijiet ikkawzati minn 'viruses', tkun qed tesponi lilek imifsek għal 'side effects' bla bżonn, kaf ukoll ttrisskja li l-'bacteria' li jinsabu f'gismek istru rezistenti għal dak l-antibijotiku. B'hekk, hemm iċ-ċans li l-antibijotiku jstr anqas effettiv fil-futur, jekk inti jew il-familja tiegħek jkollkom bżonnu għal xi infezzjoni serja kkawzata minn 'bacteria'. Jekk jigrig dan, l-infezzjoni tkun ferm aktar diffiċli biex tikkuraha.</i></p> <p><i>Madanakollu, jekk taqleb għall-agħar jew jitlegħlek/jzidlek id-deni u jkunu għaddew mill-anqas jumejn wara li jkun rak it-tabib, dan jista' jindika li jkun hemm infezzjoni kkawzata minn 'bacteria'. F' dan il-każ, hu din ir-ricetta għand spjizjar sabiex jagħtik l-antibijotiku. Jekk thoss il-bżonn, erga' kellem lit-tabib tiegħek.</i></p>													
<p>Scan the QR code to find out more on antibiotic use. <i>Għal aktar informazzjoni dwar l-użu tal-antibijotici, skannja l-QR code.</i></p>													

Figure S3. Delayed antibiotic prescription pads (front and back) coupled with patient information on respiratory tract infections and appropriate antibiotic use.