HENRY FORD HEALTH



HENRY FORD HEALTH + MICHIGAN STATE UNIVERSITY Health Sciences



Integrated Activity and Tools for Antimicrobial Stewardship, Infection Prevention & diagnostic Stewardship

Community AMS and patient engagement









## **Learning Objectives**

- Participants will understand community antibiotic use and AMS
- Participants will understand measures for patient education on appropriate antibiotic use

## Outpatient Antimicrobial use

- Antimicrobials are among the most commonly purchased drugs worldwide
- They are essential treatments especially in LMIC countries where infectious diseases are a common cause of death.
- Antimicrobial resistance is a worldwide problem.
- A substantial portion of healthy people in LMIC countries are colonized with multidrug resistant bacteria, where non-prescription antimicrobial use is common

## Studies on outpatient antibiotic use

- Community surveys of frequency of out of hospital prescription and nonprescription antibiotic use
- Simulated-client-method pharmacy studies in which actors surveyed antimicrobial dispensing practices of pharmacies
- Studies of harm or potential harm related to non-prescription antimicrobial use
- Non-prescription use of anti-tuberculous drugs
- Associations between non-prescription antimicrobial use and bacterial resistance
- Measures for outpatient AMS
- Enablers and barriers for non-prescription use of antimicrobials

## Frequency of non-prescription use



Morgan DJ Lancet Infect Dis 2011;11:692-701: Note studies in Asia average use was 58%

## Simulated client surveys: pharmacist recommendations

Morgan DJ Lancet Infect Dis 2011;11:692-701

Country (year)	Cough or runny nose	Pharyngitis (afebrile)	Upper respiratory infection or influenza	Acute sinusitis	Diarrhoea	Urinary tract infection
Americas						
Mexico (1994) <sup>74</sup>	100% <sup>* †</sup>					
Bolivia (1992) <sup>10</sup>	16%	91% <sup>‡</sup>	24%		92%§	63%
Brazil (2002) <sup>75</sup>				74%		
Europe						
Spain (2007) <sup>76</sup>		35%	16%			80%
Greece (2000)77				80%		
Middle East						
Iran (1975) <sup>78</sup>		60%			40%	
Yemen (1985) <sup>79</sup>					9%	
Africa						
Zimbabwe (2004) <sup>80</sup>					9%	8%
Asia						
Sri Lanka (1985) <sup>79</sup>					41%	
Bangladesh (1985) <sup>79</sup>					68%	
Bangladesh (2004) <sup>43</sup>					40%	
Vietnam (1999) <sup>45</sup>			99%		75%	
Vietnam (1999) <sup>81</sup>	98%					
Nepal (1996) <sup>82</sup>					97%	38%
Thailand (1999) <sup>81</sup>	76%				9%	
Thailand (2006) <sup>83</sup>		74%	65%	80%	76%	100% <sup>†</sup>

## Safety: potential adverse events are common

	Frequency	Description		
No questioning by pharmacists regarding allergies <sup>76,82</sup>	ing by pharmacists regarding >80% No advice or questions from pharmacy staff reg allergies, side-effects, or drug interactions			
No explanation of potential side-effects <sup>87,88</sup>	About 50%	No advice or questions from pharmacy staff regarding allergies, side-effects, or drug interactions		
Contraindicated antimicrobials	Up to 8% of antimicrobials used for children	Tetracyclines and fluoroquinolones dispensed for ${\rm children}^{8,50}$		
Parenteral antimicrobials for home use <sup>52,66,68,89-92</sup>	Unknown	Injectable streptomycin, gentamicin, and penicillin provided		
Inadequate treatment (of true bacterial infections)				
Short course <sup>41,79,82,88,93</sup>	Many treatment courses <1 day			
Inadequate dose <sup>10,41,85,88</sup>	Common			
Inappropriate antimicrobial <sup>74,83</sup>	Common	Inappropriate drug for indication		
Low-quality medication <sup>30,94–96</sup>	Unknown			
Documented adverse events				
Diarrhoea <sup>51,64</sup>	5-11%	As reported by patients		
Rash <sup>51</sup>	4%			
Masked diagnosis of infectious disease97	90% increased risk	Emergency room patients with detectable antimicrobials in urine had higher risk than those without for masked or missed diagnosis of infections		
Renal failure <sup>98</sup>	Case report	Non-prescribed rifampicin used for cough resulting in renal failure		
Aplastic anaemia and death <sup>99</sup>	Case report	Woman vacationing in Spain took chloramphenicol for upper respiratory infection		

Morgan DJ Lancet Infect Dis 2011;11:692-701

## Anti-tuberculous drugs

- Anti-tuberculous drugs available in many countries without a prescription
- Non-prescription use includes use of rifampin for non-TB infections (STD, UTI), Isoniazid for respiratory, streptomycin for many indications
- Treatment of presumed TB with non-prescription agents is common, including use of monotherapy, second line agents

## Panel: Reports of WHO first-line antituberculosis drugs available without prescription for treatment of tuberculosis and other bacterial infections

First-line drug antituber culosis drugs include rifampicin, isoniazid, pyrizinimide, etham butol, streptomycin.  $^{\rm 12}$ 

### Non-tuberculosis infections

- Asia (Thailand,<sup>83</sup> Philippines,<sup>49,107,108</sup> India,<sup>92</sup> Vietnam<sup>8,87</sup>)
- Middle East (Saudi Arabia<sup>109</sup>)
- Central America (Mexico<sup>74</sup>)
- South America (Bolivia<sup>10,110</sup>)
- Eastern Europe (Lithuania,<sup>52</sup> Russia,<sup>111</sup> Georgia<sup>112</sup>)
- Africa (Nigeria<sup>40,42</sup>)

### Tuberculosis

- Asia (India,<sup>93</sup> Nepal,<sup>113</sup> Vietnam,<sup>114</sup> Philippines<sup>107</sup>)
- Eastern Europe (Russia,<sup>111</sup> Georgia<sup>112</sup>)
- Central America (Mexico<sup>74</sup>)

Morgan DJ Lancet Infect Dis 2011;11:692-701

## Resistance

- In Bolivia 40% of children harbored *E. coli* resistant to multiple antibiotics
- In Vietnam higher rates of resistance in respiratory pathogens if out patient antibiotics were given within last 6 months
- In a Thai community resistant *S. pneumoniae* and salmonella associated with outpatient antibiotic use
- In Nepal up to 60 percent of patients hospitalized had resistant bacteria on admission felt to be community associated, MDR gram negatives found in drinking water

Larsson M Trop Med Int Health 2000;5:711-21; Bartoloni A Emerging Infect Dis 2006; 12:907-13; Apisarnthanarak A. Am J Infect Control 2008;36:681-82;; Maki 2019 Int J Infect dis;79 suppl 1;44-45

## Establish AMS across the continuum of care

- Establish AMS programs across in hospital and outpatient; has become a regulatory standard in some countries
- Urgent care study: 1. Education for clinicians and patients, 2. electronic health record (EHR) tools, 3. a transparent clinician benchmarking dashboard, and 4. media; resulted in reduction of 4% per month on outpatient prescriptions
- Siera Lione: outpatient guideline written and introduced to local staff via : one-to-one feedback, announcements in general meetings and printed copies placed in each outpatient room.
  - Appropriate antimicrobial had improved to 85% and the correct drug, dose and course-length to 53%. Unfortunately, 2 months after the intervention ended, the rates had degraded to 65% and 43%, respectively.

<u>r3\_23\_antimicrobial\_stewardship\_amb\_6\_14\_19\_final2.pdf</u>; Stenehjem E JAMA netw 2023;6(5); Hamilton D BMJ 2018Dec 15.

# Regulation of outpatient antibiotics; interventions at hospital discharge

- 800 patients prescribed oral antimicrobials at hospital discharge (pre post intervention study.
- The most common diagnoses were pneumonia (33.0%), URI and/or acute exacerbation of COPD (26.8%), and UTI (25.4%).
- Patients in the postintervention group were more likely to have an optimal antimicrobial prescription odds ratio, 5.63 [95% CI, 3.69-8.60]).
- There were no differences in clinical resolution or mortality.
- Fewer severe antimicrobial-related adverse effects were identified in the postintervention (3.2%) compared with the preintervention (9.0%) groups.

# Training Nurses and Midwives in AMS and Infection Prevention



PRIMARY GOAL: To adapt and evaluate a nursing-midwifery antimicrobial stewardship and infection prevention and control (AMS-IPC) training program in Nepal.



## Training Nurses and Midwives in AMS and Infection Prevention

- The roles of nurses and midwives in stewardship and infection prevention and control
  - Participating in AMS and IPC teams/committees to support stewardship and IPC;
  - Discussing discharge plans, proper use of prescribed antibiotics and other medications, information on potential adverse events that might be associated with prescribed antibiotics
  - Patient and community education about AMR, infection prevention and control
  - Specimen collection: appropriate techniques
  - Early detection of signs and symptoms related to antibiotic use (allergies, increased disease severity)
  - Supporting immunization programs
  - Maintaining hand and environmental hygiene within health facilities

6/12/25

Antimicrobial Resistance and Stewardship Dissemination Workshop, June 2022

## Resistance is potentially reversible

- In Pakistan, relation shown between declining use of antimicrobials and declining resistance in S typhi
- In Chili, as a result of regulation of outpatient antimicrobials, resistance in E coli decreased
- Studies ongoing in Nepal and Pakistan and other to determine if use pneumococcal and conjugate typhoid vaccine is associated with decrease in antimicrobial resistance

Okeke IN Lancet Infect Dis 2005;5:481-93; Stelling JM Emerg Infect Dis 2005:11;873-82

## The Patient and AMR What is the purpose of healthcare

- To improve the lives of people
- To do this we need to know what matters to them
- What they need want and expect
- This is patient centered





What are the six elements of person-centered care?

## How can we apply person centered principles to AMS

- What are patients looking for when they seek treatment
- What knowledge do patients need to be active participants in their care
- What are the risks and benefit to patients from antibiotic use
- What non antibiotic interventions/symptom management that can be used instead of antibiotics

## Involving patients in AMS

We have an opportunity to educate about illness management:

- Is this serious? explanation, reassurance
- What can I do to feel better ? symptom management
- What is going to happen next? paint a picture of what to expect
- What do I watch out for? "safety net"
- When might I need antibiotics
- What do antibiotics do

## Patient Partnerships

- Patients can reasonably expect access to information about their condition. Support them to self manage, have autonomy
- They deserve to receive care that meets standard and is evidence based and safe

## My healthcare rights

This is the second edition of the Australian Charter of Healthcare Rights.

These rights apply to all people in all places where health care is provided in Australia.

The Charter describes what you, or someone you care for, can expect when receiving health care.





## I have a right to:

### Access

. Healthcare services and treatment that meets my needs

### Safety

Receive safe and high quality health care that meets national standards
 Be cared for in an environment that is safe and makes me feel safe

### Respect

- Be treated as an individual, and with dignity and respect
- Have my culture, identity, beliefs and choices recognised and respected

### Partnership

- Ask questions and be involved in open and honest communication
- Make decisions with my healthcare provider, to the extent that I choose and am able to
- Include the people that I want in planning and decision-making

### Information

- Clear information about my condition, the possible benefits and risks of different tests and treatments, so I can give my informed consent
- Receive information about services, waiting times and costs
- Be given assistance, when I need it, to help me to understand and use health information
- Access my health information
- Be told if something has gone wrong during my health care, how it happened, how it may affect me and what is being done to make care safe

### Privacy

- Have my personal privacy respected
- Have information about me and my health kept secure and confidential

### **Give feedback**

- Provide feedback or make a complaint without it affecting the way that I am treated
- Have my concerns addressed in a transparent and timely way
- Share my experience and participate to improve the quality of care and health services

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE For more information ask a member of staff or visit safetyandquality.gov.au/your-rights

## **Clinical Care Standards**

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### Consumer guide

## **Antimicrobial Stewardship Clinical Care Standard**

#### What is antimicrobial stewardship?

Antimicrobials are medicines used to treat and prevent infections. They include antibiotics and antiviral medicines. Infections are caused by organisms called microbes, such as bacteria.

When microbes develop resistance to an antimicrobial medicine, the medicine will not work as expected to treat the infection. Using antimicrobial medicines only when they are needed, and using them correctly, is important to stop the spread of antimicrobial resistance.

The Antimicrobial Stewardship Clinical Care Standard contains eight quality statements that describe the care that you can expect to receive before and after starting medicines for infections. Each quality statement is outlined below. This fact sheet explains what the quality statements mean, and what you can do to have an active role in your care.



Necrotising fasciitis (a serious infection from a flesh-

### RECEIVING ANTIBIOTICS IN HOSPITAL **INFORMATION FOR PATIENTS & CARERS**

#### What is an antibiotic?

Antibiotics are medicines that are used to treat or prevent infections. They work by killing or stopping the growth of 'bugs' (bacteria or fungi) that may be causing a problem in your body.

Antibiotics can be given in different ways, and are commonly provided as tablets, syrups, injections, or eye drops. At the time of prescribing antibiotics, your doctor will discuss your individual needs and recommend a suitable product.



### Receiving antibiotics in hospital

Antibiotics are usually prescribed for treating a possible or known infection. Patients will receive a 'course' of antibiotics. This means taking antibiotics for a set period of time, or until the infection has completely gone.

Sometimes antibiotics will be used to prevent an infection. If you are having a medical procedure that could increase your risk of infection, an antibiotic may be recommended before, during or shortly after the procedure. Your doctor may also recommend antibiotics if your immune system is too weak to fight off a serious infection.



### What do I need to know about my antibiotic treatment?

When you are prescribed an antibiotic, your doctor should discuss:

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- Why an antibiotic will be recommended for you
- The name of the antibiotic
- How it will be given to you while in hospital
- How long you are likely to be on the antibiotic
- Side effects that you may experience
- If you have not received this information, please ask your doctor, nurse or pharmacist,

Consumer Medicine Information (70 (CMI) in the form of a patient leaflet is available for most antibiotics. You can ask for a printed copy, or access these leaflets online through the NPS MedicineWise website:

http://www.nps.org.au/

DISCLAIMER: This leaflet is provided for information only. It is not intended to substitute for medical advice and should not be used to determine actual treatment choices or decisions.



## What do doctors vs patients want



## Doctor's ranking

- When to see a GP
- Management options
- Danger signs
- Common symptoms
- Natural history
- Cause
- Prevention
- Complications
- Definition
- Risks of antibiotics
- Benefits of antibiotics



- Common symptoms
- Natural history
- Cause
- Management options
- Definition
- Danger signs
- Benefits of antibiotics
- Risks of antibiotics
- Complication
- When to see a GP
- Prevention

Patients wanted explanation

what's happening to me and what will happen next

Doctors focused on actions

The dangerous things

## Partnering with patients

 Over the counter antibiotics often a 'shortcut' in the absence of information. Understand what patients are looking for:

Explanation – what's wrong?

Relief – how can I feel better?

Reassurance – what to expect next

• We need a source of trusted information to guide consumers.

Practical, answers their questions



## **ACUTE BRONCHITIS**

Acute bronchitis is an infection of the airways in the lungs, most commonly caused by a virus. COVID-19 may need consideration in people with these symptoms below:



### What does it feel like?

You will have a cough which may be associated with clear, yellow or green phiegm (pronounced 'flem'), noisy breathing, blocked nose, sore throat, mild headache, and fever.

### What can I do to feel better? Acute bronchitis usually gets better on its own. Paracetamol a



Acute bronchitis usually gets better on its own. Paracetamol and ibuprofen, warm drinks, honey, cough lozenges and inhaling steam from the shower may help ease your symptoms. Avoid anything that irritates the airways, such as cigarette smoke.

## Will antibiotics help?

Antibiotics are not usually needed. Taking antibiotics when you don't need them can lead to the bacteria becoming resistant to that antibiotic. When bacteria become resistant to an antibiotic, the antibiotic no longer works.



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## What can I do to stop it spreading?

Infections can spread to others when you cough, sneeze or blow your nose. Cover your mouth with your elbow when you cough or sneeze, wash your hands regularly, dispose of tissues after use and stay away from crowded places while unwell.



### Do I need to see a doctor?

Not usually. The cough normally takes 2 to 3 weeks to go away. If your symptoms last longer or if you have trouble breathing, you are feeling worse, you have other medical conditions such as chronic lung disease, or you are concerned, see your doctor.

COVID-19 is caused by a virus, and it can cause cough, runny nose, and sore throat. People with these symptoms should be tested for COVID-19 and should isolate until test results are known. For information go to <u>treath ooy au/campaigns/coronavirus-covid-19</u>

This information sheet was developed by the National Centre for Antimicrobial Stewardship and the University of Melbourne. Information sheets on other common infections can be found at <a href="https://www.ncas.australia.org/community-information-sheets">https://www.ncas.australia.org/community-information-sheets</a>

The information in this factsheet is not intended to be a comprehensive guide and is provided without wannety of any kind. It is strongly recommanded you seek advice from a registered health care professional for diagnosis and answers to medical questions and to determine whether the observations in this factsheet are suitable for your circumstances. The University of Melbourne accepts no responsibility for any errors or omissions in the content of this factsheet and will be suitable for your circumstances. The University of Melbourne accepts no responsibility for any errors or omissions in the content of this factsheet and will be accepted and will be accepted and the standard and will be accepted and the standard accepted and the standard be accepted and the standard accepted accepted accepted and the standard accepted acce

## Delayed prescribing vs watchful waiting

- Evidence based option for some low-risk infections
- Requires education, shared decision making
- Commonly used
- Respiratory tract infections cough, sore throat, earache



## Symptom management

ENERAL INSTRUCTIONS	SPECIFIC MEDICINES
Drink extra water and fluids.	Fever or aches:
Use a cool mist vaporizer or saline nasal spray to relieve congestion.	Ear pain:
For sore throats, suck on ice chips, popsicles, or lozenges. (Do not give lozenges to children younger than two years old.)	Sore throat:
Use honey to relieve cough for adults and children at least	Nasal congestion:
Other:	Cough/chest congestion:
	Use medicines according to the package instructions or as directed by your doctor or pharmacist. Stop the medication when the symptoms are better.

Don unless directed by your doctor. Overuse and misuse of these medicines can result in serious and potentially life-threatening side effects.

### To relieve a stuffy nose, parents can use:

- A rubber suction bulb
- Nose saline drops

- A clean humidifier
- A cool mist vaporizer

Call your doctor if the illness has not improved in a few days or if symptoms are severe or unusual.

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use or call 1-800-CDC-INFO.



The symptoms you are presenting	with today suggest a viral intection:
Common cold (upper respirator	y dact mector): Cough can last 5-4 weeks
Acute bronchitis: Cough can la	St 3-4 Weeks
Sieve infection (equite circuitie)	
Sinus infection (acute sinusitis)	
Uther viral respiratory infection	·
You do not need antibioti infections. Using antibioti for potential future bacteria diarrhea, rash) and, in rare o kidney injury, or liver injury.	ics because they do not work on viral cs when not needed makes them less effective l infections. They can cause side effects (like cases, allergic reactions, or
How to help you feel	better and manage symptoms:
When you have a viral infection, it is your body time to fight off the virus	s very important to get plenty of rest and give
<ul> <li>Rest as much as possible</li> </ul>	
<ul> <li>Drink plenty of fluids</li> </ul>	
<ul> <li>Wash your hands frequently and f</li> </ul>	try to stay home to avoid spreading the infection
Take over-the-counter medicatio	n, as advised:
Acetaminophen (e.g., Tyleno)	) for fever and aches
Ibuprofen (e.g., Advil, Motrin <sup>®</sup>	) for fever and aches
Naproxen (e.g., Aleve®) for fee	ver and aches
Lozenge (cough candy) for se	ore throat
Nasal saline (e.g., Salinex®) fo	r nasal congestion
Other:	
(E.g., Nasal decongestant if S	alinex does not work, for <u>short-term use only</u> !)
Please return to your provider or s	seek more immediate medical care if:
<ul> <li>Symptoms do not improve in</li> </ul>	dav(s), or worsen at any time

### Prescriber: \_



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## Patient information about medications, allergies



Acknowledgement: The Royal Melbourne Hospital Antimicrobial Stewardship pharmacists. Expiry Sept 2022 National Centre for Antimicrobial Stewardship, www.ncas-australia.or

This document should not replace the advice of your relevant health care professional

## IV or Oral: Patients prefer it

- IV to oral antibiotic switch
- Generally just as effective
- Avoids IV lines
- Encourages mobilization
- Less nursing time
- Less expensive
- Less environmental impact waste carbon footprint



Start with oral therapy -Only use intravenous antibiotics when the oral route is NOT suitable



Not everyone in hospital needs cannulation Hospitals can provide safe and comprehensive care while administering antibiotics orally

### Oral therapy is often safer

 Less complications due to cannula pain, phlebitis, bacteraemia Less fluid overload for patients with cardiac impairment. Encourages early mobilisation

### Always ask-can the antibiotic be given orally?

- If the patient is not severely unwell · Is there an appropriate oral antibiotic?
- Are they eating and drinking?

### MAKING THE SWITCH CHANGING FROM INTRAVENOUS TO ORAL ANTIBIOTICS

### INFORMATION FOR PARENTS AND CARERS

Why do we give your child antibiotics? Antibiotics are medicines used to treat infections

NCAS

caused by bacteria, and these infections are commonly seen in patients needing treatment in hospital.

antibiotics every day, and will talk to you about this To manage serious bacterial infections, antibiotics are Please feel free to ask more questions if you have often given intravenously or "IV" (meaning through concerns about your child's medicines. the vein via a drip) to begin. This is an effective way to get antibiotics into the blood system quickly, and Why should we switch to oral antibiotics? reach the site of infection. Taking medicines by mouth (orally) is the safest and

IV antibiotics may also be used if:

- · It is not possible or difficult to give antibiotics by mouth (e.g. difficulty swallowing)
- · There are problems absorbing medicines from the stomach (e.g. vomiting) · There are no antibiotics available that can be

When is it safe to switch to oral antibiotics?

In many common infections treated in hospitals,

make the right decisions about when it is safe and

suitable to switch to oral antibiotics. This includes

· Other medicines can be taken by mouth without

There are no problems with absorbing medicines.

· The antibiotic needed is available in an oral form

In most cases this will be a syrup. If a syrup

formulation is not available, tablets or capsules

may be given instead. Your doctor, nurse or pharmacist can show you how to give this (e.g. crush tablet, dissolve in water), or teach your child

how to swallow tablets and capsules whole.

· The patient is stable and their condition is improving (e.g. body temperature is getting back

when:

to normall

problems

taken by mouth

· There is no need for an N line or drip · Your child may not need as many needles given by mouth for a particular infection

possible.

- It is more comfortable
- There is less risk of irritation or infection from the line or drip · Your child may be able to go home sooner

· The patient is likely to be able to take the full

· You understand the plan to change to an oral

Your child's doctor will look at the need for IV

easiest way to take most medicines. Every effort is

The benefits of giving medicines orally include that:

made to switch patients to oral medicines as soon as

antibiotic and you are able to help where required.

course of antibiotics

patients can, and should be, switched from IV to oral antibiotics. There are special criteria and checklists to Generally, serious side effects from oral antibiotics are less common.





## Explain drug shortages

### Medicine shortages What to do if my antibiotic is out of stock?

## It is important to take your antibiotics to help you get better.

Antibiotics are medicines that stop germs, like bacteria, that are making you sick.

If you can't get your antibiotic, talk to a trusted health worker. This includes your doctor, pharmacist, nurse, Aboriginal and Torres Strait Islander Health Worker or Health Practitioner.

They might be able to get the medicine for you or find another medicine that works. For you, this might mean:

- A change in brand of the same antibiotic.
- A different antibiotic that will kill or stop this germ.
- A different strength of antibiotic.
- O The antibiotic comes in a different way e.g. a tablet or capsule instead of a liquid.



### What if my antibiotic changes?

Antibiotics may come in more than one brand. A different brand of antibiotic might be a different colour or shape or box. The doctor or pharmacist may give you a different antibiotic. There is often more than one antibiotic that will fight the germ making you sick.

#### What If the strength changes?

If the strength changes, a trusted health worker should tell you how to take it. This may mean breaking a tablet, taking a different number of tablets or capsules or measuring the liquid.

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#### What does a different way mean?

Antibiotics come in tablets, capsules, liquids and injections. If there is no liquid to use, you might get a tablet or capsule to use instead.

You might need to break a tablet or open and empty the capsule. Your trusted health worker should tell you if you can.

### Crushed medicine may not taste nice, but you can:

- Mix it with a small amount of cordial, milk, jam or yoghurt (take it all, don't leave leftovers). Ask what is best for your antibiotic.
- Take it straight after crushing or mixing with food or drink.

#### Anything else I need to know?

- A different brand or a different antibiotic may cost more. Ask your health service or pharmacist if they can help with this.
- Check how long to take your antibiotic for: on the pharmacy label or with the health worker.
- Do not share your antibiotics with others or keep for next time.



## Patients as advocates understand AMR: awareness

## Antimicrobials are medicines that are used to treat or prevent infections.

The more we use them, the more we encourage <u>Antimicrobial Resistance</u> which can then cause serious infections we cannot treat. We CAN all do our part to help keep antimicrobials effective!



## Here's how...

As a parent I CAN.

- Learn the difference between bacterial and viral infections and know that antibiotics do not work against viral infections
- Teach my kids good hand hygiene and keep them up-todate with vaccinations to prevent infections
- Responsibly dispose of my children's unused antimicrobials by taking them to a pharmacy for safe disposal
- Follow the directions provided by the doctor or pharmacist closely whenever my children are prescribed an antimicrobial
- Encourage my friends and family to be responsible with antimicrobials

## Do I really need

### Antibiotics can kill the harmful bacteria that make you sick.

Antibiotics can also kill the good bacteria that keep you healthy. Without these good bacteria, other types of bacteria can grow and can cause infections.

Artibiotics are part of a larger group of medicines called antimicrobials. Antibiotics only work for some infections. They work against bacteria but don't treat infections caused by viruses such as:

· Colds and flu (influenza) and COVID-19 (coronavirus)

antibiotics?

· Bronchitis and most coughs

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· Most sore throats and ear infections.

### Think twice before taking an antibiotic

Many infections, even some caused by bacteria, get better without antibiotics. Taking an antibiotic when you don't need it won't make you feel better or recover sooner. It can increase your chance of side effects like naixsea and diarrhoea.

When you feel better after taking antibiotics that aren't needed, it's because your immune system is doing the work to fight your infection.

Coloured mucus isn't a sign of bacterial infection. It is a sign that your immune system is working to fight your infection.

### What are antibiotic-resistant infections?

Taking an antibiotic when it is not needed, or for longer than you should, can cause bacteria to develop resistance to antibiotics. If these bacteria later cause infections that need to be treated, the antibiotic will not work properly.

Infections that can't be treated with certain antibiotics are called 'antibiotic-resistant'.

Antibiotic-resistant bacteria can spread from person-to-person. You can be affected by resistant bacteria even without taking antibiotics.

### Why is antibiotic resistance a problem?

Hundreds of people in Australia die from antibiotic-resistant infections each year.

Antibiotic resistance is a problem throughout the world and is a major threat to human health. Australians use a large amount of antibiotics – more than many other similar countries with advanced health care. The more antibiotics are used, the more likely antibiot resistance will develop.

## Summary

- Antibiotic stewardship programs cut unneeded antibiotic use
- Programs need to include measures to reduce use across the continuum of care
- Both patients and providers need to be involved in measures to reduce unneeded antibiotics