



Managing RTIs in children – what is the evidence?

TARGET Antibiotics Webinar
October 2025

October 2025

www.rcgp.org.uk/TARGETantibiotics

1

Presenter notes

Hello everyone, welcome

Thank you for joining this TARGET webinar today

I can't see any of you, but I know we have quite a few people subscribed.

I am Emily Cooper, a research programme manager in the Primary Care and Interventions Unit, within UK Health Security Agency. I will be chairing the session today and will have our speakers and panelists introduce themselves in a moment

Today we have an invited guest speaking. **Conor Jamieson** is going to share a presentation he has developed on the evidence base behind recommendations for RTI management in children.

You can find all our previous webinars on the TARGET toolkit which is on the RCGP website, and the recordings and slides of this webinar will be uploaded there in the next few weeks.

Following some introductions, our speaker will present for around 40-45 minutes, and we will aim to have 15 minutes at the end dedicated to Q&A discussion with our panellists.

Housekeeping:

- The chat function is disabled during the presentation, but you can use the Q&A function to ask questions. Tick the box if you would like to keep your question anonymous. We will answer as many questions as possible in the allotted time.
- Panellists can provide written answers to questions through the webinar, and we will save some questions for the discussion at the end.
- As mentioned, the recording of this webinar will be uploaded to the TARGET toolkit
- You will be sent a link with a brief survey from RCGP directly to your email shortly after the webinar, please do assist us in improving our webinars by filling this out.



Introductions – TARGET and RCGP



Dr Donna Lecky



Emily Cooper



Catherine Hayes



Ming Lee



Emily Whitehorne



Julie Brooke



Liam Clayton



Joseph Besford



Camilla Stevenson

We would first like to highlight some of the amazing TARGET and RCGP team who are responsible for the work that underpins the TARGET toolkit.



Introductions – Speakers and Panellists



Dr Conor Jamieson
Regional Antimicrobial
Stewardship Lead (Midlands)

Speaker and panellist



Dr Alicia Demirjian
Consultant in Paediatric Infectious
Diseases and Immunology

Consultant Epidemiologist

Panellist



Dr Graham Duce
GP, Audlem Medical Practice

Cheshire Place GP AMS
Lead

Panellist



Dr Sanjay Patel
Consultant in Paediatric
Diseases and Immunology

Panellist

October 2025

www.rcgp.org.uk/TARGETantibiotics

3

Next a big thank you to our speakers and panellists for supporting this event

Otherwise, I will ask our speaker and pannelists to turn on their cameras and introduce themselves now

(panellists turn on their cameras introduce themselves and then turn their cameras off – except for Conor)

Managing RTIs in children – what is the evidence?

Presented by:
Dr Conor Jamieson, Regional Antimicrobial Stewardship
Lead (Midlands)



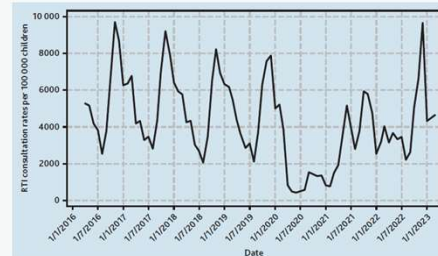
Overview of this session

- Drivers for healthcare consultations and antibiotic prescribing
- What does the data on antibiotic consumption look like?
- Can antibiotic prescribing safely be reduced in primary care? Does that impact on workload?
- Harms of antibiotics
- Benefits of antibiotics for RTIs
- Two important studies for RTIs in children
- Antibiotic prescribing strategies
- Impact on reconsultation rates
- Useful resources for self-care and safety netting

Drivers for healthcare consultations and antibiotic prescribing

Burden of children's RTI consultations in primary care

- Children have higher consultation rates for RTI than adults, and most children labelled as having URTI or chest infection are prescribed antibiotics¹
- In one prospective cohort study, almost 40% of children were prescribed antibiotics for chest infections – extrapolating to national data suggest 2 million prescriptions per annum for coughs, costing about £30m²
- Non-quantifiable costs of medicalising illness in the family and wider social networks, more likely to reconsult in the future³



GP consultations for respiratory tract infections in children aged <5 years: a retrospective cohort study 2016–2023

Kimberley Foley, Dougal Hargreaves, Alex Bottle, Jennifer K Quinn, Azeem Majeed, Sejal Saglani and Sonia Saxena

[British Journal of General Practice 2025](#)

¹Petersen et al. *BMJ* 2007;**335**:982. ²Redmond et al. *Br J Gen Pract* 2018;**B68B**:e682. ³Little et al. *Lancet* 2021;**398**:1417

From the graph you can see the seasonality of RTI consultations in primary care – as the audience will be familiar with. In winter peaks, between 8-10% of children aged 0-5 years registered with a GP attend their general practice for RTI.

Why do parents see a healthcare consultation?

It provides a proper 'health-check' and removes any perceived 'health-threat'

- Parents lack confidence to distinguish self-limiting illnesses from serious ones but believe that clinicians can

During a consultation, parents also seek info about:-

- What to look out for / when to seek help
- What they should do to care for their child – including treatment

**Parents do not generally seek antibiotics:
but they are anxious!**

Low rates of pathology in children (compared to the elderly) but high rates of parental anxiety (resulting in high consultation rates)

[Cabral C et al. Social Science & Medicine, 2015; Jul:156; Szymczak J et al, Journal of the Ped Inf Des Soc 2018, 7:303](#)

8

These are the findings from qualitative studies of parents, and the data is pre-pandemic and before the Group A strep increased incidence in November/December 2022. What do the audience feel is the situation now – are parents/carers still lacking in confidence?

The qualitative evidence tells us that parents do not necessarily want antibiotics for their child, yet many healthcare professionals assume they do.

Later in the session we will discuss the CHESTSSS mnemonic, which is designed to help clinicians explore parent's expectations in the early stages of the consultation, which can help a successful consultation.

Why do clinicians prescribe antibiotics?

- Belief that bacterial infections require treatment with antibiotics
 - Perceive that antibiotics will expedite recovery from illness and/or reduce the risk of suppurative complications
- Medicolegal
 - Risk aversion
 - Culpability if a child becomes 'septic' / severely unwell
- Belief that parents are seeking antibiotics
 - Path of least resistance!

Primary care clinician antibiotic prescribing decisions in consultations for children with RTIs:

a qualitative interview study

[Horwood J et al. *Br J Gen Pract* 2016; **66**:207](#)

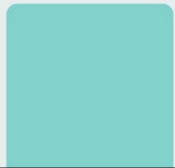
9

Clearly, not all bacterial infections require treatment with antibiotics – otherwise the human race would have become extinct long ago.

This qualitative study shows that there are behavioural and social aspects to prescribing and that prescribing is influenced by beliefs of both healthcare professionals and parents.

The presentation will show some data later on the risks of sepsis in children with RTIs, and suggest a tool that might help identify children at higher risk of hospitalisation. This might help to address some of the concerns about missing a serious infection.

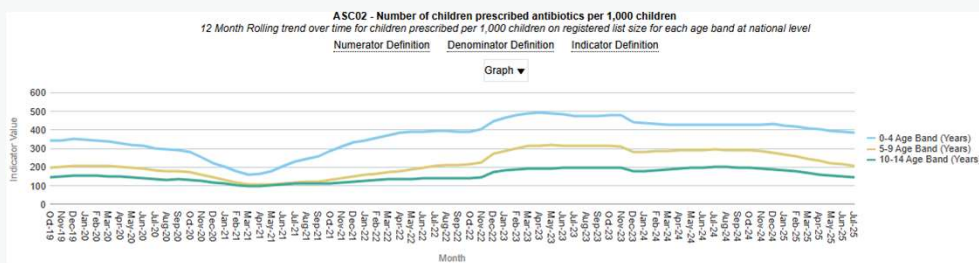
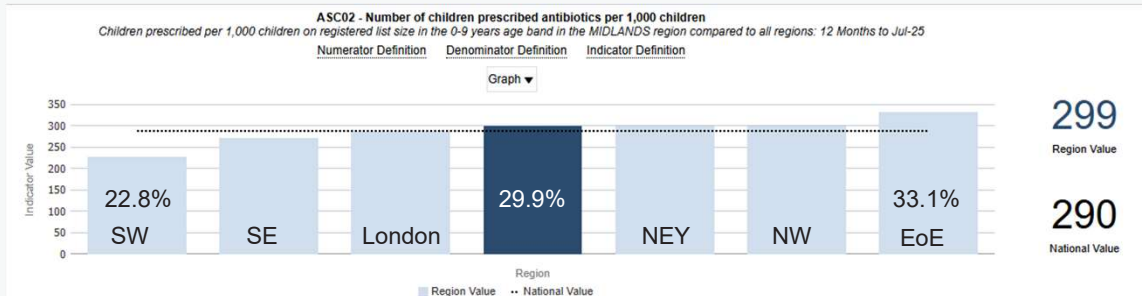
Volume of antibiotic prescribing



10

So, how much antibiotic prescribing is there in primary care?

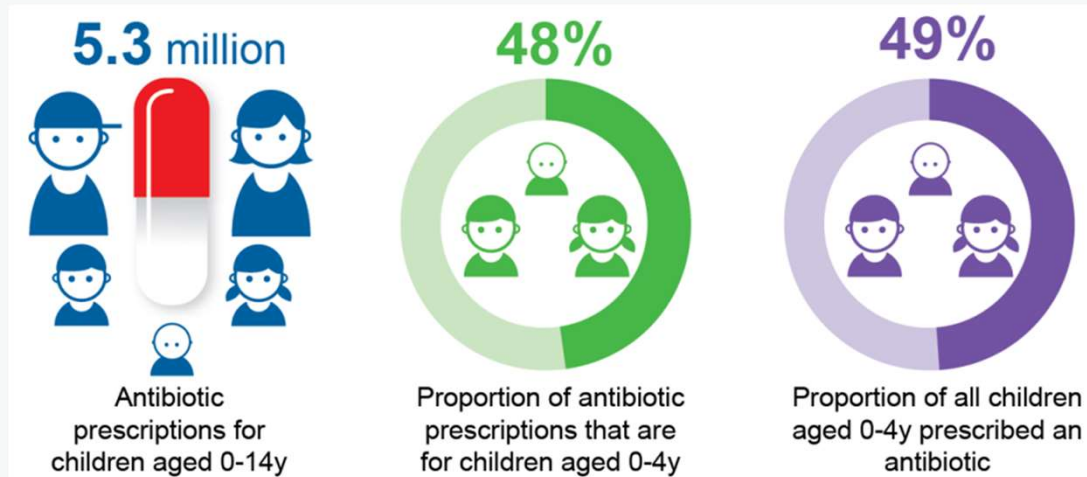
Variation between regions in England (prescribing for children aged 0-9 years, 12 month rolling data)



England data

Source: [ePACT2](#)

Volume of prescribing of antibiotics to children aged 0-14 in England FY 2022-23



[ESPAUR report 2022-23](#) ¹²

These infographics are from the English Surveillance Programme for antimicrobial utilisation and resistance (ESPAUR) – a kind of annual stock take of all antimicrobial consumption, antimicrobial resistance and healthcare associated infections that is published in November each year.

This slide shows the number of prescriptions for children aged 0-14 issued in 2022 – shockingly, almost half of all prescriptions are for children aged 0-4 years, and almost half of all children aged 0-4 received an antibiotic in 2022.

Is reducing antibiotic prescribing in primary care for RTI safe? Can it reduce workload?

Antibiotic prescribing in Primary Care vs expert opinion

Condition/syndrome	Actual prescription (THIN data)	Ideal prescription: UKHSA EE median (IQ range)	Ideal prescription: ESAC EE acceptable range
Acute cough	40%	10% (6 – 16%)	
Acute bronchitis	92%	13% (6 – 22%)	0 – 30 %
Acute sore throat	60%	13% (7 – 22%)	0 – 20% (tonsillitis)
Acute rhinosinusitis	92%	11% (5 – 18%)	0 – 20%
Acute otitis media 6mo – 2yr 2yr – 18yr	96% 94%	19% (9 – 33%) 17% (8 – 30%)	0 – 20%
URTI	19%		0 – 20%
UTI	94%	75% (61 – 86%)	80 – 100%

[Pouwels et al, JAC 2018;73 \(suppl 2\):19](#)

14

So, how much prescribing is there for RTIs in English general practice? The slide shows real world data for practices/PCNs like yours as the data is taken from a clinical practice research database.

The slide shows that for conditions such as acute cough, sore throat and acute otitis media (which are predominantly caused by viral infections), prescribing rates range from 40 to almost 100% - i.e. for some conditions, almost all patients are getting an antibiotic prescription. The columns on the right hand side show the expert opinion on what proportion of patients should get a prescription (based on the natural history of the illness, risk of complications etc). This ranges from 10-20% for RTIs.

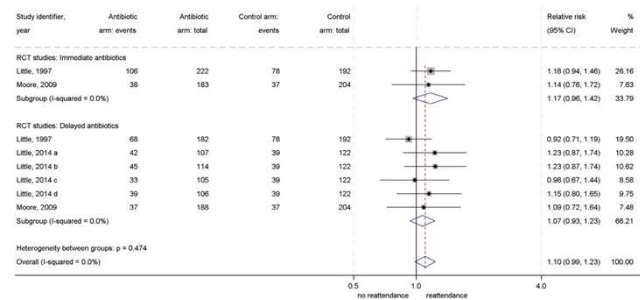
Clearly, there is room to reduce prescribing for these conditions.

Prescribing and reconsulting for respiratory tract infections

- Systematic review & meta-analysis (3 RCTs, 3 cohort studies) – all in UK primary care
- RCTs: RR of reattendance with antibiotics was **1.10** (95% CI:0.99-1.23)
- Cohort studies: RR was **1.21** (95%CI: 0.94-1.49)
- High certainty evidence that prescribing antibiotics for acute respiratory tract infections increases the frequency of reattendance for similar conditions

Effects of antibiotic prescribing for respiratory tract infection on future consultations in primary care: a systematic review and meta-analysis

Ibrahim Adamu, Amanda Lambert, Safiyya Bello, Fatima Aminu Abdulmalik, Tom Marshall



Adamu et al, *Br J Gen Pract* 2025

Recently published systematic review and meta-analysis of studies looking at the impact of antibiotic prescribing for RTI and reconsultation rates. Only UK studies met the inclusion criteria, but from our perspective this is a strength of the paper – it is reflecting UK practice.

Although the evidence doesn't meet statistical significance (the 95% confidence interval range is below 1.0), the individual RCTs were assessed as having a high certainty of evidence (using GRADE criteria), all of them were showing similar results and the findings were similar between immediate and delayed antibiotic prescribing strategies.

In the RCTs, 1207 patients were randomised to antibiotics, 672 to control)
 In the cohort studies, 209,138 patients were exposed to antibiotics while there were 46,469 controls)

Antibiotic prescribing for RTI and GP workload

- Patients given antibiotics for sore throat are **40% more likely** to return within 6 weeks and if they have had prior antibiotics are **69% more likely** to consult again for the same condition¹
- Observational data from 108 GP practices²
 - Higher antibiotic prescribing practices – higher rates of consultations
 - Lower antibiotic prescribing practices – lower rates of consultations
- Patients with recent history of antibiotic prescribing were more than **twice as likely** to reconsult in the year following index consultation with acute LRTI³

¹Little et al BMJ 2009;314:722; ²Ashworth et al Br J Gen Pract 2005;55:603; ³Moore et al Br J Gen Pract 2009;59:728

The point to make with this slide is that the evidence shows that antibiotic prescribing for RTIs leads to repeat/future consultations and increases workload in primary care – most likely because prescribing antibiotics medicalises what is usually a self-limiting viral illness and validates the reasoning of the patient who sought a consultation; they must have been ill because the clinician prescribed antibiotics, therefore they should consult again in the future for same or similar symptoms.

Is it safe to reduce antibiotic prescribing in primary care?

- Cohort study of 671,830 patients
- 706 general practices, 66.2m person-years of follow up (2002-2017)
- **Probability of sepsis for patient <25 years old was less than 1 in 10,000 consultations**
- Sepsis: NNT for children aged 0-4 to prevent one episode of sepsis:
 - Boys: 29,773
 - Girls: 27,014
- Probability of sepsis greatest for UTI > Skin infections > RTI

Safety of reducing antibiotic prescribing in primary care: a mixed-methods study

Martin C Gulliford, Judith Charlton, Olga Boiko, Joanne R Winter, Emma Rezel-Potts, Xiaohui Sun, Caroline Burgess, Lisa McDermott, Catey Bunce, James Shearer, Vasa Curcin, Robin Fox, Alastair D Hay, Paul Little, Michael V Moore and Mark Ashworth

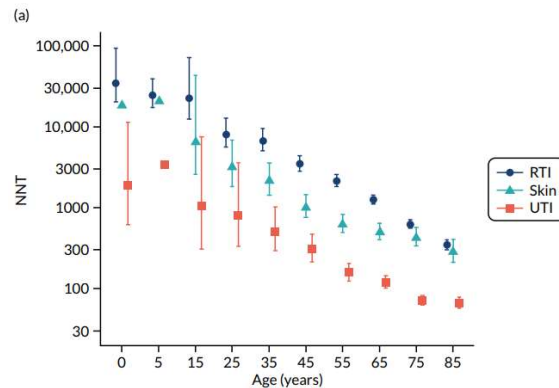


Fig. Number of antibiotic prescriptions required to prevent one sepsis event (i.e. NNT) in male patients

Gulliford et al, *Health Serv Deliv Res* 2021;9(9)

****This is an important slide, so worth spending a bit of time to understand it yourself before you present it****

This study aimed to determine the probability of sepsis if antibiotics were prescribed or not following an infection consultation in primary care within the previous 30 days, and to estimate the number of antibiotic prescriptions required to prevent one episode of sepsis. They also aimed to estimate the probability of sepsis for groups of patients characterised by age, gender and frailty as well as reason for consultation. They looked for events coded as sepsis in the Clinical Practice Research Database between 2002-2017.

The probability of sepsis following consultation for common infection episodes in primary care is highly age dependent; increasing with older age.

The probability of sepsis is lower at any age/sex/common infection with antibiotic treatment than without, but it is very low either way.

Without antibiotic treatment, sepsis may follow in <1 in 10,000 consultations for those aged <25 years.

For boys aged 0-4, the probability of sepsis after an infection consultation where no antibiotics were prescribed was 0.000054, while if antibiotics were prescribed, this probability decreased to 0.00002 – antibiotics do reduce the risk, but the risk was very very

low to begin with and harms are more likely to outweigh benefits.

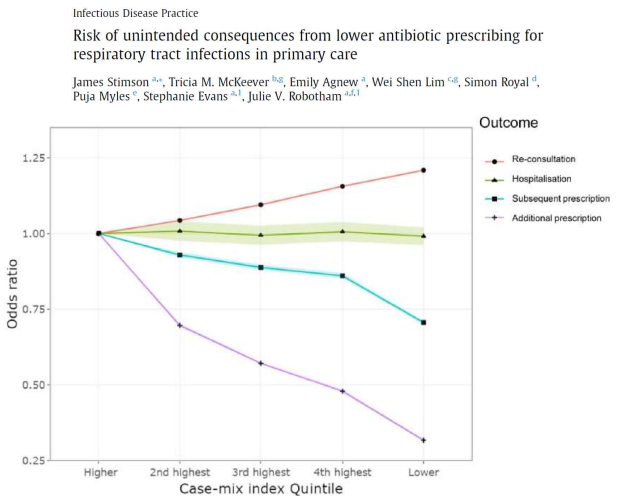
Conclusions of this study: Antibiotic treatment is generally associated with lower risks, but the most serious bacterial infections remain infrequent even without antibiotic treatment. This research identifies risk strata in which antibiotic prescribing can be more safely reduced.

Limitations: analyses were based on non-randomised comparisons; infection episodes and antibiotic prescribing are poorly documented in primary care.

Later on, we will see what the impact of reducing antibiotic prescribing for RTIs by 10% would look like for a typical GP surgery.

Is it safe to reduce antibiotic prescribing in primary care?

- 1471 General Practices in England, stratified by prescribing quintile per 1000 RTI-consultations
- No higher risk of hospitalisation (aOR 0.99, CI=0.96-1.02) with lowest prescribing quintile
- Re-consultation rates were higher in lowest prescribing quintile
 - For children ≤ 5 yo, OR 1.13 (CI 1.03-1.25)



[Stimson et al, J Infection 2024](#)

This is another recent study which confirms that, at a population level, lower rates of prescribing for RTI does not lead to increased rates of hospitalisation. The GP practices were divided into quintiles based on their prescribing rate per 1000 RTI consultations. There was no difference in the odds of hospitalisation between the groups (line with the green shading in the image).

It is important to point out that in this study, the odd of reconsultation were highest in the lowest prescribing group (see red line) – this seems to contradict the evidence presented earlier that prescribing leads to reconsultation. That said, while the odds ratio (OR) seems high – the absolute difference in reconsultation rates between the higher prescribing practices and the lowest was less than 2%.

We will come back to that point later, but worth stressing again, lower prescribing rates do not increase the risk of hospitalisation.

This study stratified GP practices first by case-mix (adjusting for the proportions of patients with co-morbidities) and then by their prescribing rate for RTI consultations – this stratification was felt to be a more appropriate way to look at prescribing rates in practices as about 20% of practices benchmarked on prescribing volume alone would look like lower prescribing practices when case-mix was taken into account.

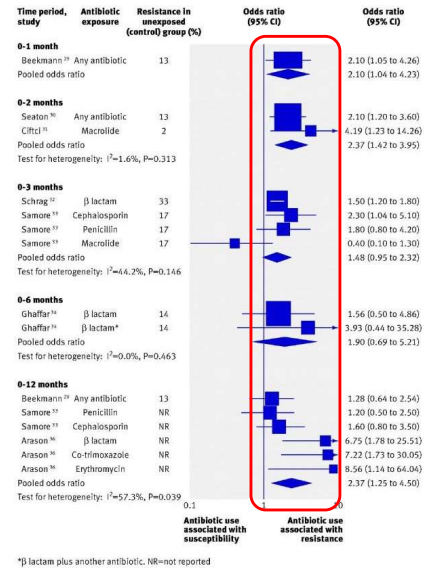
Antibiotic prescribing: AMR and harms

19

Before we discuss what benefits antibiotics might bring for RTIs (spoiler alert, almost none), it is worth discussing some of the harms.

Prescribing leads to individual patient level resistance

- Two weeks after prescribing amoxicillin to a child in general practice:
 - Less susceptible organism (MIC tripled)
 - Doubled risk of isolating a resistant strain (RR 1.9, 95%CI 1.2-2.9)¹
- Meta-analysis of 7 studies showed that resistance can persist after prescribing for up to 12 months²
 - (OR 2.4, 95% CI: 1.3-4.5)



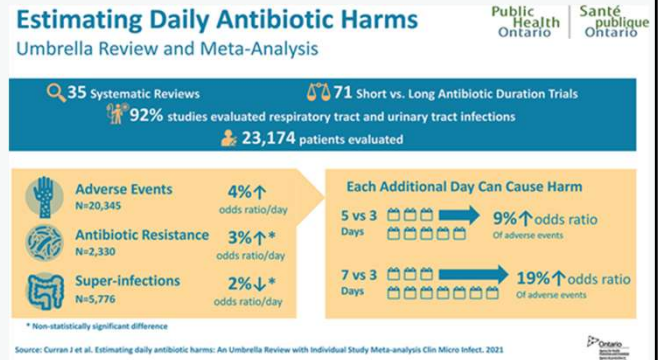
This is a bit of a complicated slide but the take home message is that consumption of antibiotics leads to demonstrable development of resistance, which then persists for up to 12 months.

This can have implications for both individual patients but the wider community when we think about the potential for spread of bacteria.

The Forest plot for multiple studies of the odds ratios for antibiotic treatment being associated with subsequent detection of susceptible or resistant organisms shows a trend towards development of resistance – the plot is too small to be able to see, but this persists for up to 12 months.

Antibiotics can be harmful - Every extra day of treatment matters

- Umbrella review and meta-analysis of systematic reviews of 71 RCTs comparing short and longer courses of antibiotics
- Adults and children, multiple settings but majority community
- **19.9% of patients experienced an adverse drug event**
- Each day of antibiotic therapy associated with a **4% increased odds** of experiencing an ADR
- AMR developed in 10.6% of patients, risk increased by **3%** for every additional day of treatment



[Curran et al, Clin Microbiol Infect 2022; 28:479-490](#) 21

While the development and persistence of resistance may well be invisible/unnoticed by you or your patients, antibiotics are medicines in their own right and therefore cause side effects which are noticed by patients.

This meta-analysis looked at the harmful impact of longer versus shorter courses of antibiotics.

First point: almost 20% patients experienced an adverse drug event – most of these are likely to be minor (nausea, diarrhoea, headache), but some will potentially be serious e.g. cutaneous skin reactions, anaphylaxis etc.

Every extra day of treatment increased the odds of experiencing and ADR by 4% and the risk of resistance by 3%.

If you consider that for many patients with RTI, antibiotics are delivering no benefit, then we need to balance the demonstrable risks of antibiotics with the limited benefit they might bring.

This study demonstrates clearly that every extra day of antibiotic treatment can be harmful – which is why it is so important to prescribe the optimal duration of antibiotics as per guidelines; more on this later!

Studies included primary care settings and children.

Impact of exposure to antibiotics in early life

Country	Sample size	Exposure period	Hazard ratio/incidence rate ratio (95% CI)			
			Asthma	Food allergies	Intellectual disability	Obesity
Minnesota, USA	14,572	0-2 years	1.90 (1.63-2.23)	1.33 (0.99-1.77)	1.21 (1.03-1.43)	1.20 (1.10-1.32)
United Kingdom	1 million	0-2 years	1.24 (1.22-1.6)	1.33 (1.26-1.40)	Dose dependent increased HR	<i>Not studied</i>
Iceland	22,393	During delivery to 1 st week of life*	1.91 (1.40-2.59)	NS	<i>Not studied</i>	<i>Group II significantly heavier at 1.5 and 4 years</i>

*3 groups: I: during C-section, II: during vaginal delivery, III: for at least 48h within 1st week of life

“...early life microbiome composition is a critical health determinant.... perturbations during key developmental periods can have long term consequences”¹

¹[Aversa et al., 2021](#); ²[Beier et al., 2025](#); ³[Baeringsdottir et al., 2025](#) ²²

In addition to the immediate harms that antibiotics can cause, we're beginning to uncover some potentially more serious long term harms.

This table summarises results from a few recent studies, that show associations between early antibiotic exposure and subsequent development of long term conditions associated with the immune system such as asthma and allergies. The odds or hazard ratios highlighted in **bold** show statistically significant differences between antibiotic exposed children and controls.

While these studies are different – different populations, countries, looking at different outcomes, looking at different exposure periods – they all found an association with increased risk of development of asthma.

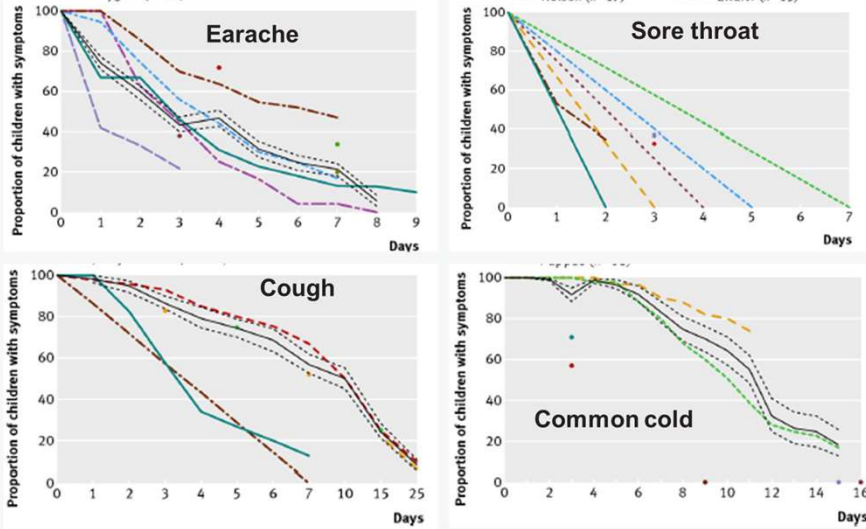
The UK study had a very large study population and used sibling matching to reduce risk of confounding – children living in the same household who didn't get antibiotics. They also used a negative control of forearm fracture (something that would not be expected to be influenced by antibiotic exposure) to confirm their approach minimised confounding – there was no difference in the risk of forearm fracture in the children exposed to antibiotics and those not exposed, as would be expected.

Antibiotics for respiratory tract infections: symptomatic benefit & risk of complications

23

OK, so let's look at what benefits antibiotics do bring for RTIs

Duration of symptoms of RTIs in children



Systematic review of 23 trials and 25 observational studies in children with acute RTIs in primary care/ED

In 90% of children, infection was resolved by:

- Earache: 7-8 days
- Sore throat: 2-7 days
- Croup: 2 days
- Bronchiolitis: 21 days
- Acute cough: 25 days
- Common cold: 15 days
- Unspecified RTI symptoms: 16 days

[Thompson et al, BMJ 2013; 347:f7027](#) ²⁴

RTI symptoms can last for quite a while.

The take home message from this slide is that symptoms can persist for longer than we might think, and while some patients will improve symptomatically quite quickly, it can take at least a week for 90% of children to feel better. This is important to communicate and avoid giving the impression that children will feel better in a day or two – whether antibiotics are prescribed or not. We will talk more on this later.

The different coloured lines on the graphs relate to different studies that were included in the systematic review.

How much symptomatic benefit do antibiotics deliver?

	Total Duration untreated	Beneficial effect from antibiotics	NNT for one additional patient to benefit	NNT for one additional adverse effect
Otitis media	4 -12 days	8-12 hours	18	9
Sore throat	8 days	12-18 hours	6-20	15
Sinusitis	12-15 days	24 hours	18	8
Bronchitis	20-22 days	11-24 hours	10-22	24

Slide adapted from [TARGET slide deck](#) ²⁵

It's not surprising that antibiotics deliver little to no meaningful symptomatic benefit, when you consider that most of these infections have a predominantly viral origin; the trials the data are taken from will not have been able to differentiate between bacterial and viral causes, hence there will be patients in the trials who did have bacterial infection and did benefit symptomatically from antibiotics.

However, most of the time in your clinical practice you will be unable to differentiate between a viral and bacterial cause, but prescribing antibiotics will deliver symptomatic benefit that can be measured in hours to one day, for conditions that have a natural history of one to three weeks.

We've already seen that antibiotic prescribing leads to resistance and every extra day is associated with harm. These data show that it is much easier to cause harm than it is to deliver benefit for some conditions (e.g. otitis media and sinusitis), with NNT values half that for harm compared to benefit.

Most of this harm is likely to be minor – nausea, stomach upset, diarrhoea, rash; but some can be more significant – anaphylaxis, Stevens Johnson Syndrome, toxic epidermal necrolysis, C difficile infection.

Antibiotics and risk of complications

- Retrospective cohort study in 610 UK General Practices – stratified by rate of antibiotic prescriptions for RTI
- 45.5m person-years of follow up between 2005-14
- RTI consultations with antibiotic prescribed
- Outcome: incidence of serious complications
- High prescribing rates not protective against complications
- Reducing prescribing for RTI by 10% for a 7000 patient list size could result in:
 - 1 extra case of pneumonia per year
 - 1 extra case of peritonsillar abscess a decade

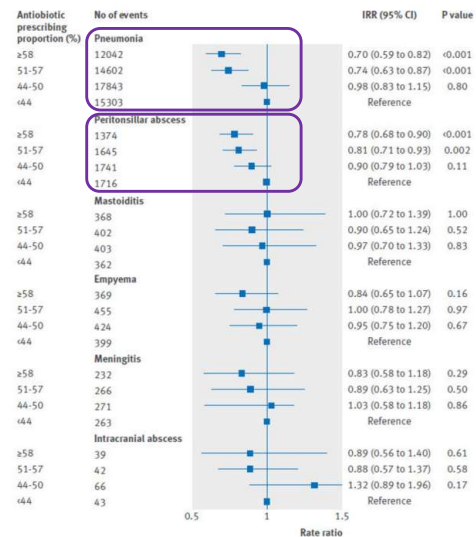


Fig 4 | Association of incidence of effective complications with fourth of antibiotic prescribing proportion. Incidence rate ratios (IRRs) were adjusted for consultation rate for respiratory tract infections, sex, age group, region, deprivation 10th, and clustering by general practice

Gulliford et al, BMJ 2016;354:i3419

You might expect that in practices that prescribe more antibiotics for RTIs, there will be a lower risk of complications following the RTI such as pneumonia, meningitis etc.

This large, retrospective cohort study carried out in UK primary care stratified general practices according to their levels of prescribing for RTI, in quartiles from low to high.

Following an initial prescription of an antibiotic for a RTI, they then searched for diagnostic codes associated with complications for the subsequent 10 patient years, and benchmarked the risk of a complication against the lowest prescribing practices.

They found no significant difference in the rates of complications between the highest and lowest prescribing practices (i.e. high prescribing rates were not protective of complications), which makes sense as complications after RTI are very rare for infections that are likely to be viral in nature anyway, and antibiotics are unlikely to influence that very much.

They calculated that the average practice of 7000 patients could reduce antibiotic prescribing for RTI by 10% and expect to see only 1 extra case of pneumonia a year and 1 extra case of peritonsillar abscess in a decade.

(Risk of complications are higher with LRTIs compared to URTIs and NICE guidance does

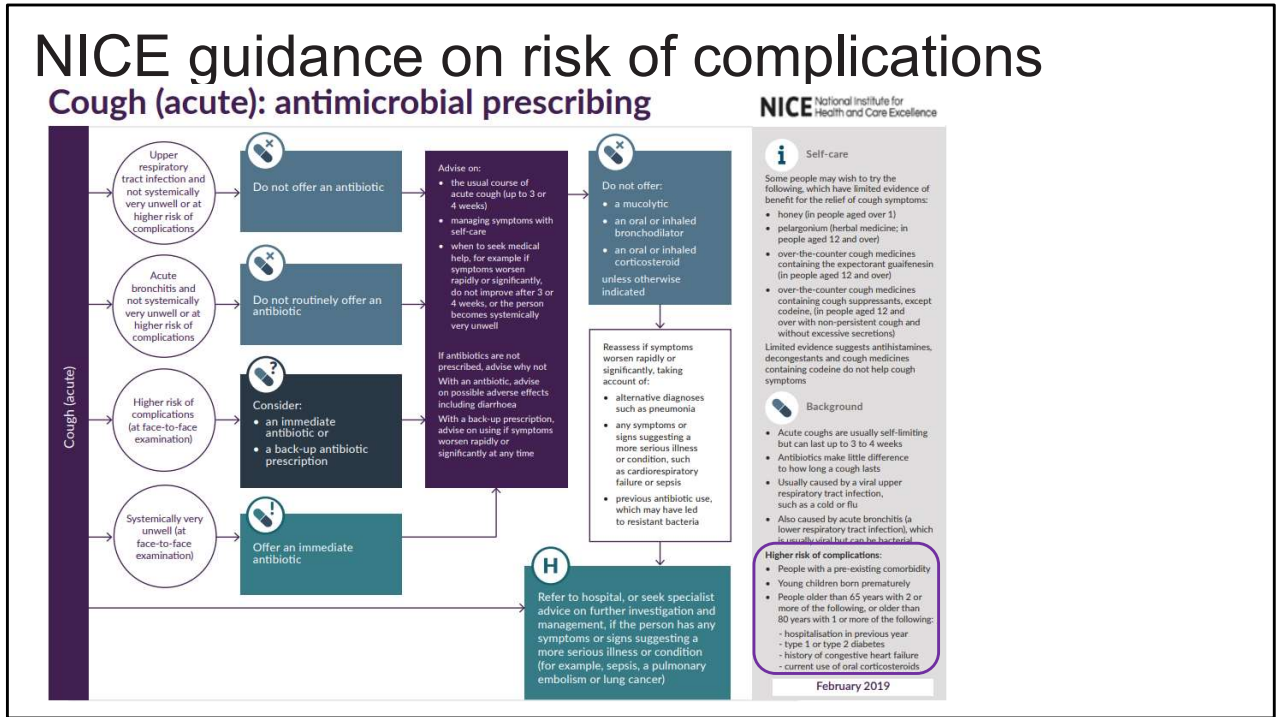
acknowledge this and point out which patient groups could be at higher risk and may require an immediate antibiotic).

Contrast that very small increase in extra cases of pneumonia against the side effects and risk of resistance associated with prescribing antibiotics.

NICE guidance on risk of complications

Cough (acute): antimicrobial prescribing

NICE National Institute for Health and Care Excellence



NICE is here to help you and does provide guidance on which patient cohorts are at higher risk of complications (purple box) and where a backup or immediate antibiotic prescription may be required.

Relevant clinical trials & studies for RTIs in children

28

Very brief summary of two important studies next – most clinicians have not heard of STARWAVE, so it's an important one to talk about.

STARWAVE trial in brief

- A tool to predict risk of hospitalisation within 30 days for children presenting with acute cough & RTI
- 7 characteristics were independently associated with hospital admission
- Distinguishes between three hospital admission risk strata –
 - very low,
 - normal or
 - high risk

Development and internal validation of a clinical rule to improve antibiotic use in children presenting to primary care with acute respiratory tract infection and cough: a prognostic cohort study

Alastair D Hay, Niamh M Redmond, Sophie Turnbull, Hannah Christensen, Hannah Thornton, Paul Little, Matthew Thompson, Brendan DeFaney, Andrew M Lovering, Peter Muir, John P Leeming, Barry Vipond, Beth Stuart, Tim J Peters, Peter S Blair

“Clinical characteristics can distinguish children at very low risk, normal and high risk of future hospital admission for respiratory tract infection and *could be used to reduce antibiotic prescriptions in primary care* for children at very low risk”

[Hay et al, Lancet Respir Med 2016; 4:902](#)

29

This is a very simple summary of the study – there is a more detailed version available at the end of slide deck – depending on the audience, choose which version will be most useful.

As we mentioned at the start of the talk, concern about rapid deterioration of a child and their perceived vulnerability often drives clinicians to prescribe antibiotics.

This study by Alastair Hay and colleagues, in English general practices (so patient cohorts like yours) developed a 7 point prognostic guide that allows children to be stratified according to their risk of admission to hospital over the subsequent 30 days.

They can be stratified into very low risk (1 patient in 449), normal risk (1 in 104) and high risk (1 in 23 patients) and the authors suggest that this could be used to reduce antibiotic prescriptions in primary care for children at very low risk.

STARWAVE – predicting future hospitalisation among children who have presented in-hours to primary care with acute cough (<28d) and respiratory tract infection

Seven symptoms and signs:

S	<u>Short</u> duration of illness (≤3 days)
T	Parent reported fever in previous 24 hours or <u>temperature</u> ≥37.8°C at presentation
A	<u>Age</u> <2 years
R	Clinician reported inter/subcostal <u>recession</u>
W	Clinician reported <u>wheeze</u> on auscultation
A	Current diagnosis of <u>asthma</u>
V	Parent reported moderate/severe <u>vomiting</u> in the previous 24 hours

30

Clinician reported inter/subcostal recession as a sign suggests that this is a tool best used for face-to-face consultations, rather than virtual.

STARWAVE – predicting future hospitalisation among children who have presented in-hours to primary care with acute cough (<28d) and respiratory tract infection

Score	Risk category	Risk of future admission and suggestion approach to management
0-1	Very low risk (67% of all children)	1:320 risk of future admission – no antibiotic strategy should be considered
2-3	Normal risk (30%)	1:70 risk of future admission – no or back-up antibiotic strategy should be considered
≥4	High risk (~3%)	1:9 risk of future admission – immediate antibiotic + same/next-day follow up

31

So STARWAVE could help you to identify those children at very low risk and support a 'no antibiotic' strategy.

Worth pointing out to the audience that STARWAVE does not feature in any NICE guidelines or clinical templates in Ardens currently. That said, it could be a helpful tool to use.

ARTIC-PC trial in brief

Antibiotics for lower respiratory tract infection in children presenting in primary care in England (ARTIC PC): a double-blind, randomised, placebo-controlled trial

Paul Little, Nick A Francis, Beth Stuart, Gilly O'Reilly, Natalie Thompson, Taeko Beque, Alastair D Hay, Kay Wang, Michael Sharland, Anthony Hamden, Guiqing Yao, James Rafferty, Shihua Zhu, Joseph Little, Charlotte Hookham, Kate Rowley, Joanne Euden, Kim Harman, Samuel Coenen, Robert C Read, Catherine Woods, Christopher C Butler, Saul N Faust, Geraldine Leydon, Mandy Wan, Kerensa Hood, Jane Whitehurst, Samantha Richards-Hall, Peter Smith, Michael Thomas, Michael Moore, Theo Verheij

- Children aged 6mo-12yrs with uncomplicated (non-pneumonic) LRTI, randomised to receive amoxicillin or placebo for 7 days
- No difference in outcome for 5 pre-specified clinical subgroups – pts with chest signs, fever, physician rating of unwell, sputum or chest rattle, short of breath

Amoxicillin for uncomplicated chest infections is **unlikely to be clinically effective** overall or for key subgroups in whom antibiotics are commonly prescribed

Unless pneumonia is suspected, **clinicians should provide safety-netting advice but not prescribe antibiotics** for most children presenting with chest infections

[Little et al, Lancet 2021;398:1417](#) ³²

- The cohort was mostly white (86%)
- Only had complete data for 73% on symptom duration and 69% for severity. With follow up rates raising the possibility of attrition bias
- Didn't achieve adequate power for the complete case analysis for the chest signs subgroup
- Not powered to detect differences in complications – would need several thousand children included

So what do we know now?

- Antibiotics are associated with quite a lot of harms
- RTI symptoms can last for quite a while – important to communicate this to parents/carers
- The majority of children with acute RTI and cough are very low risk for deterioration – using STARWAVE could help to identify this cohort
- Antibiotics make little difference to uncomplicated chest infections – unless pneumonia is suspected, consider a no-antibiotic strategy with safety netting advice

- In the next section, we will look at the impact of communication and ways to have a successful consultation that supports no-antibiotic and back-up antibiotic strategies

Evidence for different prescribing strategies

Conclusion from systematic review of *immediate vs delayed vs no antibiotics* for respiratory infections

	No antibiotics	Delayed antibiotics		Delayed antibiotics	Immediate antibiotics
Antibiotic use	Lowest use with no antibiotics			Lower use with delayed antibiotics	
Patient satisfaction	Favours delayed antibiotics			No difference	
Clinical outcomes (various)	Mostly no difference			No difference	
Duration of clinical outcomes	Mostly no difference			Mostly no difference*	
Reconsultation rate	No difference			No difference	

** The only differences were small and favoured *immediate* antibiotics for relieving pain, fever and runny nose for sore throat; and pain and feeling unwell for middle ear infections"

¹[Spurling et al, *Cochrane Database Syst Rev* 2023;10:CD004417](#)

35

What can aid a 'No antibiotic' strategy?

- Having a satisfactory consultation
- Promoting self care & safety netting with patient information leaflets & resources
 - e.g. TARGET leaflets, CHICO leaflet, Healthier Together website
- Coding provision of self care & safety netting advice (e.g. leaflet)

Evidence for impact of communication in acute cough in general practice in brief

- Communication skills training and use of patient information leaflet halved antibiotic prescribing compared to usual care for LRTI
- Using the enhanced communications skills did not increase consultation time

Effect of point of care testing for C reactive protein and training in communication skills on antibiotic use in lower respiratory tract infections: cluster randomised trial

Jochen W L Cals, general practitioner trainee and researcher,¹ Christopher C Butler, professor of primary care medicine,² Rogier M Hopstaken, general practitioner and researcher,^{1,3} Kerenza Hood, reader in statistics,^{2,4} Geert-Jan Dinant, professor of general practice¹

Care for LRTI	Antibiotics prescribed
Usual care	67%
Communication skills and leaflet	33%
CRP to aid diagnosis	39%
Both CRP & communication	23%

[Cals et al, *BMJ* 2009;338:b1374](#)

While a core aim of this study was to evaluate the impact of access to CRP testing to aid diagnosis, we know this is not usually available in general practice in England currently. What is interesting about this study is the impact of enhanced communication skills training on reducing antibiotic prescribing for acute cough by about 50%. The authors state that using the communications skills and elicit-provide-elicited framework did not increase the length of consultation. We will see later a suggested mnemonic which utilises some of these principles, which is part of the TARGET resources.

Satisfactory consultations: How?

Key elements of effective consultations (CHESTSSS)

C: Ask specifically about concerns	'What are the things you are most worried about?'
H: Discuss history and exam	While doing an examination provide 'no problem' commentary 'Your heart rate is normal, your temperature isn't raised'
E: Ask specifically about expectations	How do you think I could most help you today?' or 'How do you feel about antibiotics?'
S: Provide non-serious explanation for symptoms	'Your body produces phlegm as a normal reaction to inflammation in your airways. The phlegm catches particles and helps keep your lungs clear.'
T: Be specific about illness timeline/usual course	'A typical cough can take 3-4 weeks to clear completely.'
S: Explain shortcomings of antibiotics	Antibiotics don't help with pain but side effects , such as diarrhoea, nausea and rash, can be experienced by up to 1 in 10 people.'
S: Self-care advice	'Pain in the chest or throat is normal due to inflammation, you can take paracetamol, and/or ibuprofen, which will help the pain and soothe the inflammation.'
S: Safety-netting advice	Provide patients with specific information on red-flag symptoms and when they should seek further help

Resources available at: www.rcgp.org.uk/TARGETantibiotics

38

The CHESTSSS acronym was developed and tested in a randomised-controlled trial which resulted in improved antibiotic prescribing and patient satisfaction when used by experienced GPs in the UK.

CHESTSSS presents specific communication techniques. These techniques have been developed based on patient expectations and needs specific to antibiotic discussions so can be more useful and effective than general approaches (e.g., 'ICE' or 'Calgary-Cambridge' models).

CHESTSSS can help you to remember specific phrases which:

- Reassures patients
- Increase patient understanding and satisfaction with a prescribing decision
- May be particularly helpful for patients who are expecting antibiotics

C - ask specific concerns

Asking the patient specifically about their concerns. This can be difficult as, if not careful, one can sound patronising or give the impression that you have not been listening. However, if concerns are not specifically asked about, the patient will sometimes not share their main worries for fear of being seen as 'overly-anxious'.

Example phrases you can use:

'There are probably a number of things that are worrying you about this illness, but what would you say are the things that you are most worried about?'
'You've mentioned the high temperature, is that the thing that is causing you most worry at the moment, or is it something else?'

H - history

A good history and examination, conducted prior to providing the patient with advice and/or reassurance, is an essential component of reassuring patients that their illness is being taken seriously.

Consider:

Providing a "running commentary", especially a "no problem commentary", to the patient while doing an examination, for example: *'Your heart rate is normal, Your temperature isn't raised, Your lungs sound good.'*

E - Expectations

Research has shown that there is often a mismatch between what GPs think patients are expecting and what they actually want. A patient that appears 'demanding' may actually just want reassurance that the infection has not 'gone down to the chest', rather than antibiotics.

Consider:

Asking the patient specifically about their expectations, for example:

'How do you think I could most help you today?'

'Some people have a clear idea about what they are expecting when they come to see me. Is there something that you were hoping for or expecting that we haven't talked about yet?'

S - Symptoms

Telling patients that you can find no sign of serious illness when they are worried about symptoms, might not be enough to make them feel reassured – they just think you have failed to detect how serious their illness is!

Consider:

Finding out what symptoms the patient is concerned about and then providing convincing non-serious explanations for these symptoms [7,8]. For example:

'Your body produces phlegm as a normal reaction to inflammation in the airways to your lungs. The phlegm catches particles in your airways and helps keep your lungs clear.'

It can be helpful to acknowledge that these non-serious symptoms can still be very disruptive for patients so showing empathy that they are feeling very unwell is important.

T - Timelines

Prescribers might not always set realistic expectations and sometimes suggest that patients will get better 'in a few days', when we now know that it often takes much longer than this to recover.

In addition, patients often have unrealistic expectations about how quickly they will recover, and these can lead to unnecessary anxiety and re-consultation.

Consider:

Research has provided us with valuable information on expected duration of common infections. It is useful to tell these durations to patients to reassure them that their symptoms are not unusual.

S - Shortcomings

Prescribers don't always discuss pros and cons of antibiotics with patients, and patients often are not aware that antibiotics have no or very limited benefit for several common infections.

Consider:

Several trials have shown no or limited benefit of antibiotics for several types of common infections. Antibiotics are not usually indicated in sore throat, sinusitis, acute otitis media and acute cough where pneumonia is not suspected. Consider expanding on antibiotic effects on illness duration, AMR and side effects.

S - Self-care

Most patients are looking for something positive that they can do to feel better more quickly.

Consider:

Asking patients what they have done already to manage their symptoms and reassure them that what they are doing will help. Giving reassurance and advice on other things they can do can go a long way to make patients feel more in control and comfortable.

Reinforcing the fact that the **patient's own immune system** is their best source of defence, and advise on **what they can do themselves to help their body fight the infection**. Patient leaflets can support how you discuss self-care advice.

S - Safety netting

Lastly it is important that patients understand what they should be looking out for, and when they should re-consult.

Consider:

Providing patients with specific information on 'red-flag symptoms' and advising them on what to do if symptoms get worse.

Supporting the safety-netting advice by discussing a patient leaflet.

Finally, it can be useful for you to summarise key messages - the natural history, reassurance that nothing serious is going on (assuming you have found no indication for antibiotics) and to check that the patient understands and is happy with the management plan.

Promoting self care & safety netting using patient information leaflets and resources

- Supports your verbal advice & helps patients remember it
- Addresses patient concerns
- Empowers patients to self-manage
- Improves patient recall
- Improves patient satisfaction
- Standardises advice given by different prescribers

Printed leaflets:

- Use patient leaflets **interactively** – not as a parting gift
- **Personalise** leaflet by drawing attention to the parts relevant to the patient

Electronic leaflets/resources:

- Send via AccuRx or from within EMIS (email/text)
- Available in multiple languages



**I'm not sure... what
about a back-up
antibiotic strategy?**

I'm not sure if the patient needs antibiotics!

- Consider a back-up prescription...
- Why?
 - Patients are **still satisfied** – no difference to immediate antibiotics (86% vs 91% immediate)¹
 - Reduce use of antibiotics (30% vs 93% immediate)¹
 - Useful if unsure whether immediate antibiotic is needed
 - **No difference in adverse events** compared to immediate antibiotics
 - **No difference in re-consultation rates** compared to immediate antibiotics

¹[Spurling et al, Cochrane Database Syst Rev 2023;10:CD004417](#)

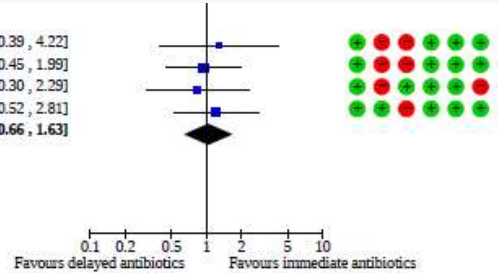
Reconsultation rates – backup vs immediate

7.1.3 Reconsultation rate: delayed (all strategies) versus immediate antibiotics

Study	n	Delayed	Immediate	n	%	OR [95% CI]
De la Poza Abad 2016	10	198	4	101	14.5%	1.29 [0.39, 4.22]
Mas-Dalmau 2021	15	146	16	148	36.8%	0.94 [0.45, 1.99]
Pichichero 1987	8	55	10	59	19.9%	0.83 [0.30, 2.29]
Spiro 2006	13	132	11	133	28.8%	1.21 [0.52, 2.81]
Subtotal (95% CI)		531	41	441	100.0%	1.04 [0.66, 1.63]

Total events: 46
 Heterogeneity: Tau² = 0.00; Chi² = 0.50, df = 3 (P = 0.92); I² = 0%
 Test for overall effect: Z = 0.15 (P = 0.88)

Test for subgroup differences: Chi² = 0.00, df = 2 (P < 0.00001), I² = 0%



Remember to code your use of backup antibiotic prescriptions

SNOMED code	Definition
1065591000000109	Delayed prescription given (situation)
248041000000103	Patient advised to delay filling of prescription (situation)
967191000000104	Provision of Treating Your Infection self-care patient leaflet with back-up antibiotic prescription issued (procedure)

[Spurling et al, Cochrane Database Syst Rev 2023;10:CD004417](#)

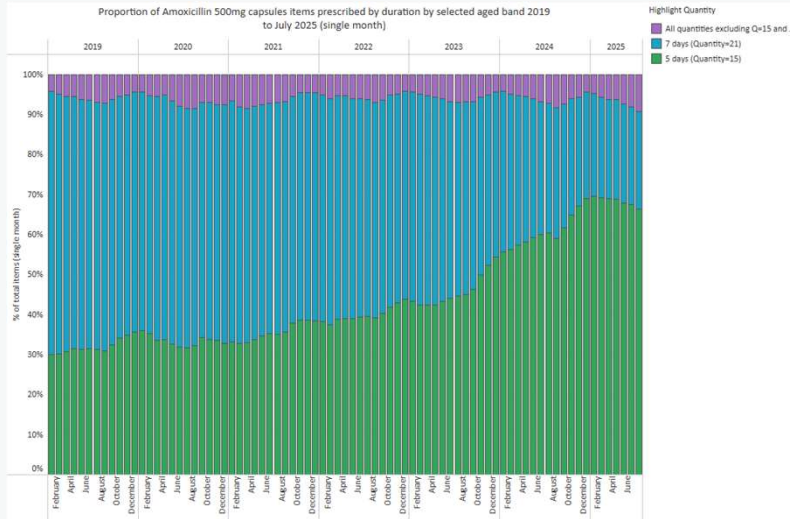
42

**Nope, my patient needs
immediate antibiotics...**

My patient needs immediate antibiotics!

Ensure the right choice and duration... follow local/national guidelines

5-day prescribing of amoxicillin capsules 500 mg on FP10



Proportion of 5-day amoxicillin courses ~66% in England

NICE guidelines for RTI recommend **5 days treatment** with antibiotics

Data from [PrescQIPP](#)

45

Only 5 days for RTIs? My patients need longer....

Community acquired pneumonia – evidence for short courses

- Multiple studies in children show non-inferiority of 3-5 days of treatment ([SCOUT-CAP trial](#), [CAP-IT trial](#), [MASCOT trial](#), [Greenberg et al 2014](#), [SAFER trial](#))
- Updated [NICE guidance for community acquired pneumonia](#) now advises 3 days of antibiotics for children aged 3 months - 11 years with non-severe community acquired pneumonia without complications or underlying disease

1.6.4 Offer a 3-day course of antibiotics for babies and children aged 3 months (corrected gestational age) to 11 years with non-severe community-acquired pneumonia without complications or underlying disease. See [recommendations 1.10.2 to 1.10.4 for information and advice for parents and carers](#). [2025]

46

Clinicians sometimes challenge that 5 days is not long enough, or doesn't work for their patients and they come back – a lot of this could be due to the duration of symptoms lasting longer than the antibiotic course (because antibiotics make little difference to symptom duration for RTIs), so an opportunity to mention this.

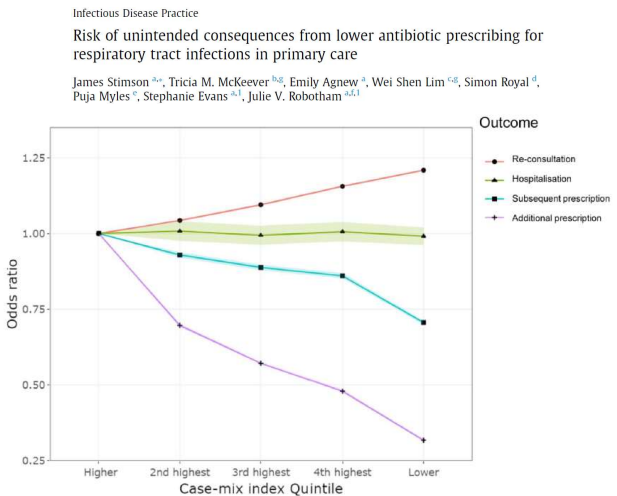
The point to make is that there are multiple studies in children which support 5 day treatment for RTI – and NICE now recommends 3 days for one patient cohort with CAP, a condition clinicians would worry about the most perhaps.

Antibiotic prescribing & reconsultation rates



Is it safe to reduce antibiotic prescribing in primary care?

- 1471 General Practices in England, stratified by prescribing quintile per 1000 RTI-consultations
- No higher risk of hospitalisation (aOR 0.99, CI=0.96-1.02) with lowest prescribing quintile
- Re-consultation rates were higher in lowest prescribing quintile
 - For children ≤ 5 yo, OR 1.13 (CI 1.03-1.25)



[Stimson et al, J Infection 2024](#)

We saw this slide earlier – note the higher reconsultation rate in the practices that prescribed the least amount of antibiotics for RTIs. Why is this? This seems to contradict what was said at the start of the presentation – that prescribing leads to reconsultation!

The absolute difference between the proportion of patients who reconsulted (between the highest prescribing GP practices and the lowest) was only 2%, but it translates to what seems like a big increase in odds ratio.

The authors don't suggest that this is due to patients suffering clinical harm (as evidenced by no increase in hospitalisation), but suggest that behavioural factors (both by prescriber and patients) come into play; studies show that prior high consulting behaviour was a strong predictor of a re-consultation, regardless of whether antibiotics were given at first consultation. Children who received antibiotics for RTI (immediate or subsequent) had a higher levels of patient satisfaction, so these are likely to be at play here rather than the development of clinical complications relating to lower antibiotic prescribing.

Patient's expectations and knowledge about effectiveness of antibiotics against viral infection can influence a clinician's prescribing practice, as can workload and prior experience with the patient.

So, it seems like having an effective consultation where the parent/carer is satisfied with the consultation (even if no antibiotic is prescribed) is key to influencing reconsultation behaviour.

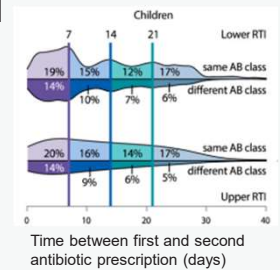
Within-episode repeat antibiotic prescriptions (WERP) for RTI in brief

Infectious Disease Practice

Within-episode repeat antibiotic prescriptions in patients with respiratory tract infections: A population-based cohort study

Arief Lalmohamed ^{1,2*}, Roderick P. Venekamp ³, Albert Bolhuis ⁴, Patrick C. Souverein ⁵, Janneke H.H.M. van de Wiggert ⁶, Martin C. Gulliford ⁷, Alastair D. Hay ⁷

- In this trial, around 10% of children who had consulted for RTI (upper or lower) and were prescribed antibiotics, reconsulted and received a second course within 28 days
- Median was 10 days after initial prescription
- **Take home messages:**
 - when abx prescribed, clinicians should emphasise a single treatment course is likely to be microbiologically adequate
 - Remind parents/carers of the natural history of RTI longer than abx course, persisting symptoms unlikely to require WERP in the absence of deterioration



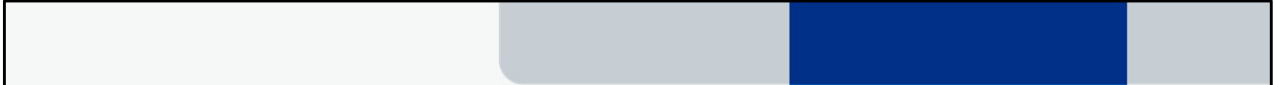
[Lalmohamed et al, Journal of Infection, 2024;88 106135](#)

49

This study shows that even when antibiotics are prescribed for RTI, a reasonable proportion of patients will reconsult! Up to 20% of adults and around 10% of children reconsult within 28 days of an initial consultation & antibiotic prescription.

The take-home message from these two studies is that re-consultation is influenced by behaviours and past experiences. If we don't communicate how long patients can expect to have symptoms for (with or without antibiotics) then we should expect that a proportion of them will reconsult.

This is increasingly important as we follow the evidence and move to shorter antibiotic courses for RTI – we must try to ensure that our patients understand that a short course is enough to treat the infection.



**Useful
resources for
self care &
safety netting**



Safety netting advice

Systematic review & network meta-analysis

- Compared to usual care:
 - Leaflets may reduce antibiotic prescribing, antibiotic consumption and return visits
 - Effect greater if combined with verbal safety netting advice
- Videos & websites offering safety netting advice may increase parental knowledge and parental satisfaction

Important not to dismiss or overlook the impact of verbal & written safety netting advice and reliable websites that you can point people to. Using them together seems to help to reduce antibiotic consumption and reconsultations, although the evidence is a bit weak.

TARGET: Patient Information Leaflets Treating Your Infection RTI Leaflet (suitable for children)

TREATING YOUR
RESPIRATORY TRACT INFECTION (RTI)



Your infection

- Middle-ear infection
- Sore throat
- Sinusitis
- Common cold
- Cough or bronchitis
- Other infection _____

Most are better by

- 7 to 8 days
- 7 to 8 days
- 14 to 21 days
- 14 days
- 3 to 4 weeks
- Days _____

How to look after yourself and your family

- Have plenty of rest
- Drink enough fluids to avoid feeling thirsty
- Ask your local pharmacist to recommend medicines to help reduce your symptoms or pain (or both)
- Fever is a sign your body is fighting the infection. It usually gets better by itself in most cases. You can use paracetamol if you (or your child) are uncomfortable because of a fever
- Use a tissue to cover coughs and sneezes and wash your hands with soap to help prevent spreading infection to your family, friends and other people
- Never share antibiotics and always return any unused antibiotics to a pharmacy for them to dispose of safely.

When to get help

If any of the below apply to you or your child, get an urgent assessment from a healthcare professional. If your child is under the age of 5, go to A&E immediately or call 999.

- Your skin is very cold or has a strange colour, or you develop an unusual rash
- You have new feelings of confusion or drowsiness or have slurred speech
- You have difficulty breathing. Signs that suggest breathing problems include:
 - 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

If you (or your child) have any of the following symptoms, are getting worse or are sicker than you would expect (even if your temperature falls), trust your instincts and get medical advice urgently from NHS 111 or your GP.

- You develop a severe headache and are sick
- You have a red, swollen tongue
- You have redness, swelling and pain around the eyes or the ears
- You develop chest pain
- You have difficulty swallowing or are drooling
- You cough up blood
- You are peeing very little, or not at all
- You are feeling a lot worse
- Your child has a middle-ear infection and fluid is coming out of their ears or they have new deafness

Less serious signs that can usually wait until you visit a pharmacist or your next available appointment

- You are not starting to improve a little by the time given in the 'Most are better by' column in the table above
- You have mild side effects such as diarrhoea. Get advice from a healthcare professional if concerned

Back-up antibiotic collection

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

- 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
- If you need antibiotics, take them exactly as prescribed. Never save them for later and do not share them with others. For more information, visit: www.antibiotguardian.com.

Why it is important to take antibiotics as prescribed

Taking any antibiotics makes bacteria that live inside your body more resistant. This 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 the antibiotic metronidazole.



TARGET is operated by the UK Health Security Agency. The leaflet has been developed with healthcare professionals, patients and professional medical bodies. Version 10.0. Published November 2024. Review November 2027. KAN18-07 © Crown copyright 2024.


Includes information on the usual duration of illness

- How to self-care
- Safety netting information
- Back up antibiotic prescription
- Antimicrobial resistance

Available at TARGET [website](https://www.target.org.uk) 52

The audience should be pretty familiar with the TARGET leaflets, so you shouldn't need to spend any time on this slide – it's just there as a reminder.

TARGET: Patient Information Leaflets Pictorial leaflets

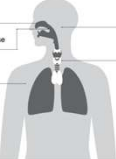


RESPIRATORY TRACT INFECTION

A step-by-step guide on how to manage your infection


What is an RTI?
A respiratory tract infection (RTI) occurs in the upper or lower respiratory tract, causing symptoms. A RTI is usually caused by a virus, but can sometimes be bacterial.

What are some common symptoms of an RTI?


<p>Nasal cavity</p> <ul style="list-style-type: none"> - Blocked or runny nose <p>Sinuses</p> <ul style="list-style-type: none"> - Pain - Swelling <p>Lungs</p> <ul style="list-style-type: none"> - Cough - Shortness of breath - Coughing up mucus 		<p>Ears</p> <ul style="list-style-type: none"> - Earache <p>Throat</p> <ul style="list-style-type: none"> - Sore throat - Swollen tonsils
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

1 Help yourself to feel better


Whatever your infection, you can do the following to help.




Take paracetamol to reduce pain. Always follow the instructions on the packet.




Ask your pharmacist for advice on reducing your symptoms.




Get plenty of rest until you feel better.



Drink enough fluids to avoid feeling thirsty.




Use tissues when you sneeze to help stop infections spreading.




Wash your hands regularly and after using tissues.


For more information, visit the NHS website at www.nhs.uk. Most common infections get better without antibiotics. Find out how you can make better use of antibiotics at www.antibiotic-quantum.com.

2 Check how long your symptoms last




Earache
Most get better by 7 to 8 days







Sore throat
Most get better by 7 to 8 days






Cold
Most get better by 14 days













Cough
Most get better by 3 to 4 weeks







If you are not starting to improve a little by the times given above, visit a pharmacist or contact your GP practice. If you are feeling a lot worse, phone NHS 111 or NHS 24 (see step 4).

3 Look out for serious symptoms

If you have an infection and develop any of the symptoms below, you should see a doctor urgently. Ring your GP practice or call NHS 111 or NHS 24.

 Severe headache	 Very cold skin	 Trouble breathing	 Feeling confused
 Chest pain	 Problems swallowing	 Coughing blood	 Feeling a lot worse

4 Where to get help

 NHS 111	 NHS 24	 NHS Scotland	 NHS Northern Ireland
-------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------

If you have an emergency, call 999 immediately.

Available at TARGET [website](http://www.target.co.uk)

53

Same for this slide, this is the more pictorial version of the TARGET RTI leaflet

53

Sending TARGET Information Leaflets via AccuRx

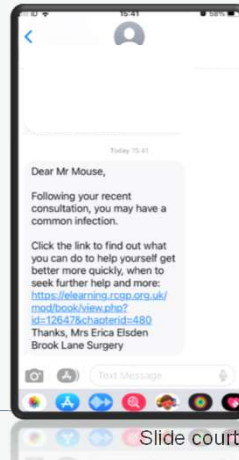
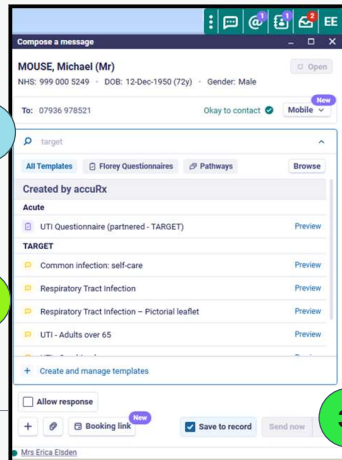
1. In the accuRx message template search bar, type "target"

2. Click on the desired TARGET patient leaflet

3. Press 'Send Now'

4. The patient will receive a link to the chosen patient leaflet

5. The link will bring the patient to the leaflet on the TARGET website



Slide courtesy of Erica Elsdon, HIOW ICB 54

Most clinicians will be familiar with sending patient-facing resources electronically, this is just a reminder of how to do it via AccuRx

Children with coughs (Polar bear) leaflet

Caring for children with **COUGHS**



This leaflet contains information about how to look after a child who has a cough (not due to asthma). For more detail see www.bristol.ac.uk/child-cough



COUGH

Coughs can last for 3-4 weeks and make your child feel quite unwell but will still get better by themselves.

'Noisy chests' or 'chesty coughs' are quite common when young children catch a cold and are not necessarily a sign of a 'chest infection'.

Healthy children typically get a cough 7-10 times a year and this is not a sign that there is anything wrong with their immune system.

© University of Bristol

DISTURBED SLEEP

Coughs will often wake your child in the night. When the child lies down, more of the mucus from the nose and throat runs downwards and your child coughs more to clear it.

Coughing is part of the body's defence system which helps keep the lungs clear and fight the illness. Unfortunately this can wake the child in the night but does not mean the illness is more severe.

For children over 1 year, a spoon of honey (perhaps in a warm drink) half an hour before bed may help them to wake less often.

For children over 2 years, vapour rubs (containing camphor, menthol and/or eucalyptus) may help children sleep better.



FEVER/HIGH TEMPERATURE

In children, a temperature of over 37.5°C is considered a fever.

Fever is a normal response to illness and does not harm children. It may even help to fight illness.

Children with a high temperature may be more likely to have a more severe illness, although most do not. Occasionally a child may have a fit. This shouldn't cause harm and treating the fever doesn't prevent it.

It is safe to use child paracetamol and ibuprofen to manage children's fever (and pain) for as long as needed. Follow the dosage on the bottle.

DRINKING/EATING LESS

Children often eat and drink less when they have normal childhood illnesses. Most children can go a few days without eating much and this will not affect their longer term growth and development.

All children need to drink regularly to avoid becoming dehydrated, especially if they are vomiting.

To help prevent dehydration, encourage your child to have sips of water.



Available at: bristol.ac.uk/child-cough

55

The Polar bear leaflet is a really nice resource for parents/carers of young children with coughs – more child friendly than the TARGET RTI leaflet.

Healthier Together website

Healthier Together website: www.healthiertogether.nhs.uk

Integrated website for parents/carers & young people as well as healthcare professionals

Resources for HCPs
Safety netting & parent information sheets
Education and training resources

Parent information sheets on:

- Bronchiolitis
- Cough/colds (under 1's and over 1's)
- Otitis media
- Rhinosinusitis
- Tonsillitis/sore throat

The Healthier Together website is a fantastic resource to promote to both primary care clinicians and parents/carers of children – there is lots of great content relating to RTIs (as show here), but also a huge range of other conditions and concerns that parents might have, including mental health.

The website is available in a huge range of different languages and the content can be read aloud in that language if people are unable to read their native language.

Take home messages

- The demand for antibiotics for RTIs seems unrelenting – we need to get better at managing that
- Key actions:
 - Effective/successful consultations that address parent/carer concerns and expectations
 - Communicate and be explicit about the expected duration of symptoms (how long it will take 90% of children to feel better)
 - Provide verbal and written safety netting advice
 - Signpost to Healthier Together website for additional support
 - Make sure the whole team is taking the same approach



Thank You

 [@nhsengland](https://twitter.com/nhsengland)

 [company/nhsengland](https://www.linkedin.com/company/nhsengland)

 [england.nhs.uk](https://www.england.nhs.uk)



Feedback and upcoming events

Please complete the feedback survey and let us know what topic you would like next!

Sign up for our next webinars or recommend to colleagues:

From guidance to practice: managing paediatric RTIs through clinical scenarios
Wednesday 21 January | 2026 18:30 - 19:30 | Online

Clinical decision making for skin infections: from Group A Strep to insect bites
Tuesday 17 March 2026 2026 | 18:30 - 19:30 | Online



All webinars are recorded and published on the toolkit after the event.

Visit www.rcgp.org.uk/TARGETantibiotics to find out more and sign up to our contact list



Panel discussion