

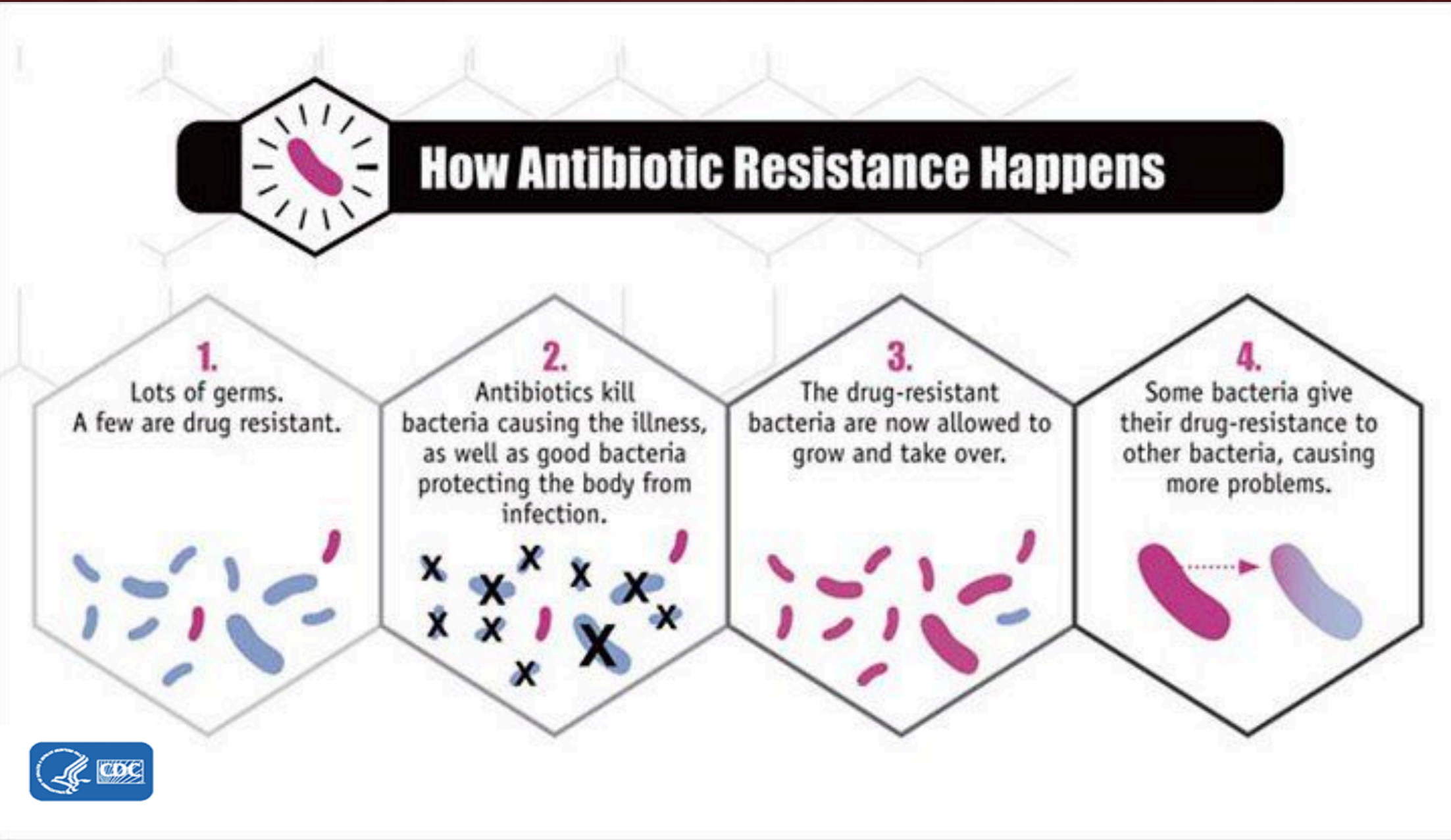
# Effects of Delayed Antibiotic Prescribing Vs. Immediate or No Antibiotic for URI's in Primary Care: A Systematic Review

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## Introduction

- Delayed antibiotic prescribing (DAP) or the "wait and see" approach is when the provider prescribes the antibiotic but advises the patient to start the antibiotic only if symptoms worsen.
- The most significant cause of antimicrobial resistance is the excessive and inappropriate use of antibiotics (Spurling et al., 2017).
- Agency for Healthcare Research and Quality (2016) found that at least 2 million people are affected by antibiotic-resistant bacteria, causing 23,000 deaths each year.
- Across the country, upper respiratory infections account for 10 million office visits per year with over \$22 billion in patient costs (Thomas & Bomar, 2022).
- Primary care providers prescribe about 64 percent of all antibiotics (Shuldiner et al., 2022).
- Inconsistent support of delayed antibiotic prescribing have been found in previous studies and within the United States' medical providers, but recommendations for DAP persist in international guidelines and continue to be discussed in literature (Spurling et al., 2021).



## Purpose

The purpose of this project was to evaluate new evidence and the overall effects of delayed antibiotic prescribing on patients with URI's in the primary care practice.

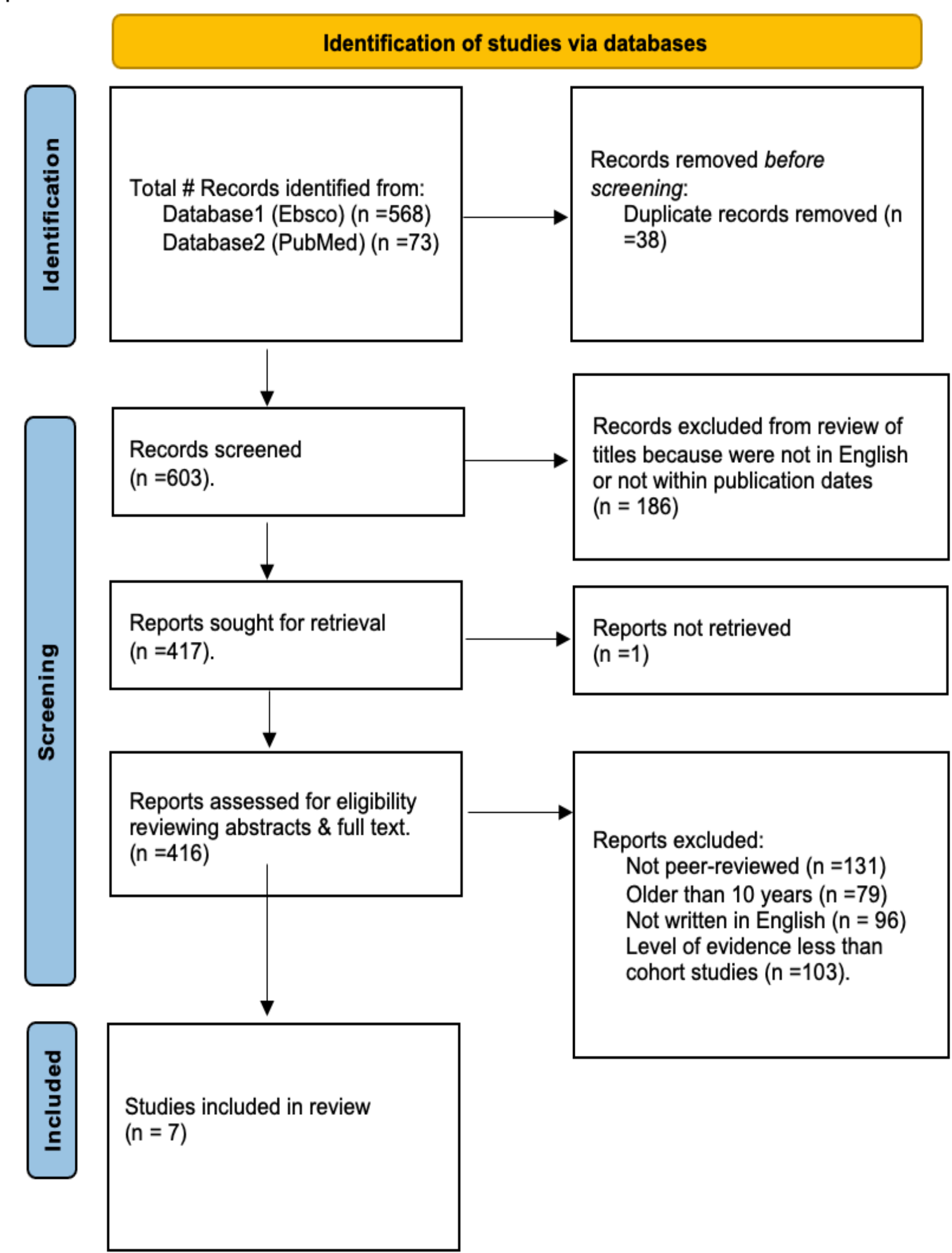
## PICOT Question

In primary care, how does providing a “delayed antibiotic prescription,” compared to an “immediate antibiotic prescription” or “no antibiotic prescription,” affect antibiotic prescription and use, patient outcomes, and satisfaction rates when managing upper respiratory tract infections?

## Methods

- This systematic review of the literature was guided by the PARIHS (Promoting Action on Research Implementation in Health Services) model.
- Databases used in this review to gather the literature included JSTOR Journals, Health Source, OVID, CINAHL, Cochrane, PubMed, and MEDLINE.
- Key words for this search: Delayed antibiotic prescribing, No antibiotics, Upper Respiratory Infections, Treatment, Primary care, and Patient satisfaction
- Articles were screened by the inclusion criteria: articles had to be primary research, peer reviewed, published in English within ten years, and addressing the prescription of antibiotics for management of URI symptoms in primary care.
- Articles' quality appraisal score of less than 4 were excluded from this review.
- Rapid critical appraisal tools from a reference textbook (Melnyk & Fineout-Overholt, 2019) were utilized to evaluate for the article's validity, reliability, and applicability to answer the PICOT question.

Prisma 2020 Flow Diagram



## Results

- An Evidence Synthesis Table was used to organize and summarize the relevant information from the individual studies.
- The final sample of studies included a total of five randomized controlled trials (RCTs) (de la Poza Abad et al., 2016; Mas-Dalmau et al., 2021; Hoye et al., 2013; Little et al., 2014; Moore et al., 2017) and three cohort studies (Francis et al., 2012; Moore et al., 2017; Staa et al., 2021).
- Sample sizes for RCTs ranged from 398 (de la Poza Abad et. al, 2016) to 889 (Little et. al, 2014) with a total sample size across studies of 2,999.
- The cohort studies' sample sizes ranged from 1107 participants (Moore et al., 2017) to 1.96 million (Staa et al., 2021), totaling 1,964,475 participants.
- All studies focused on examining the effectiveness of DAP compared to immediate antibiotic prescription (IAP) or no antibiotic prescription (NAP) in patients with RTI symptoms.
- Only three articles (de la Poza Abad et. al, 2016; Little et. al, 2014; Mas-Dalmau et. al, 2021) measured patients' satisfaction with DAP. Two found higher levels of patient satisfaction with DAP while one contracted their results.
- All studies were conducted outside of the United States.
- Study findings overall revealed two major themes: Delayed antibiotic prescribing lessens antibiotic use and antibiotic prescribing type has minimal effect on symptom severity.**
- Mas-Dalmau et al. (2021) found that when DAP was provided to children, they were less likely to take the medication (25.3%) when compared to adults (32.6%).
- Other outcomes inconsistently measured throughout the studies:** risk for hospitalization admission, DAP with antibiotic usage in rural area versus urban area, and prescription practices by gender of provider.

## Implications for Practice

- The estimated mortality rate from drug-resistant bacteria may surpass 10 million per year by 2050 (O'Neill, 2013).
- Margione-Smith et al. (2015) found an 85 percent decrease in antibiotic prescribing and increased patient satisfaction when providers took their time to explain why antibiotics are not needed and give recommendations on symptomatic management.
- Across the studies, delayed antibiotic prescription has been illustrated to reduce antibiotic use in patients with RTI symptoms.
- DAP appears to be a safe and effective antibiotic strategy for most patients without causing additional harm.
- Compared to no prescription approach, DAP reduces re-consultation rates, and therefore the workload of general practitioners, with slightly higher levels of patient satisfaction (Stuart et al., 2021).
- There was no relationship between DAP and higher level of complication rates when compared to immediate and no antibiotic prescription.

## Recommendations

- Future studies should be conducted in the U.S. to explore barriers and opportunities to improve uptake of delayed antibiotic prescription.
- Future randomized controlled trials of DAP as an intervention should include clear instructions and expectations for the participants on how to appropriately report symptoms, patient satisfaction, provider satisfaction, complication rates, and prescription rates along with use.
- Providers should utilize delayed antibiotic prescribing to improve antibiotic overuse for URIs.
- Providers need to continue to stay up-to-date on current treatment guidelines and educate patients along with providing information on why they do not require an antibiotic.
- A strategy would be to employ a clinic informatics specialist to implant current guidelines in the EMR.
- Those who do support DAP in their respective clinic should push the other providers to adopt the approach as well.
- Audit and feedback is a common implementation strategy used to change providers' clinical practice.

Common Respiratory Infections	Common Cause			Are Antibiotics Needed?
	Virus	Virus or Bacteria	Bacteria	
Common cold/runny nose	✓			No
Sore throat (except strep)	✓			No
COVID-19	✓			No
Flu	✓			No
Bronchitis/chest cold (in otherwise healthy children and adults)*		✓		No*
Middle ear infection		✓		Maybe
Sinus infection		✓		Maybe
Strep throat			✓	Yes
Whooping cough			✓	Yes

References available upon request.