Researcher: Australia is one of the world's biggest prescribers of antibiotics, but they're often unnecessary

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"I think I need antibiotics" is a common assumption many of us make when we have cold and flu like symptoms.

It's understandable why we might feel this way—we're keen to treat our symptoms quickly to feel better and return to daily life. A GP appointment or visit to a pharmacist to request a course of antibiotics may seem like the sensible thing to do, however in many cases they aren't needed.

Our antibiotic assumptions are harmful

The reality is bacterial infections—which require treatment with antibiotics—are not nearly as common as viral infections like the common cold. Antibiotics don't kill viruses and so aren't effective in curing viral infections.

"I need a course of antibiotics for at least a week or two" is another false assumption many of us make. Contrary to common belief, sometimes, a three to five-day course of antibiotics is sufficient for a full recovery from a particular bacterial infection.

In these two situations, unnecessary use of antibiotics is harmful for gut health and causes the emergence of antibiotic-resistant bugs and infections in the community.

The use of antibiotics to treat viral infections, unnecessary use of antibiotics for longer periods, or using an underdose or overdose causes antimicrobials and antibiotics to become ineffective over time, a phenomenon called antimicrobial resistance (AMR). Antimicrobial resistant superbugs like COVID-19 may even spread to other people in the community and within hospitals.

AMR is making infections harder to treat and increasing the risk of disease spread, severe illness and deaths. AMR is the cause of death for 700,000 people worldwide each year. However, the figure could rise to 10 million by 2050, costing over $100 trillion.

An antibiotic-loving country

Dr. Sajal Saha, a Research Fellow with Deakin's School of Medicine, says Australia is one of the highest antibiotic prescribing countries in the developed world. Estimates suggest that one third of all antibiotic prescriptions made in the community are inappropriate, and antibiotic-resistant infections are spreading, which is a human health concern.

While working in clinical settings in Australia, Timor-Leste and Bangladesh, Dr. Saha's routine observation of misuse of antibiotics in communities and deaths of patients (including children) caused by resistant bugs was the source of his commitment and passion for driving change.

"Compared to national guideline recommendations, antimicrobials continue to be overprescribed in Australia, with 30% to 50% of antibiotic prescriptions in primary care being inappropriate either in choice, dose or duration," Dr. Saha says.

A 2018 survey of more than 570 antibiotic prescriptions by GPs found that 57% were inappropriate. A 2021 study found that 81% of Australian patients with acute bronchitis and 80% of patients with acute sinusitis continued to be prescribed antimicrobials, despite no evidence of their benefit (ACSQHC, 2021).

Doctors under pressure

Dr. Saha says that many people expect or demand antibiotics from doctors, misuse antibiotics by failing to take their dosage correctly or use their antibiotic course in a way that goes against the recommendations of prescribers.

"Doctors cite a number of reasons for unnecessary prescriptions,

including uncertainty in the diagnosis or cause of infection, patient and parent self-diagnosis and limited training and resources.

"In many situations, GPs can't be sure about the severity of infections or if the infection is bacterial or viral because a lack of prompt diagnostic testing services, and so prescribe antibiotics as a safety net."

"My work is trying to improve capacity of GPs and community pharmacists with point-of-care diagnostic testing services—known as C Reactive Protein CRP testing. This'll help prescribers better understand the severity of infections or confirm bacterial infections for respiratory infections during their patient consultation and prescribe antibiotics accordingly, when they're needed," Dr. Saha says.

Promoting antimicrobial stewardship

According to Dr. Saha, embracing the concept of antimicrobial stewardship (AMS) in primary care will play an important role in reducing the risk of AMR.

In Australia, AMS programs involving GP-pharmacist collaboration are well established in secondary (hospitals) and tertiary care (specialists). However, he says such collaborative care models must be extended to primary care between GPs and community pharmacists for effective AMS implementation.

"Given 80 percent of antibiotics are consumed within primary care, we're establishing a program to tackle it through fostered collaboration between general practice and community pharmacy," he says.

In a policy brief for the Deeble Institute for Health Policy Research, Dr. Saha has laid out 11 key recommendations to address gaps in current health systems structures, and policies that support GP-pharmacist

collaboration for establishing AMS programs in primary care in Australia.

Dr. Saha led a 2019 nationwide survey of 386 Australian GPs and 613 community pharmacists to assess their awareness of and uptake of AMS strategies, their attitudes towards GP–pharmacist collaboration, and future improvement strategies.

"The survey showed that Australian GPs and community pharmacists are aware of AMS, but most don't routinely adopt known evidence-based AMS strategies in routine patient care.

The research found GPs are more likely to use the Therapeutic Guidelines than pharmacists. Pharmacist's current scope of work doesn't encourage them to routinely use guidelines to verify dose and duration of antibiotic prescription.

"The majority of GPs hold positive attitudes towards working collaboratively with pharmacists in implementing AMS, but there are obviously barriers to them doing so."

A model for change

Dr. Saha sees huge potential in drawing on the expertise of community pharmacists to support GPs' decision making and patient adherence to safe antibiotic use.

"My GP-pharmacist antimicrobial stewardship (GPPAS) model framework supports a collaborative, multifaceted and multidisciplinary approach that engage health care leaders, GPs, pharmacists, microbiologists, nurses, infectious disease specialists and IT experts to improve antimicrobial stewardship in primary care," he says.

"The core aim of the GPPAS program is to ensure that a patient is given and takes the right antibiotic for right infection, at right time, in the right dosage, in the right form—tablet or injection—and for the right duration."

Without action, the expected global costs of antimicrobial resistance will exceed $1 trillion by 2050 (Chokshi et al., 2019).

Dr. Saha is currently researching on point-of-care CRP testing and rapid antigen testing services in GP and pharmacy practices to inform future policies for enhanced antimicrobial stewardship in respiratory infections.

Provided by Deakin University

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