

Antibiotics

Keeping the miracle alive

Paul Glasziou, Karin Thursky

IN FEBRUARY 1941, HOWARD FLOREY'S team in Oxford had purified enough penicillin to treat the first patient – Albert Alexander, a young policeman with abscesses across his face and body. Intravenous penicillin resulted in a dramatic improvement within 24 hours, but the supply ran out after five days, and Constable Alexander died a few weeks later. That treatment miracle, and supplying running out, mirrors our growing crisis of antibiotic resistance today. Antibiotic stewardship sits at the front line of the global challenge of antibiotic resistance. This issue of *Australian Journal of General Practice* includes a series of articles on antibiotic stewardship in primary care, and what might be done at policy, general practice and patient levels.

The most recent AURA report shows worryingly high rates of resistance and multi-resistance in Australia, despite some decline in antibiotic use in primary care over the past decade.¹ However, community use of antibiotics in Australia remains high: only five of 31 comparator countries had higher rates than Australia, and Sweden and the Netherlands, had rates that were half ours. As van Driel and colleagues point out,² there are identifiable targets for action, such as the high rates (70–80%) of antibiotic use in cough and acute bronchitis, which could be safely lowered to near zero.

Patient demand is often blamed for the problem of antibiotic overuse. There is an element of truth to that belief: some patients mistakenly believe that antibiotics are needed for all infections, particularly if they appear to be bacterial.³ Patients and clinicians generally overestimate the reduction in duration of symptoms by 2–3-fold. Periodic media campaigns

by the National Prescribing Service have assisted, but there is an urgent need for a sustained public campaign to raise awareness. A social norm intervention where the Chief Medical Officer sent letters to high-prescribing general practitioners (GPs) and provided peer comparison was very effective in reducing prescriptions but was not sustained.⁴ However, the largest educational force for patients is GPs, who can help to correct patients' misunderstandings. Del Mar and colleagues examine the processes and impact of shared decision making to help patients better understand the realistic benefits and harms of antibiotics.³

There are many stewardship activities that GPs can participate in. For example, holding practice meetings to discuss case studies about infections or antibiotic use; to implement a practice policy, perhaps with a waiting room poster; to undertake audit and feedback; to learn about alternatives to antibiotics; to better learn to manage uncertainty and to identify patients with serious infections such as sepsis. One essential intervention that has demonstrated that antibiotics can be safely reduced is delayed prescribing, which can help manage patient expectations and provides a chance to coach patients on when antibiotics are really needed. Some general practice registrar programs now include antibiotic stewardship programs, which include training in the skills of delayed prescribing.⁵

At the current rate of decline in antibiotic prescribing, Australia will take another 40 years to match the Netherlands and Sweden.² Similar to action on climate change, that pace is far too slow. Australia needs sustained and coordinated action that is sufficiently resourced and comparable in scale and scope to the Swedish Strategic Programme Against Antibiotic Resistance

(Strama) program. The role of regulation and policy in driving judicious use is essential,⁶ but there are many unanswered implementation challenges in primary care that require a complex adaptive approach and will require renewed focus on technological and sociocultural barriers and facilitators.^{7,8} Australia cannot afford to be a laggard.

Authors

Paul Glasziou MBBS, PhD, Professor in General Practice, Centre for Research in Evidence-Based Practice, Bond University, Qld
Karin Thursky MBBS, BSc, MD, FRACP, FAHMS, Director, NHMRC National Centre for Antimicrobial Stewardship, Dame Kate Campbell Fellow, University of Melbourne, Vic

References

1. Australian Commission on Safety and Quality in Healthcare. AURA 2021: Fourth Australian report on antimicrobial use and resistance in human health. Sydney, NSW: ACSQH, 2021.
2. van Driel ML, Merlo G, Baillie E, Dartnell J, Hall L, Heal C. Preserving antibiotics for the future: Where Australian general practice sits on the global spectrum. *Aust J Gen Pract* 2022;51(1–2):10–13.
3. Del Mar C, Hoffmann T, Bakhit M. How can general practitioners reduce antibiotic prescribing in collaboration with their patients? *Aust J Gen Pract* 2022;51(1–2):25–30.
4. Australian Government Department of Health. Nudge vs superbugs: A behavioural economics trial to reduce the overprescribing of antibiotics. Canberra, ACT: DoH, 2018.
5. Magin P, Davey AR, Davis J. Evidence-based strategies for better antibiotic prescribing. *Aust J Gen Pract* 2022;51(1–2):21–24.
6. Glasziou P, Dartnell J, Biezen R, Morgan M, Manski-Nankervis JA. Antibiotic stewardship: A review of successful, evidence-based primary care strategies. *Aust J Gen Pract* 2022;51(1–2):15–20.
7. Avent ML, Cosgrove SE, Price-Haywood EG, van Driel ML. Antimicrobial stewardship in the primary care setting: From dream to reality? *BMC Fam Pract* 2020;21(1):134. doi: 10.1186/s12875-020-01191-0.
8. Thursky KA, Hardefeldt LY, Rajkhowa A, et al. Antimicrobial stewardship in Australia: The role of qualitative research in programme development. *JAC Antimicrob Resist* 2021;3(4):dlab166. doi: 10.1093/jacamr/dlab166.

correspondence ajgp@racgp.org.au