

WORLD ANTIMICROBIAL AWARENESS WEEK
18 – 24 November 2021: Spread Awareness, Stop Resistance

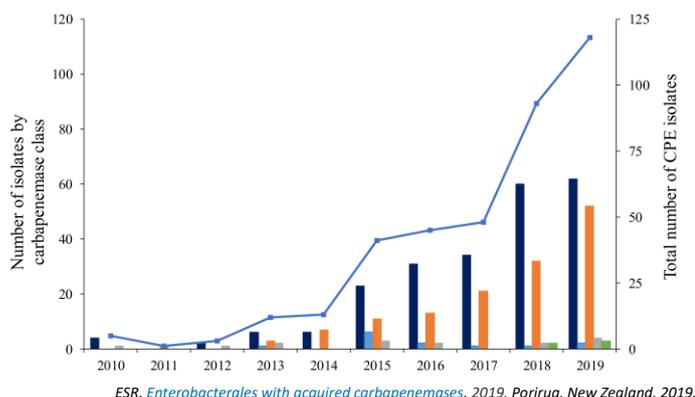
#KeepAntibioticsWorking #Teamof5million #ResistResistanceNZ #StopTheSpreadNZ #AntimicrobialResistance

- Antimicrobial resistance (AMR) is a global crisis, slower burning than COVID-19 but potentially as catastrophic.
- It is a growing problem in Aotearoa New Zealand and may cost us dearly – longer hospital stays, poorer outcomes from interventions like surgery and cancer-related care, increased mortality, and elevated healthcare costs.
- AMR will disproportionately impact the most socioeconomically disadvantaged amongst us, including Māori and Pacific Peoples, who are more susceptible to infections and have greater reliance on effective antimicrobial therapy.
- World Antimicrobial Awareness Week is a chance to think about steps we can take to preserve antimicrobial effectiveness, and to act. Our main strategies in clinical care are antimicrobial stewardship, and infection prevention and control (measures like hand hygiene and vaccination reduce infections and antimicrobial use).
- This year, we want to improve understanding about harms associated with incorrect penicillin allergy labelling (see our [resources](#) to learn more). As with COVID-19, our team of 5 million is needed to slow progression of AMR.

AMR IS A GROWING PROBLEM IN AOTEAROA NZ

- Multi-drug resistant organisms ('MDROs') already challenge healthcare in Aotearoa New Zealand. Of greatest concern are the multiresistant Enterobacterales (e.g. *Escherichia coli*), which are increasing in prevalence (Fig. 1).
- **Extended spectrum β -lactamase producing Enterobacterales ('ESBL-E')** are resistant to most penicillins and cephalosporins, and often unrelated agents like ciprofloxacin, making treating cystitis with standard funded oral agents difficult.
- **Carbapenemase producing Enterobacterales ('CPE')** are resistant to all β -lactams and have a 30-50% mortality rate when they cause invasive infections.

Fig 1: > 10-fold increase in CPE isolates identified in NZ during 2010 – 2019 (blue line)



ANTIMICROBIAL USE DRIVES AMR

HUMAN ANTIBIOTIC* USE IS VERY HIGH IN AOTEAROA NZ

- We had the 9th highest total antibiotic use out of 72 countries in 2015 (Australia and the UK did better than we did).¹
- Antibiotic exposure by the time our children reach school is near universal (97%).²
- 95% of our human antibiotic use is in the community.³
- Over 3 years (2015-2018) community antibiotic use reduced a little bit (by 14%).⁴
- During lockdown (2020) antimicrobial use decreased by a considerable 36% without evidence of harm.⁵
- Much of our 'usual' antibiotic use is for viral respiratory tract infections and unnecessary.

ANTIBIOTIC USE IS NOT BENIGN

- In addition to driving AMR, antibiotics can cause allergies, organ damage, and *C. difficile* diarrhoea.
- In a retrospective cohort study⁶, 27% (1488/5579) of adult internal medicine inpatients had received antibiotics:
 - 20% (298/1488) had at least one adverse antibiotic event (a quarter of these were an MDRO infection),
 - 19% (287/1488) of regimens were not indicated clinically.

Aotearoa NZ's total human antibiotic use could decrease by around one-third without an increase in harm.

HANDLE ANTIMICROBIALS WITH CARE

- Only use antimicrobials if the benefits outweigh the harms. Never use them 'just in case' or for 'worry'.
- If you need to use them, use them as well as you can – the 'right' agent, dose, route, and duration.
- Document the indication in the prescription to show you can justify antimicrobial use (this was our focus for World Antimicrobial Awareness Week 2020 – see [resources](#)).
- Document the duration or review date – most courses should be short and sharp (check guidelines or seek advice if unsure).
- Check your local guidelines and engage with speciality services if you need them.
- Review our penicillin allergy [resources](#) and work to challenge the veracity of these in your daily practice.

References

1. Klein EY et al., [Global increase and geographic convergence in antibiotic consumption between 2000 and 2015](#). PNAS 2018;115:15:E3463-E70.
2. Hobbs MR et al., [Antibiotic consumption by New Zealand children: exposure is near universal by the age of 5 years](#). J Antimicrob Chemother 2017; 72(6): 1832-40.
3. Duffy E et al., [Antibacterials dispensed in the community comprise 85%-95% of total human antibacterial consumption](#). J Clin Pharm Ther 2018; 43(1): 59-64.
4. Thomas M et al., [Reduced community antibiotic dispensing in New Zealand during 2015-2018: marked variation in relation to primary health organization](#). NZ Med J 2020; 133(1518):33-42.
5. Duffy E et al., [The impacts of New Zealand's COVID-19 epidemic response on community antibiotic use and hospitalisation for pneumonia, peritonsillar abscess and rheumatic fever](#). Lancet Reg Health – Western Pacific 2021; 12: 100162.
6. Tamma PD et al., [Association of adverse events with antibiotic use in hospitalized patients](#). JAMA Int Med 2017; 177(9): 1308-15.

*'Antibiotic' refers to antibacterial agents. 'Antimicrobial' is a broader term applying to agents active against bacteria, viruses, fungi and parasites.