Te Niwha

Research Project Impact Case Study

Patient reported preferences for intravenous or oral antibiotics in the treatment of *Staphylococcus aureus* bacteraemia: an exploratory descriptive qualitative study

Short Research Title

Patient reported preferences for IV or oral antibiotics in the treatment of *S. aureus* bloodstream infection

Key researchers

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Introduction

We are part of the international *Staphylococcus aureus* Network Adaptive Platform (SNAP) trial, aiming to find better treatments for *S. aureus* bacteraemia (SAB), a serious bloodstream infection that has high rates in New Zealand and a mortality of 15-20%. SAB is traditionally treated with very long courses of exclusively intravenous (IV) antibiotics. Compared with IV antibiotics, oral antibiotics may have less risk, cost and inconvenience. There is increasing evidence that partial *oral* antibiotic treatment for SAB and other serious infectious diseases is safe and effective.

PROSNAP is a Te Niwha-funded SNAP sub-study where we measure blood antibiotic levels from patients on IV and oral antibiotics (which we hypothesise will be similar, with no differences in clinical outcomes).

Clinicians tend to assume that patients prefer to take oral antibiotics for reasons of convenience and autonomy. However, a SNAP consumer group reported a preference for the IV route due to its perceived superior efficacy. There are no published studies reporting the views of patients themselves.

As part of PROSNAP, we undertook a qualitative study to explore patient preferences and perceptions of efficacy around IV and oral antibiotics. PROSNAP participants were invited to participate in a semi-structured interview with a researcher undertaking a Te Niwha-funded 'summer studentship' between November 2024 and January 2025. Written informed consent was obtained. Purposive sampling was used to provide a representative sample. Interviews were recorded and transcribed. Interviews were analysed using NVIVO, and grouped into themes.

Definitions: PICC: peripherally inserted central catheter – for administration of long-term IV antibiotics. Infuser – a pump containing 24 hours' worth of IV antibiotics used to deliver IV antibiotics at home.

Results

We interviewed 17 outpatients and one inpatient.

Table 1. Characteristics of PROSNAP patients participating in qualitative study

	Participants, n=18 (%)
Age in years (mean, range)	55.7, 22-86
Female	11 (61.1)
Ethnicity	
Maori	2 (11.1)
Pacific	5 (27.8)
NZ European	9 (50.0)
Indian/Fijian Indian	2 (11.1)
Place of residence	
South/East Auckland	11 (61.1)
Wellington and greater Wellington region	6 (33.3)
Tauranga	1 (5.6)

Themes:

1. Convenience
2. Timing and administration of antibiotics
3. Perceived efficacy of antibiotics
4. Most preferred route of antibiotics

Oral antibiotics were generally perceived as the most convenient, due to their lesser impact on activities of daily living (ADLs, such as showering, dressing, and mobilising), socialising and going out.

IV antibiotics were perceived as inconvenient due to their impact on ADLs, the vigilance required around the PICC, sleep disruption, and arranging daily life around visits from the district nurses (DNs) to manage the PICC and infusers.

The increased complexity of the timing and administration of oral compared with IV antibiotics was a strong theme. Oral antibiotic regimens often necessitated meal planning and aides-memoires such as cellphone alarms.

In general, IV antibiotics were perceived as likely to be more effective than oral antibiotics. Reasons postulated included the constant flow rate, higher dose, and direct delivery into the veins.

Overall there was a strong preference for the oral route based on convenience. Others cited a fear of the PICC and complications, stigma, and autonomy as reasons for preferring oral antibiotics. A minority preferred IV antibiotics because they appreciated the reassurance of the DNs' visits, or were worried about forgetting oral doses.

Impact

There are no studies published looking at patients' preferences and understanding of IV and oral antibiotics, a key knowledge gap as we move towards using more partial oral treatment for serious infections. Our research, which includes New Zealanders of different ethnicities, genders and ages, will allow clinicians and patients to have more nuanced, informed discussions about route of administration. Insights into concerns about the complexity of oral antibiotic regimens can lead to more rational prescribing and be balanced against the convenience of orals. Beliefs about efficacy of IV and oral antibiotics can be weighed against quantitative evidence generated by PROSNAP and SNAP *('Deliver integrated research programme in partnership with researchers, clinicians, Maori and Pacific people'; 'Contribute to international research through collaborations in infectious disease research')* . Promoting partial oral treatment is likely to save money and resource, and have a significant environmental impact in terms of plastic waste saved.

Those disproportionately affected by SAB are represented in this patient sample, and insights gained could form the basis of ongoing work e.g. cultural differences in the experiences of serious infection treatment. This in turn could inform the delivery of health interventions in partnership with those affected *('Contribute to improving health outcomes and increasing equity of health outcomes'*). We are proud of this partnership with patients who have survived SAB. Their generosity with their time testifies to the desire to be part of research that improves health outcomes.

This project has allowed us to mentor an emerging researcher (Ms Loughlin McGrath) and collaborate with University of Auckland researchers. With our SNAP UK collaborators, we plan to expand this work to the UK and other international sites, to strengthen our findings and provide international comparison.