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**Title:** Point prevalence survey of antimicrobial use in inpatients at Christchurch Hospital.

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**Introduction:** Antimicrobial resistance is the ability of microorganisms to grow in the presence of an antimicrobial that would normally kill them or limit their growth. It is a major threat to human health, as it means that antimicrobials may no longer be able to effectively treat infections. Antimicrobial resistance is a growing issue in New Zealand and overseas. To help slow this problem, we must all work to ensure that antimicrobials are used appropriately and only when needed. To do this it is important to understand how antimicrobials are used.

**Aim:** To undertake a point prevalence survey (a 'snapshot' audit) to establish the rate of antimicrobial use in adult inpatients at Christchurch Hospital, and assess compliance with local prescribing guidelines and PHARMAC restrictions, and the appropriateness of prescribing.

**Method:** All adult inpatients at Christchurch Hospital on 30 November 2017 were screened by 10 audit teams to identify those on antimicrobials at 8am on the study day and those who had received 'one-off' doses in the previous 24 hours. For each of these patients, information was collected on demographics (e.g. age, gender) and on the antimicrobials received (e.g. dose and indication for the antimicrobial prescribed). The teams then assessed whether the prescription complied with local antimicrobial guidelines and with PHARMAC restrictions. They also assessed whether the prescription was appropriate or inappropriate using a method adapted from Australia<sup>1</sup>.

**Results:** Of 464 adult inpatients, 229 (49.4%) were prescribed at least one antimicrobial. These patients had a mean age of 63 years, were 50.0% male, and most (86.9%) identified as NZ European. Of the 356 prescriptions given, 286 (80.3%) were to treat infections, 61 (17.1%) were to prevent infection, and the remaining nine (2.5%) were for conditions other than infection or were not assessable. Antimicrobials were most commonly used to treat community-acquired pneumonia, sepsis, peritonitis and urinary tract infections. Six antimicrobials (amoxicillin+clavulanic acid, cefazolin, cefuroxime, metronidazole, flucloxacillin and gentamicin) comprised half of all prescriptions (181/356 i.e. 50.8%). Most antimicrobials were given intravenously (53.7%) or orally (40.2%).

Of assessable prescriptions, 73.7% (165/224) complied with prescribing guidelines, 98.0% (349/356) complied with PHARMAC restrictions, and 84.0% (278/331) were assessed as appropriate. The indication for antimicrobial use was documented in the medical notes for 272 (76.4%) prescriptions and the review or stop date documented in 99 (27.2%).

**Discussion:** Point prevalence studies are an established method of monitoring antimicrobial prescribing patterns. They provide a 'snapshot' of prescribing that can be used to identify future initiatives to improve antimicrobial use and the effect of these. They also provide a benchmark to tell us how we compare with other hospitals in New Zealand and internationally.

To our knowledge, no DHB in New Zealand has published their own point prevalence study. Therefore, we chose to compare our findings with the published work from 281 hospitals in

Australia<sup>1</sup>. The rate of antimicrobial use at Christchurch hospital (49.4%) was higher than the mean observed in Australia (40.5%). The profile of the most common indications and antimicrobials was similar in both studies. All the measures describing prescription compliance and quality and documentation were similar. For example, the rate of guidelines compliance was 73.7% in Christchurch versus 70.6% in Australia, and of appropriateness was 84.0% versus 77.0%, respectively.

Some New Zealand district health boards have undertaken point prevalence surveys and have contributed to international surveys. However, we are not aware of any New Zealand data being published as independent reports. Our hope is that, in addition to assisting with our own work to promote appropriate antimicrobial use, our findings will provide external benchmarking for other public hospitals in New Zealand.

**Conclusion:** This initial point prevalence antimicrobial survey at Christchurch Hospital shows promising results with favourable guideline and PHARMAC compliance, and appropriate antimicrobial prescribing.

**Reference:**

1. National Centre for Antimicrobial Stewardship. Antimicrobial Prescribing Practice in Australia, Results of the 2015 National Antimicrobial Prescribing Survey. Available at: <https://www.naps.org.au>. Accessed 24 November 2017