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**Title:** Adverse drug reactions causing hospital admissions

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### **Introduction:**

*An Adverse Drug Reaction (ADR) is a response to a drug that is noxious and unintended which occurs at doses normally used in people.* ADRs are a common cause of hospital admission and occur frequently in hospital. Many ADRs are avoidable and valuable healthcare resources are used to treat ADRs. Every patient admitted to hospital in New Zealand has information about their stay coded using an international coding system, the "International Statistical Classification of Diseases and Related Health Problems" (ICD-10). ADRs are coded in this process, but this information is not generally analysed separately. This project was to summarise the information about ADRs recorded in hospital coding data.

### **Aims:**

To describe and quantify the adverse drug reactions recorded in Canterbury District Health Board (CDHB) coding data.

### **Methods:**

All hospital discharges for four years (1 July 2010 to 30 June 2014) in Canterbury were studied. We extracted all the coding data related to ADRs. For each case we also recorded patient age, sex, length of stay, specialty service, and the primary reason for admission.

For each hospital ADR the codes for both the ADR (the event) and the perpetrator drug were obtained and then grouped by diagnosis and by drug class. The data were analysed using Microsoft Excel®.

### **Results:**

There were 20,826 hospital ADRs recorded in CDHB coding data in four years (5,207 ADRs per year) from a population of 521,832 people in the Canterbury region. This is an incidence of one hospital ADR per hundred people per year. In a fifth of these (4304/20,826) the ADR was the primary cause of admission to hospital, about 20 hospital admissions per week in Canterbury. The most common perpetrator drugs were opioids (2,419 cases), anticoagulants (1,950 cases), and cytotoxic drugs (1,253 cases). The 3 most common ADRs were hypotension (low blood pressure and faints - 3,629 cases), bleeding disorders (1,744 cases) and nausea and vomiting (1,088 cases).

### **Conclusion:**

Adverse drug reactions are common and coding data are accessible and less resource intensive to analyse than other methods of ADR analysis. However, coding data have limitations: some coding is incorrect; the severity and preventability of ADRs are not recorded; and ADRs in the community are not recorded. By analyzing CDHB coding data the ADRs occurring in Canterbury hospitals were described and common ADRs and perpetrator drugs were identified. This information can be combined with information from other sources to help reduce the risk of future ADRs.