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Title: The incidence and prevalence of adverse drug reactions in a tertiary hospital

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Introduction:

Adverse drug reactions (ADRs) are harms to patients caused by drugs. ADRs are common, preventable, and add unnecessary cost to the healthcare system. New ADRs related to hospital admissions are coded, together with other diagnoses, after hospital discharge. All ADRs for each patient are recorded in the hospital drug chart. We wanted to see how well ADRs were recorded at Canterbury District Health Board (CDHB) hospitals, with a particular focus on pencillins.

Aim:

To describe the drugs and reactions recorded in discharge coding and compare that with drugs and reactions recorded in hospital drug charts, focusing on penicillins.

Impact:

This will help understand the burden of ADRs to patients and the health system. This will help understand the quality of ADR recording to help improve ADR recording and to help prevent ADRs.

Method:

We looked at the ADRs recorded in discharge coding and in hospital drug charts. The coding data were from all adults discharged from hospitals in Canterbury from 1 October 2014 to 30 September 2017. We described what drug classes most commonly caused ADRs, and what the most common reactions were. We compared this to the ADRs recorded in drug charts of adult inpatients from 1 December 2016 to 30 November 2017, focusing on penicillins.

Results:

There were 15,889 new ADRs in 10,225 discharges out of 300,592 discharges over the 3 year period. This is an incidence of 3.4% of hospital admissions. The most common classes of drugs causing ADRs were opioids and other analgesics, and anticoagulants. The most common reactions were hypotension and bleeding, followed by constipation and nausea and vomiting. There were 616 ADRs to penicillins, 3.9% of the total ADRs. The most common reactions to penicillins were related to the gut and skin.

There were 36,354 ADRs recorded in 17,079 patients out of 84,929 patients from one year of patient drug charts. This is a prevalence of 20% in hospitalised patients. Penicillins were 16% of the total, 36% of which were rash or other skin reactions. 19% of the reactions to penicillins were unknown.

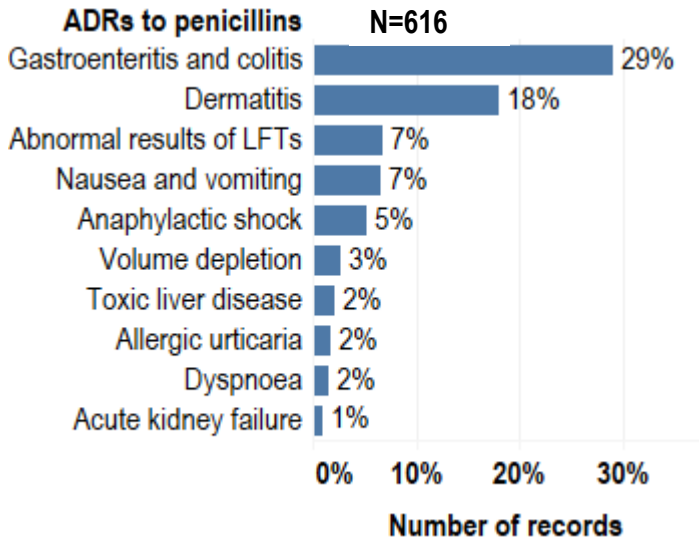

Figure 1. Most common ADRs to penicillins from coding data.

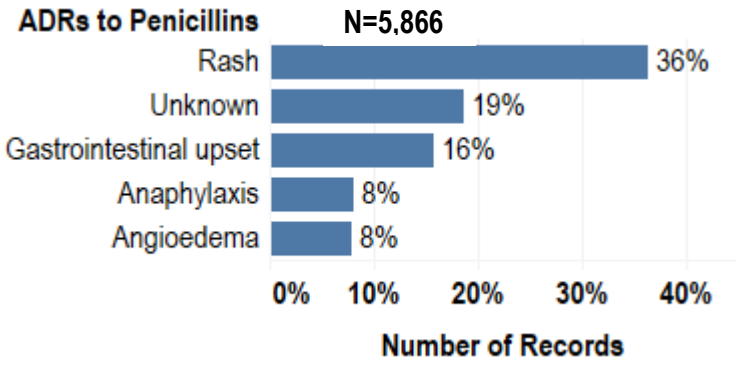

Figure 2. Most common ADRs to penicillins from hospital drug chart data.

Conclusion:

ADRs are common and many are preventable. Many ADRs are the expected adverse drug effects such as constipation. Our findings on penicillins suggest that some ADRs are incorrectly diagnosed, which can lead to people missing out on first line drugs. We also found that ADRs were often poorly recorded. By improving accuracy of diagnosing and recording ADRS we may be able to improve future treatment decisions.