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Project: Diagnosis and recording of adverse drug reactions in an electronic prescribing system

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Introduction:
Adverse drug reactions (ADRs) harm people, are common and cost a lot of money. ADRs are harmful reactions that occur during normal usage of a drug. An accurate record of each person's past ADRs in their health record is important to avoid future ADRs. Electronic prescribing is replacing paper prescribing in New Zealand. An advantage of electronic prescribing is the ability to record patients' ADRs and create pop-up alerts. When a drug is prescribed to a patient the software compares the prescription with previous ADRs and provides an alert, when necessary. The prescriber can either: a) cancel the prescription or b) override the alert and continue the prescription. MedChart™ is the prescribing software that has been selected by the New Zealand government to be installed in all public hospitals in New Zealand. MedChart™ is used by 4 Canterbury District Health Board (CDHB) hospitals. This study examined the use of MedChart™ for ADRs in the CDHB.

Aim:
1. To assess the ADR functions in MedChart™.
2. To assess patient ADRs recorded in MedChart™ by health professionals.
3. To assess the ADR alerts triggered by subsequent prescribing.

Method:
The way MedChart™ records ADRs was described and compared to CDHB policy. Data was extracted from MedChart™ for 6 months (1 May 2015 to 31 October 2015). The data included all prescriptions (one drug per prescription); all ADRs recorded and all ADR alerts triggered by subsequent prescriptions. This data were then analysed. The ADR descriptions were grouped into; description present, description written as 'unknown' (or similar) or left blank.

Results:
In MedChart™, ADRs can be recorded by drug or class and by allergy or intolerance. Local policy is to record the generic drug name and describe the ADR. For each ADR, the user selects a certainty: 'definite', 'probable' or 'possible', which complies with local policy. The user selects a status: 'active', 'resolved' or 'in remission', which is not required by local policy and not clearly defined. Free text is entered to describe the reaction. Over the 6 months, 2852 ADRs were recorded for 1210/2754 (44%) patients in MedChart™.

Of the ADRs, 62% were recorded as 'allergy', 16% as 'intolerance' and 22% as a class ADR. Certainty was recorded as: 92% 'definite', 3% 'probable' and 3% 'possible'. There was a description entered for 83% of the ADRs, 8% had an 'unknown' reaction and 9% had no description. Of the 'definite' ADRs, 7% had an 'unknown' reaction and 11% had no description.

This suggests misclassification is likely. Of the 2234 ADRs recorded by drug, 83% used the generic name and 17% used a brand name.

Over 6 months, there were 59509 prescriptions to the 2754 patients (median 18 per patient). ADR alerts were triggered by 2% of these prescriptions and 93% of these were overridden. This suggests that most alerts were not useful to the prescriber.

Conclusion:
Some users are not recording ADRs according to local policy. The ADR alert rate and subsequent override rate were similar to those found by previous researchers. The high override rate may mean that users are getting so used to ignoring alerts that they skip important ones along with unimportant ones. The terminology in MedChart™ could be improved to allow more accurate ADR recording. ADRs could be recorded by selecting the specific drug prescription that caused it.

Prescribing software could be improved by not requiring alerts to be manually overridden in some situations. Patient health data could be included in the software so that only relevant alerts are shown. Before any of these changes are made, MedChart™ users should be reminded of ADR recording policy so that the records are as accurate and useful as possible.