HEALTH INNOVATION SERIES
Evidence based recommendations to improve care delivery and outcomes

How big a problem are drug-drug interactions and are they harming patients?

Clinical decision support (CDS) such as drug-drug interaction (DDI) checkers can increase the safety of electronic medication systems (EMS). However, implementing these features without critical evaluation may result in poor usability, irrelevant information being presented to clinicians and alert fatigue. While many drug-drug interactions are theoretically possible, they may not be clinically significant, and presenting all DDI information to clinicians may result in frustration and a tendency to ignore important interactions.

In some cases, DDIs may only be relevant when medications are prescribed above a certain dose or over an extended period; or may only be relevant in certain patients such as those with reduced hepatic or renal function, older patients or those with conditions such as chronic heart disease or obstructive sleep apnoea.

While potential DDIs are frequent, only a small proportion of DDIs result in patient harm. An Australian study reviewed 1170 patient admissions at three hospitals and identified 70% of patients had at least one potential DDI. Only 27% of these potential DDIs were classified as clinically relevant for the patient concerned. For every 10 drugs prescribed, the average number of potential DDIs was nine, with an average of two considered to be clinically significant. Of the 1170 admissions reviewed, only 11 (<1%) patients experienced harm (e.g. excessive sedation) that was plausibly or probably caused by a DDI.

Strategies to tailor the presentation of DDI information and alerts to clinicians should be considered to ensure their effectiveness and reduce alert fatigue.

SYSTEM OPTIMISATION TIP#1

Reduce the number of DDI alerts to critical combinations of medications to reduce alert fatigue.

SYSTEM OPTIMISATION TIP#2

Consider which clinicians should see DDI alerts in the system, and at what level of interaction severity.

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SYSTEM OPTIMISATION TIP#3

Undertake regular audits of DDI alerts to determine if the information presented to clinicians is being actioned and which DDI alerts should be de-implemented.

SYSTEM OPTIMISATION TIP#4

Build tailored clinical decision support to make alerts more clinically relevant by taking into account medication and patient parameters that may increase the risk of DDIs causing harm such as dose, renal function, age, sex and comorbidities.

References:

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