

Computerised Decision Support Alerts for High-Risk Drug Combinations



Existing clinical decision support systems (CDSSs) designed to prevent drug-drug interaction (DDI) often generate low-yield alerts, leading to alert fatigue among physicians and jeopardising patient safety.

A recent study focuses on the impact of tailoring DDI alerts to the ICU setting to reduce the frequency of high-risk drug combinations. The multicentre study aims to assess how customising DDI alerts for the ICU setting can mitigate the problem and improve patient outcomes.

The study was conducted in nine ICUs in the Netherlands. Among these, five ICUs were already using potential drug–drug interaction (DDI) alerts. The intervention involved implementing an adapted CDSS in the form of alerts for high-risk DDIs. The alerts were targeted at physicians in the ICU setting. The hypothesis was that by showing only relevant alerts, the CDSS would be more effective, reducing the number of administered high-risk drug combinations.

The primary outcome measured was the number of high-risk drug combinations administered per 1000 drug administrations per patient, assessed in all eligible patients aged 18 years or older admitted to the ICU with at least two drugs administered.

Between September 1, 2018, and September 1, 2019, 10,423 patients admitted to the ICU were evaluated, with 9,887 patients included in the study. The intervention group ($n=5,534$) receiving tailored DDI alerts in the ICU had a mean of 26.2 administered high-risk drug combinations per 1000 drug administrations per patient. In comparison, the control group ($n=4,353$) without tailored alerts had a higher mean of 35.6 administered high-risk drug combinations per 1000 drug administrations per patient. Customising potential DDI alerts in the ICU resulted in a 12% decrease in the number of high-risk drug combinations administered per 1000 drug administrations per patient after adjusting for clustering and prognostic factors.

Findings from this study demonstrate that customising potential DDI alerts for the ICU setting significantly reduced the number of administered high-risk drug combinations. The high-risk drug combination list developed in this study can be applicable to other ICUs, and the strategy of tailoring alerts based on clinical relevance has the potential to be extended to different clinical settings beyond the ICU.

Source: [The Lancet](#)

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