**Ineffectiveness of a non-interruptive electronic medical record-based clinical decision support alert for adverse inpatient glycaemia**

Objective: Hypo- and hyperglycaemia are two major issues for hospital inpatients with diabetes resulting in increased complications, risk of mortality, and longer length of stay. We aimed to investigate whether implementation of a non-interruptive electronic medical record (EMR)-based alert was associated with changes in medication prescribing for patients with hyper- or hypoglycaemic events.

Method: This study was conducted as a pre- and post- implementation analysis over three 6-week time periods: baseline (14/9/22-25/10/22), transition (26/10/22-6/12/22) and intervention (7/12/22-17/1/23) at The Royal Melbourne Hospital. A non-interruptive alert for hypo- and hyperglycaemia was deployed through the hospital EMR through an architecture known as “Best Practice Advisories” (BPA), which provided management recommendations. Non-interruptive deployment was hospital mandated to avoid ‘alert fatigue’. The primary outcome was alert acknowledgment and whether an action was taken. Secondary outcomes included changes in incidence and recurrence of adverse glycaemic events.

Results: During the intervention period acknowledgement rates were 1.0% (2/199) for hypoglycaemia and 0.1% (1/852) for hyperglycaemia alerts. Implementation of the BPA was associated with no significant change in medication modification in response to a hypoglycaemic event (relative risk [RR] 0.89, 95%CI 0.46-1.67, p=0.68) or hyperglycaemic event (RR 0.69, 95%CI 0.39-1.20, p=0.19) compared to baseline. There was no significant difference in risk for hypoglycaemic (RR 0.92, 95%CI 0.40-2.10, p=0.84) or hyperglycaemic events (RR 1.29, 95%CI 0.78-2.11, p =0.32) between the intervention and baseline cohorts.

Conclusion: The non-interruptive BPA alert was not acknowledged in almost all cases and wasn’t associated with differences in medication prescribing patterns or changes in adverse glycaemic events. It is likely that an interruptive alert would have resulted in greater changes, but at the cost of increased clinician ‘alert fatigue’. The implementation of technology into diabetes care holds promise but further research is required to determine barriers to implementation and the characteristics of optimal deployment.