

Utilization of Computer-Guided Insulin Dosing Decreases Hypoglycemia Adverse Drug Events, Length of Stay and Costs at Large Pacific Northwest Health System

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Objective:

Inpatient hypoglycemia is associated with poor clinical outcomes and prolonged length of stay (LOS). In January 2018, in response to above-average incidence of hypoglycemia adverse drug events (HADE), as reported through Washington State Hospital Association's (WSHA) Quality and Safety Program, a large Pacific Northwest health system launched a glycemic management software platform, the eGlycemic Management System®(eGMS®), for IV and SubQ insulin titration. This study aimed to compare glycemic outcomes, LOS and cost per case when patients were managed with eGMS® versus routine care.

Method:

We conducted a retrospective review of the most recent quarter's HADE (BG < 50 mg/dl after hypoglycemic agent administration) reported to WSHA compared to HADE reported the quarter before eGMS®. After three months' eGMS® utilization, our Strategy Department compared impact of eGMS® versus routine care on LOS and cost per case for patients with diabetes ranked in the top 5 inpatient stay diagnoses and for patients admitted with DKA and HHS.

Result:

WSHA-reported HADE decreased 44%, from 7.1% in Q4-2017 (before eGMS® implementation) to 4.0% in Q3-2019 (p<0.000). BGs in the target range (70-180 mg/dL) decreased 9.7%, from 71.1% to 64.2% (p<0.000).

Length of stay decreased by 0.6 days and cost per case by \$500 for patients whose insulin therapy was guided by eGMS® (compared to routine care). Among the subset of DKA and HHS, LOS decreased by 1.4 days and cost per case by \$1000.

Conclusion:

Utilization of eGMS® across the health system resulted in decreased HADE, LOS and cost per case among insulin-requiring patients. Health systems struggling to achieve glycemic control should consider integrating computer-guided insulin dosing into their glycemic care programming.