

Patient Safety Initiative: Reducing Adverse Drug Events (ADE) with An Integrated Electronic Glycemic Management System (GMS)

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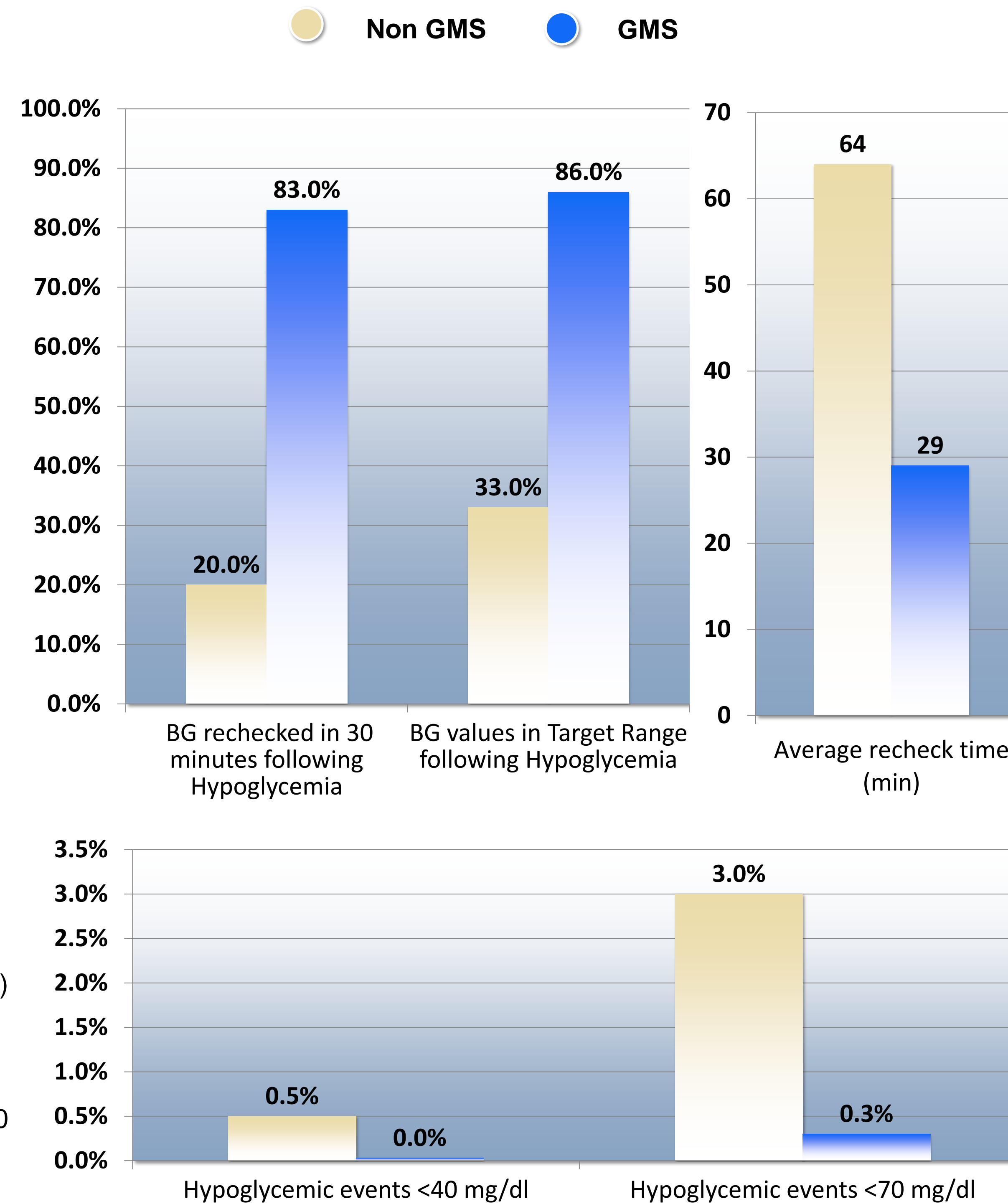
OBJECTIVE

- Evaluate an integrated electronic Glycemic Management System (GMS) effect on patient safety by reducing hypoglycemic events
- Evaluate electronic GMS effect on glucose variability after a hypoglycemic event as evidenced by reduction of rebound hyperglycemia following treatment with 50% dextrose (D50)
- Evaluate the improvement of average time to recheck blood glucose after occurrence of a hypoglycemic event.

DESCRIPTION OF THE PROJECT

- Data was collected over a 6-month period to compare hypoglycemic events for patients on an integrated electronic GMS vs patients not on an integrated electronic GMS at 20 hospital sites and over 10,000 patients.
- For patients on the integrated electronic GMS, a visual and audible alarm was utilized to encourage timely blood glucose checks
- Hypoglycemia treatment protocols were in place at all 20 hospitals.
- Metrics were recorded on several hypoglycemic measures: (1) Percent of Blood Glucose (BG) rechecked within 30 minutes (2) Average Recheck time (3) Percent of BG readings returning to target range following a hypoglycemic event (4) Percent of hypoglycemic events <40 mg/dl (5) Percent of Hypo events <70 mg/dl

RESULTS



LESSONS LEARNED

- Medication errors and ADEs are often the result of unique combinations of interactions among health care providers, patients, and medications.
- Often times, ADEs are preventable, especially through the use of computerized systems to automate and standardize processes.
- The use of an integrated electronic GMS resulted in more BG values being rechecked within 30 minutes and more of the BG values following treatment for hypoglycemia being within the target range.
- The average recheck time decreased by over half, from 64 minutes to 29 minutes with the electronic GMS.
- There was no incidence of critical hypoglycemic events, and overall hypoglycemic events decreased significantly.

SUMMARY

- This study focused on the effect of an integrated electronic GMS with alarm capability on the prevention of hypoglycemia.
- Hypoglycemia is a common adverse event that occurs in hospitalized patients, especially those on insulin regimens.
- The incidence of hypoglycemia (<70 mg/dl) and critical hypoglycemia (<40 mg/dl), timing of blood glucose rechecks after a hypoglycemic event, and prevention of rebound hyperglycemia following hypoglycemia were measured.
- All hypoglycemic metrics were improved in the integrated electronic GMS group.
- Hospital system changes can be implemented so that ADEs are more readily prevented and detected.