

Improving Hypoglycemia Awareness and Prevention Through Resident Physician Education



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Background:

- Hypoglycemia is identified as one of the top 3 preventable adverse drug reactions by the US Department of Health and Human Services
- Incidence of hypoglycemia among patients with Type 2 Diabetes Mellitus (T2DM) on insulin, on average, is around 23 mild-moderate events, and 1 severe event per year.
- Even mild events can impact quality of life, social life, work productivity, ability to drive safely
- Primary Care clinicians provide the majority of care for patients with Type 2 Diabetes Mellitus

Utilizing Endocrine Society Hypoglycemia Prevention Initiative Objectives:

- Increasing outpatient hypoglycemia surveillance & risk assessment by integrating a risk assessment into primary care workflow
- Improving the management of older Type 2 Diabetes patient on insulin and sulfonylureas
- Developing outpatient hypoglycemia quality measures and integrating them into primary care practices to incentivize high-quality care

OUR GOALS:

- Increase resident awareness of identifying patient with T2DM at risk of hypoglycemia
- Increase patient awareness of hypoglycemia symptoms and what to do during episodes
- Prevention of events secondary to hypoglycemia, e.g. falls, seizures, arrhythmias, stroke, coma, death, etc
- Increase resident proactiveness in adjusting A1c goals according to patient age, overall health, and goals of care
- Resident education on making medication changes for high-risk patients
 - Identifying medications that lead to hypoglycemia
 - Pathway to de-escalate insulin regimens

Methods

- Assess Internal Medicine Resident Physician level of comfort when it comes to the topic of hypoglycemia and how often they participate in certain interventions when it comes to patient who are Type 2 diabetics at risk of hypoglycemia
- Created a questionnaire using Likert Scale (Never [1] to Always [5]; Not at all [1] to Very Much [5])
- Collected data from questionnaire pre- and post intervention, after 4 months
- Intervention consisted of educational PowerPoint presentation provided and tools provided to utilize as examples to apply to their patients seen in an outpatient setting
- Analysis performed of data using mean and standard deviation to determine change in level of comfort and/or intervention

Questions Utilized:

How comfortable do you feel:
Not at all [1] to Very Much [5]

- Assessing if a patient with T2DM is at risk of hypoglycemia?
- Making medication adjustments for patients at high risk of hypoglycemic events?

For patients on medication more at risk of developing hypoglycemia (insulin/ sulfonylurea), how often do you:

- Never [1] to Always [5]
- Assess risk of hypoglycemia?
- Ask them how they monitor their blood sugar?
- Ask about hypoglycemic events?
- Ask about hypoglycemia awareness?
- Ask if patient knows how to manage hypoglycemic events?

- How often for you adjust A1c goals for your T2DM patients?

Results

	n=	PGY-1	PGY-2	PGY-3
Pre-intervention	37	16	11	10
Post-intervention	35	22	9	11

Table 1. Number of people participating in questionnaire and designation of training year

	Pre-Intervention Mean (SD)	Post-Intervention (SD)
Q1	3.49 (1.19)	3.66 (1.08)
Q2	3.35 (0.95)	3.43 (1.07)
Q3	3.14 (0.98)	3.29 (1.05)
Q4	3.49 (1.1)	3.89 (1.05)
Q5	3.32 (1.06)	3.43 (1.12)
Q6	2.81 (1.05)	3.23 (1.11)
Q7	2.97 (1.09)	3.09 (1.17)
Q8	3.59 (1.17)	3.06 (1.26)

Table 2. Likert mean from pre- and post-intervention along with standard deviation (SD)

- For all questions, except question 8, there was an increase in overall mean of the post-intervention Likert scale, compared to pre-intervention
- There was a lesser standard deviation only on question 1 and 4

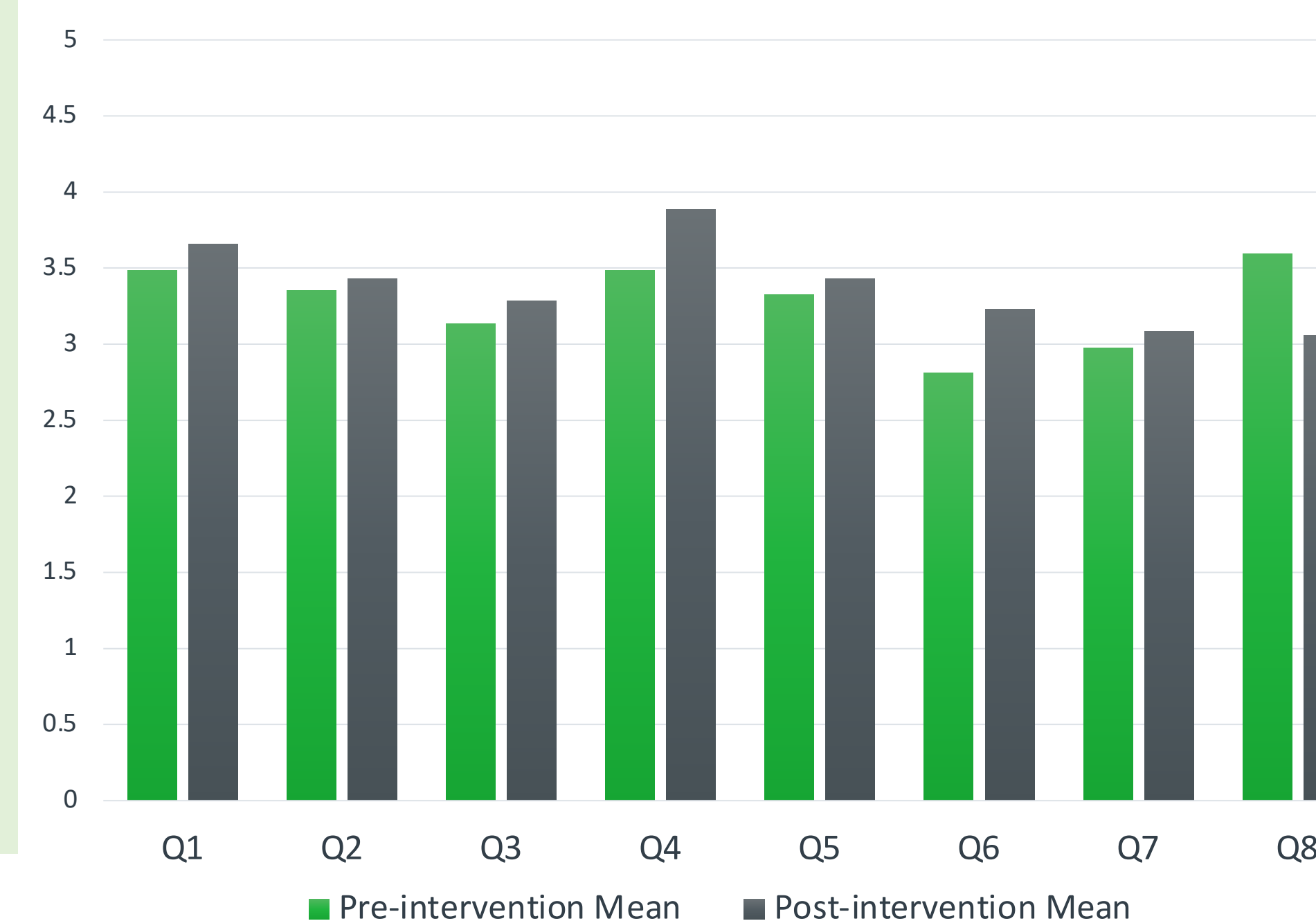


Chart 1. Mean distribution of Likert scale answers to questionnaire pre- and post- intervention

Discussion & Conclusion

- After the education provided through the intervention, participating residents reported an increase in comfort level regarding assessment and management of hypoglycemia risk.
- Also, after the educational intervention, resident physicians reported an increased frequency of participation in preventative interventions for patients who are at risk of hypoglycemia.
- Question 1, which evaluated comfort level in hypoglycemia risk stratification, resulted in both an increase in mean and decrease in standard deviation, meaning there was an overall increase in comfort post-intervention.
- Question 4, which assessed frequency in surveying how patients monitor their blood sugar, resulted in increased participation. More residents reported performing this key element of risk assessment after the educational intervention.
- Question 8, which evaluated how frequently residents adjust A1c goals for patients with T2DM, resulted in a decrease in mean and increase in standard deviation. This highlights an opportunity for further education and improvement.

Ideas for future interventions:

- Creating dot phrases for residents to use as a reminder
- Providing patient at risk with hypoglycemia a pamphlet to educate on hypoglycemia awareness and interventions for hypoglycemia
- Creating a built-in pop-up in Cerner to help identify the patients at risk of hypoglycemia and ensure certain questions/topics are addressed with patients

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