



Hypoglycemia in Diabetes: Prevent it, Prepare for it, Identify it and Treat it

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INTRODUCTION

Hypoglycemia is a prevalent and potentially dangerous condition that can affect anyone with diabetes who is treated with insulin preparations or oral insulin secretagogues. The majority of the care of patients with diabetes occurs in the primary care setting. Nurse practitioners are frequently engaged as primary care providers. Nurse practitioners may not be fully informed about how best to assess for, manage, treat and educate the person with diabetes regarding hypoglycemia. This educational intervention was designed to positively affect clinician practice patterns by providing learners with strategies for translating and applying new information about hypoglycemia into daily clinical practice.

Start and End Date 10/5/22-10/31/23

OBJECTIVES

- Identify the patients with diabetes in your practice that should be routinely assessed for and provided education about hypoglycemia.
- Explain the importance of identifying hypoglycemia in your patients with diabetes.
- Summarize the available glucagon preparations.

OUTCOME METHODS

Educational outcomes data assessing learners' knowledge, confidence and competence were obtained pre/post-activity.

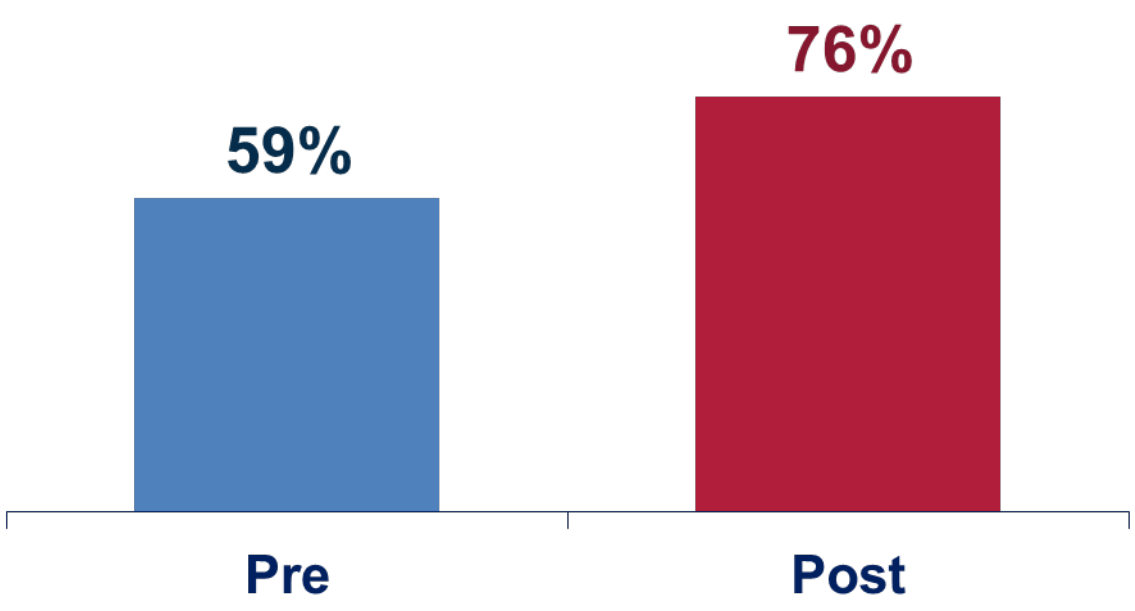
- Total records = 6,899 (pre/post/eval).
- Data were aggregated in Excel.
- Tests used to identify statistically significant differences pre to post: Chi-square for 6 multiple knowledge/case questions.
- A paired analysis of pre/post results was conducted.
- Demographics (pre) and evaluation (post) results shown here use descriptive statistics.

EXECUTIVE SUMMARY

- Audience reached
- 9,754 participants (390% of grant target); 6,909 completions
 - 79% are practicing nurse practitioners
 - Top 3 NP certifications: 72% Family medicine, 12% Adult/Gerontology, 6% Acute Care
 - Top 3 practice settings: 39% Primary care, 5% Urgent care, 4% Geriatrics
 - Each NP learner has written an average of 5 glucagon prescriptions in the past year
 - NP learners see an average of 17 patients each week who are treated with agents such as insulin or secretagogues that place them at higher risk of hypoglycemia

OVERALL MEAN PERCENT CORRECT PRE TO POST FOR 6 MULTIPLE-CHOICE QUESTIONS

A statistically significant 29% increase in mean percent correct answers from pre to post, $P < 0.0001$, $n = 6899$, paired data.

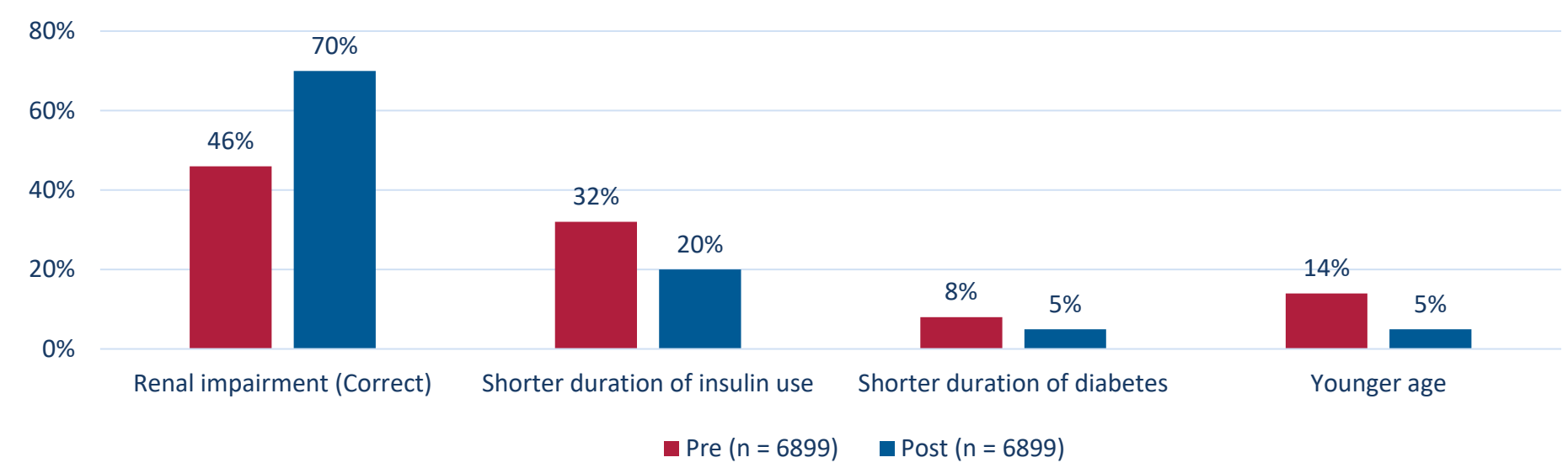


PLANNED PRACTICE CHANGE (POST)

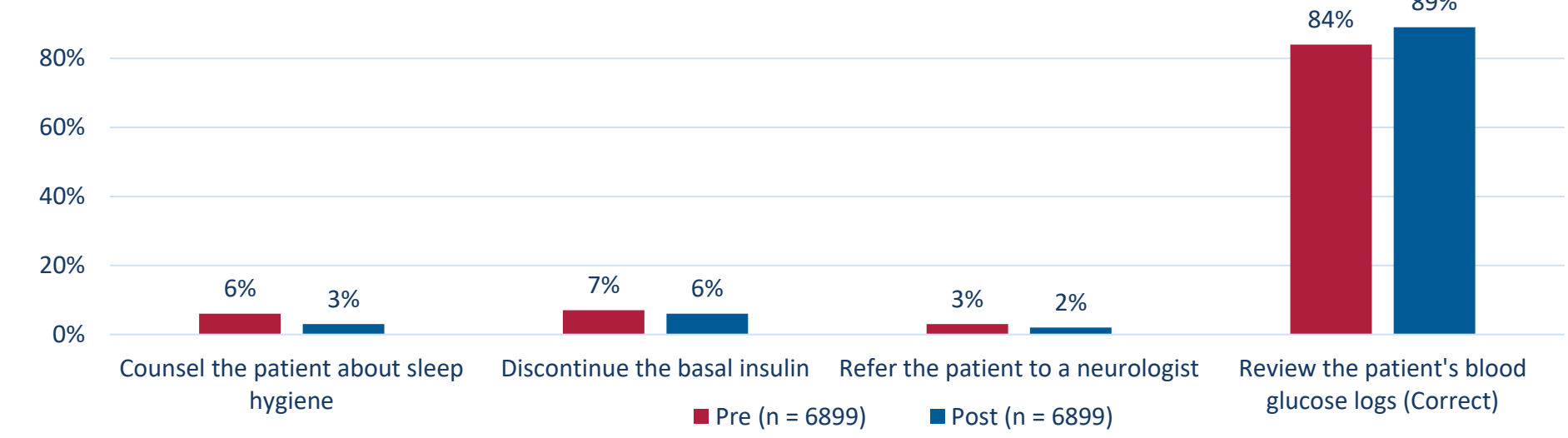
Please identify one key takeaway from this activity that you plan to implement into your practice	% , n
A. I am going to prescribe glucagon to people with type 2 diabetes who are on insulin	27%, 1867
B. I am going to discuss hypoglycemia with my patients that are on glucose-lowering medications	28%, 1963
C. I am going to ensure that my patients who are on glucose-lowering medications have a plan to treat hypoglycemia	17%, 1179
D. I am going to recommend continuous glucose monitoring (CGM) for patients with type 1 diabetes and patients with type 2 diabetes who take insulin	7%, 463
E. N/A, I don't plan on making a change because it reinforced my current practice	12%, 863
F. Other	8%, 570
Total	100%, 6905

PRE-POST KNOWLEDGE & COMPETENCE

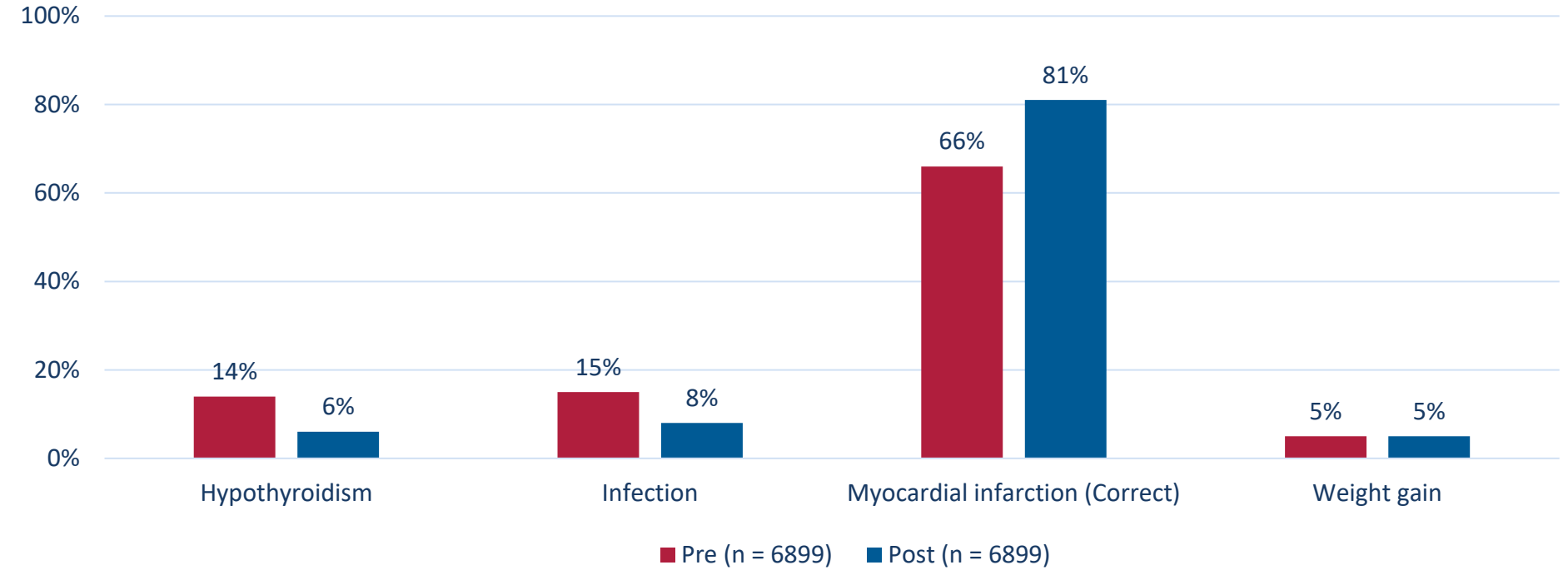
Which one of the following characteristics places a patient at higher risk for hypoglycemia?



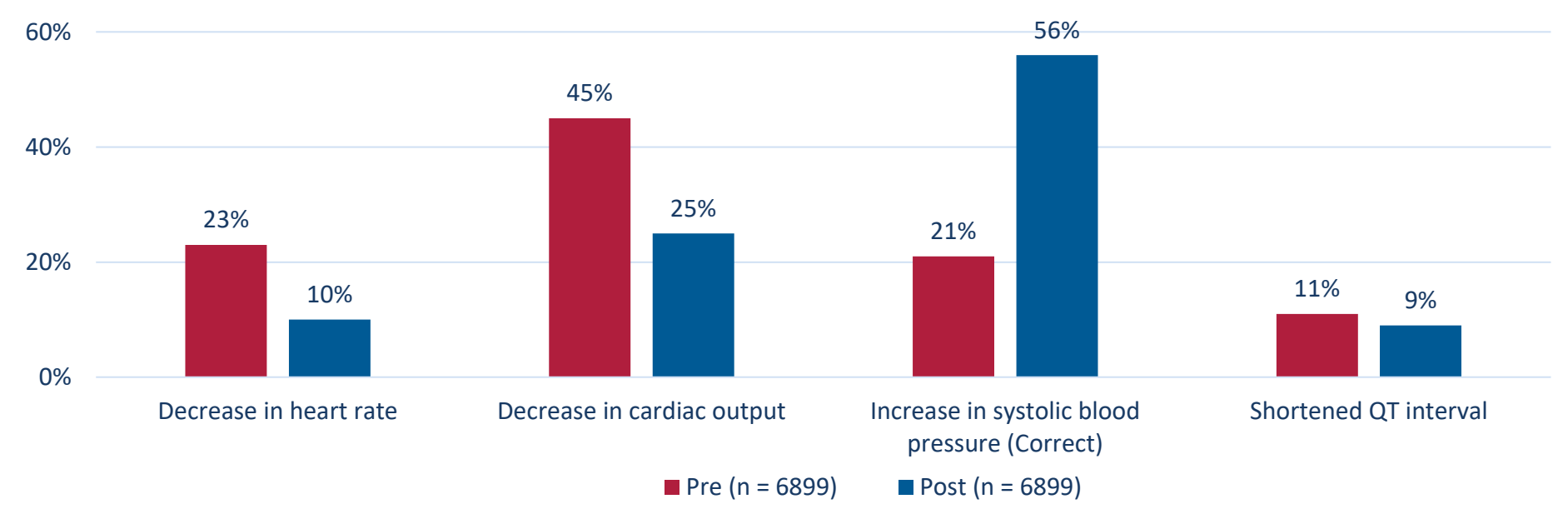
A 65-year-old woman with type 2 diabetes is currently controlled on metformin, basal insulin, and a sulfonylurea. Her last A1C measurement was 7.2%. She reports that she has been feeling tired and has had periods of "brain fog" where she cannot concentrate on simple tasks. Which of the following would be the best next step?



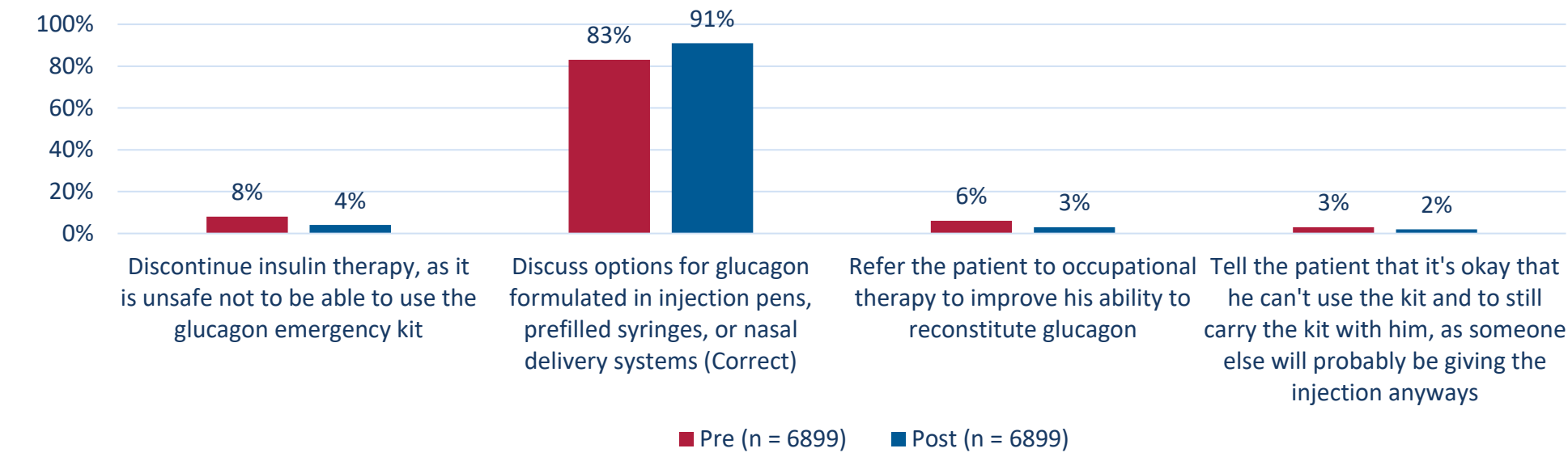
Which one of the following is an acute effect of severe hypoglycemia?



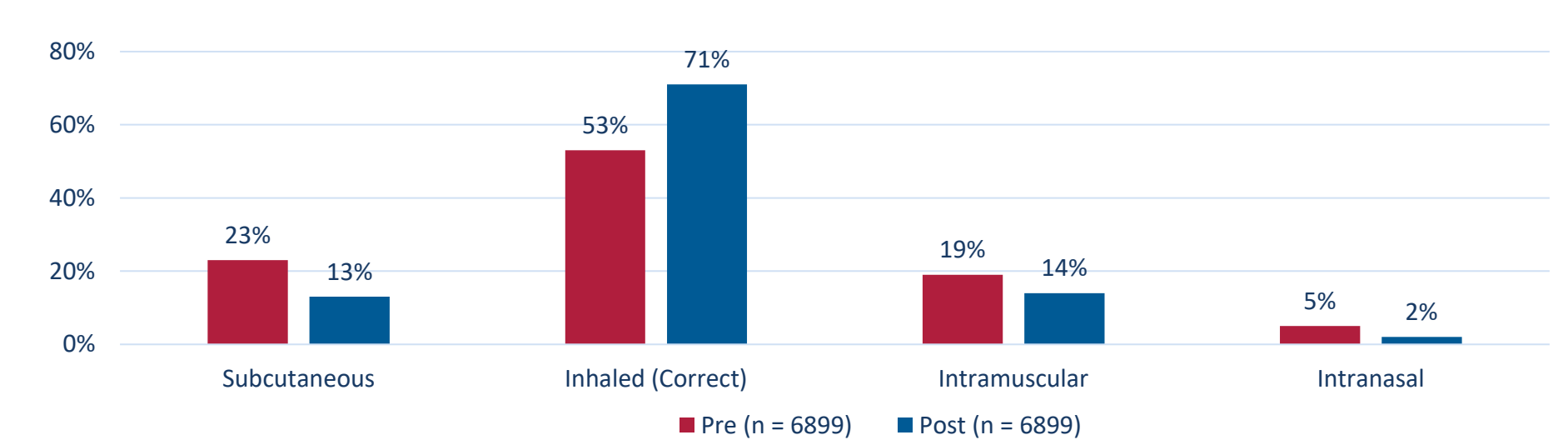
Which one of the following is a hemodynamic response to hypoglycemia?



A 48-year-old man with type 2 diabetes is currently well-controlled on metformin, a DPP-4i, and basal insulin. His medical history is notable for rheumatoid arthritis. The patient was prescribed a glucagon emergency kit last year when he was started on insulin therapy. However, he reports that he does not carry it with him, as he finds it challenging to reconstitute due to manual dexterity limitations. Which one of the following steps would you recommend?

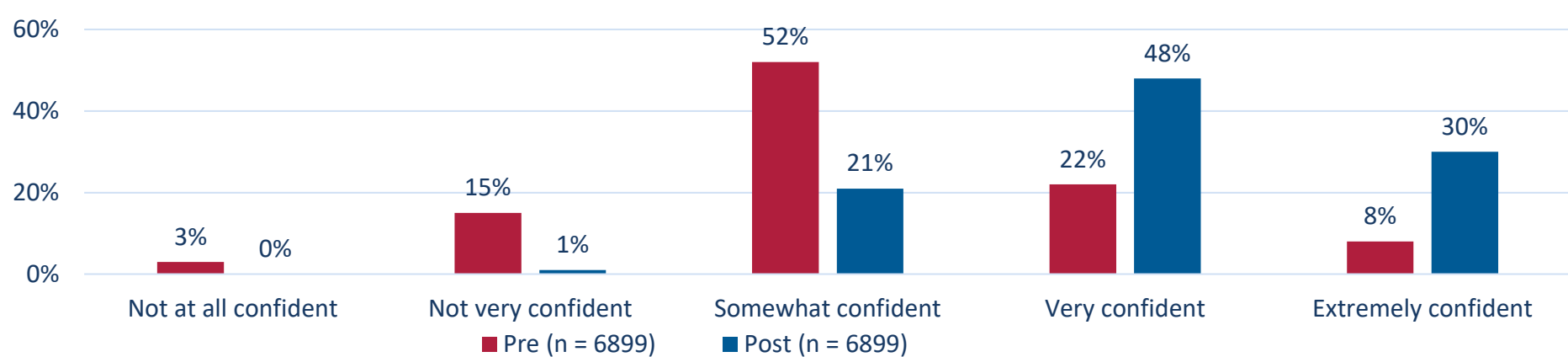


Which one of the following is NOT a route of administration used for glucagon?

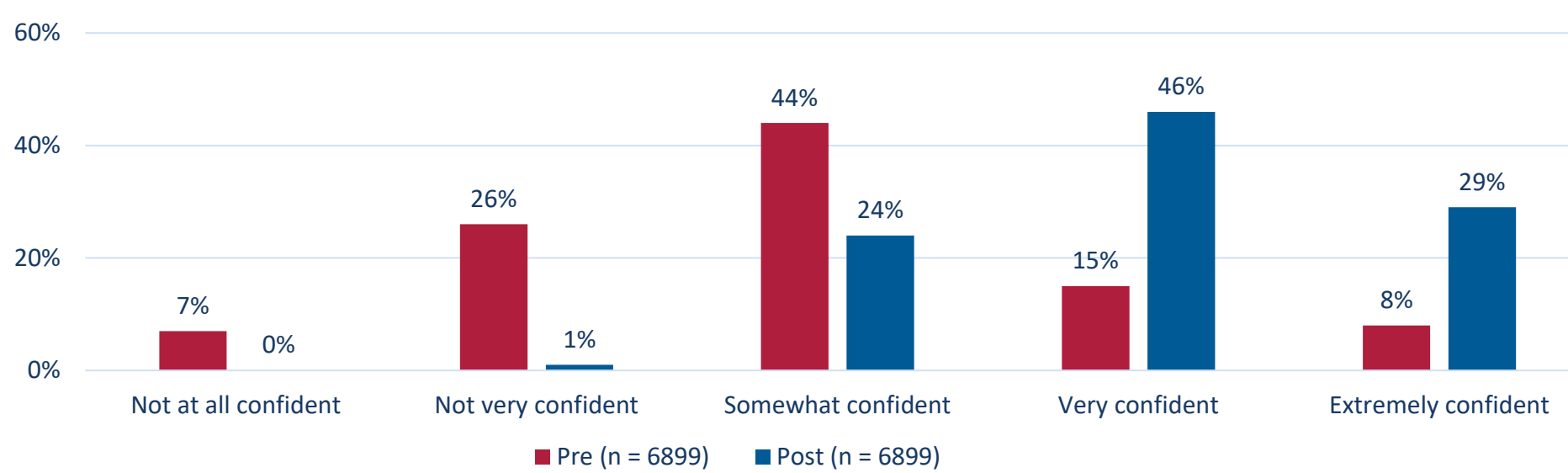


PRE TO POST CONFIDENCE CHANGE

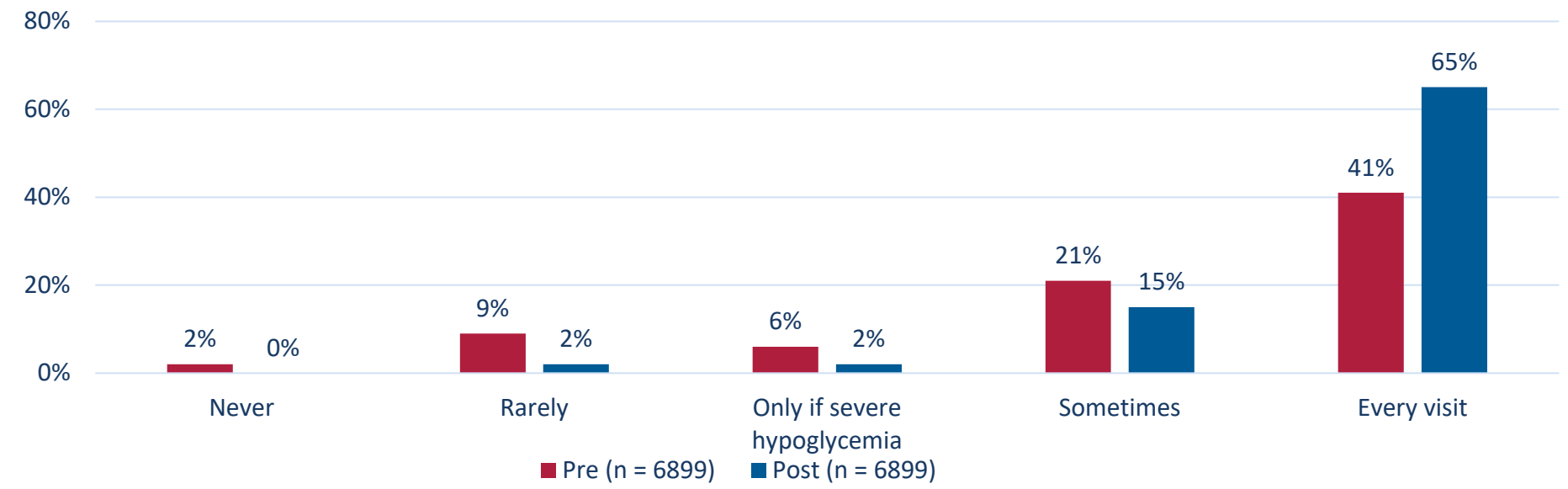
Rate your confidence in your ability to discuss hypoglycemia with your patients who have diabetes.



Rate your confidence in your ability to prescribe the appropriate glucagon formulation for your patients with type 1 or type 2 diabetes that are treated with insulin or other glucose-lowering medications.



How often do you currently document patient-reported hypoglycemia in the patient's medical record? After completing this CE activity, NOW how often do you plan to document patient-reported hypoglycemia in the patient's medical record?



WHAT BARRIERS IN YOUR PRACTICE MIGHT PREVENT YOU FROM IMPLEMENTING LESSONS LEARNED FROM THIS CE ACTIVITY?

Barriers	n	Percent
I do not believe there will be any barriers.	4220	61.12%
Patient expectations/agendas	636	9.21%
Time constraints	889	12.87%
Clinic or organization policy	241	3.49%
Competing priorities	181	2.62%
Cost or lack of insurance coverage for glucagon	281	4.07%
Remembering to implement the change	110	1.59%
Other	347	5.03%

FUTURE INSIGHTS

- Teach practical approaches to hypoglycemia prevention, preparation and planning (putting knowledge into practice).
- Incorporate population-specific approaches to hypoglycemia.
- Include diversity in program and case studies.
- Utilize a case-based approach to deliver the program content.
- Discuss individualized approaches to prevention of hypoglycemia.
- Incorporate the utilization of technology, such as a CGM, to identify hypoglycemia and glucose trends, particularly when initiating/optimizing insulin therapy.
- Hypoglycemia affects every NP in every practice setting. Ongoing continuing education on this topic is critical.

ACKNOWLEDGEMENT

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