Clinical Updates for Nurse Practitioners and Physician Assistants: 2016

NACE NATIONAL ASSOCIATION FOR CONTINUING EDUCATION

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

Grant # 48423

Final Outcome Report for 6 Cities

Report Date: January 3, 2017

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Course Accreditation

The Association of Black Cardiologists, Inc. is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Association of Black Cardiologists, Inc. designates this live activity for a maximum of 1 *AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The National Association for Continuing Education is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The National Association for Continuing Education designates this live activity for a maximum of 6 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

National Association for Continuing Education is approved as a provider of nurse practitioner continuing education by the American Association of Nurse Practitioners. AANP Provider Number 121222. This program has been approved for 7 contact hours of continuing education (which includes 3.25 pharmacology hours).

AAPA accepts certificates of participation for educational activities certified for *AMA PRA Category 1 Credit*™ from organizations accredited by ACCME or a recognized state medical society. PAs may receive a maximum of 7 Category 1 credits for completing this activity.*

* This applies to the full day CME activity entitled Clinical Updates for Nurse Practitioners and Physician Assistants.

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Commercial Support

The Clinical Updates for Nurse Practitioners and Physician Assistants 2016 series of CME activities were supported through educational grants or donations from the following companies:

Allergan
Boehringer Ingelheim Pharmaceuticals, Inc.
BioReference, An OPKO Company
Gilead
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Novartis Pharmaceuticals
Prometheus
Sanofi US

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals is supported by an educational grant from Sanofi US.

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Cities and Dates

Clinical Updates for Nurse Practitioners and Physician Assistants Update 2016
Conference Schedule

September 17, 2016
Orlando, FL

September 24, 2016
Cincinnati, OH

October 1, 2016
Pittsburgh, PA

October 8, 2016
Fairfax, VA

October 15, 2016*
Dallas, TX

October 22, 2016
Phoenix, AZ

October 29, 2016
Charlotte, NC

November 5, 2016*
Columbia, SC

November 12, 2016
White Plains, NY

November 19, 2016
Seattle, WA

***Simulcast and Live Conference**
** **Bolded** cities are where the lecture was given

Enduring Monograph Expected Launch Date – February 2017

Titles of Presentations

Prostate Cancer Screening in the Primary Care Setting: Understanding the Role of Bio-Markers

Atrial Fibrillation: Reducing Risk and Individualizing Therapeutic Choices

Screening, Counseling, and Linkage to Care Education in Hepatitis B (SCALE HBV)

Clinical Challenges in Individualized Heart Failure Treatment

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

The Inflammatory State of Psoriasis: New and Emerging Therapies

Avoiding the Pitfalls in IBD Care: Diagnostic and Management Strategies to Improve Outcomes

Chronic Obstructive Pulmonary Disease (COPD) and Alpha-1 Antitrypsin Deficiency (AATD): Bridging the Gaps in Diagnosis and Treatment

Idiopathic Pulmonary Fibrosis: Making Sense of Diagnostic and Therapeutic Options in Primary Care

Optimizing Disease Management: IBS and Chronic Idiopathic Constipation

Levels of Evaluation

Consistent with the policies of the ACCME, NACE evaluates the effectiveness of all CME activities using a systematic process based on Moore's model. This outcome study reaches Level 5.

- Level 1: Participation
- Level 2: Satisfaction
- Level 3: Declarative and Procedural Knowledge
- Level 4: Competence
- Level 5: Performance
- Level 6: Patient Health
- Level 7: Community Health

Moore DE Jr, Green JS, Gallis HA. Achieving desired results and improved outcomes: integrating planning and assessment throughout learning activities.J Contin Educ Health Prof. 2009 Winter;29(1):1-15

Level 1: Participation

- 884 attendees in 6 cities (585 On Site, 299 Remote Simulcast)
- 91% NPs or PAs; 4% Physicians; 4% RNs; 1% Other
- 51% in community-based practice
- 54% PCPs, 6% Cardiologist; 9% Pulmonology; 31% Other or did not respond
- 96% provide direct patient care

Did we reach the right audience? Yes!

Participation by Location

	MDs/DOs	NPs	PAs	RNs	Other	TOTAL
Orlando, FL September 17, 2016	2	157	16	5	5	185
Cincinnati, OH September 24, 2016	5	55	6	5	0	71
Pittsburgh, PA October 1, 2016	3	66	14	1	1	85
Fairfax, VA October 08, 2016	5	64	9	2	3	83
Columbia, SC* November 5, 2016	15	270	57	18	5	365
Seattle, WA November 19, 2016	2	69	19	2	3	95

***Simulcast and Live Conference**

Level 2: Satisfaction

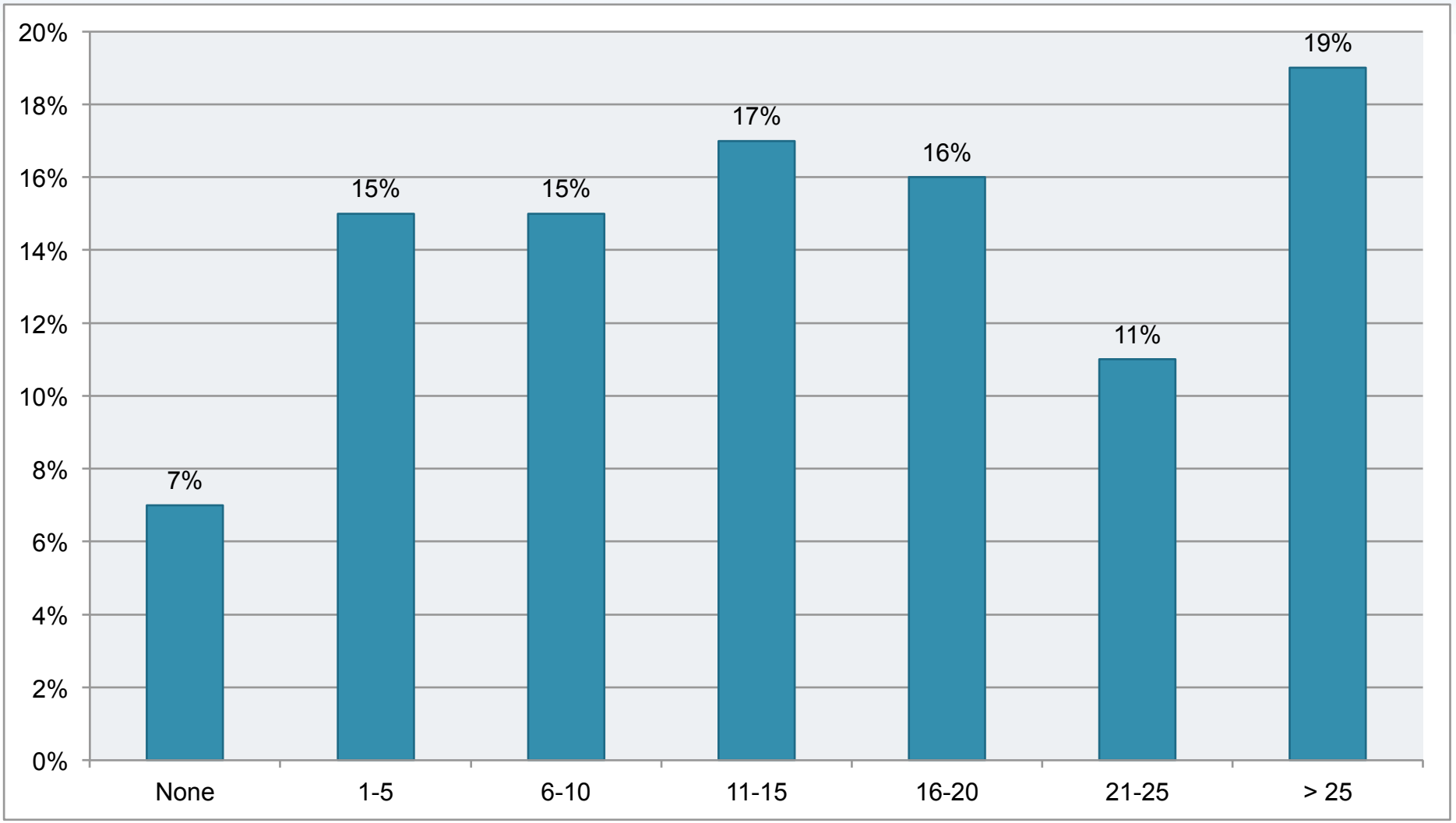
- 99% rated the activity as excellent
- 99% indicated the activity improved their knowledge
- 97% stated that they learned new and useful strategies for patient care
- 99% said they would implement new strategies that they learned in their practice
- 100% said the program was fair-balanced and unbiased

Sample Size: N = approximately 884

Were our learners satisfied? Yes! Data was collected across six cities for the Clinical Updates for Nurse Practitioners and Physician Assistants program.

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

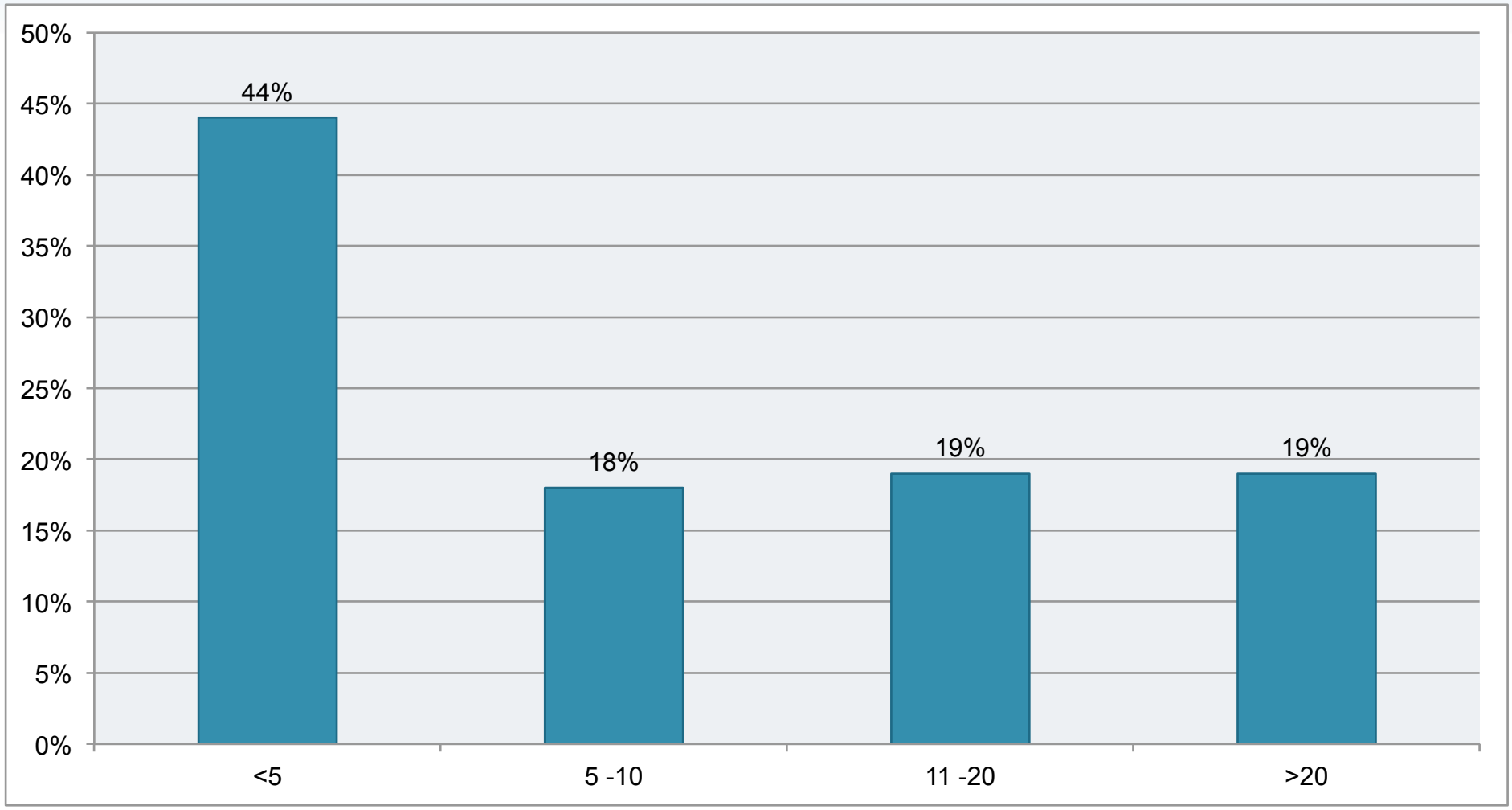
Patients seen each week in a clinical setting with diabetes:



Sample Size: N = approximately 884

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

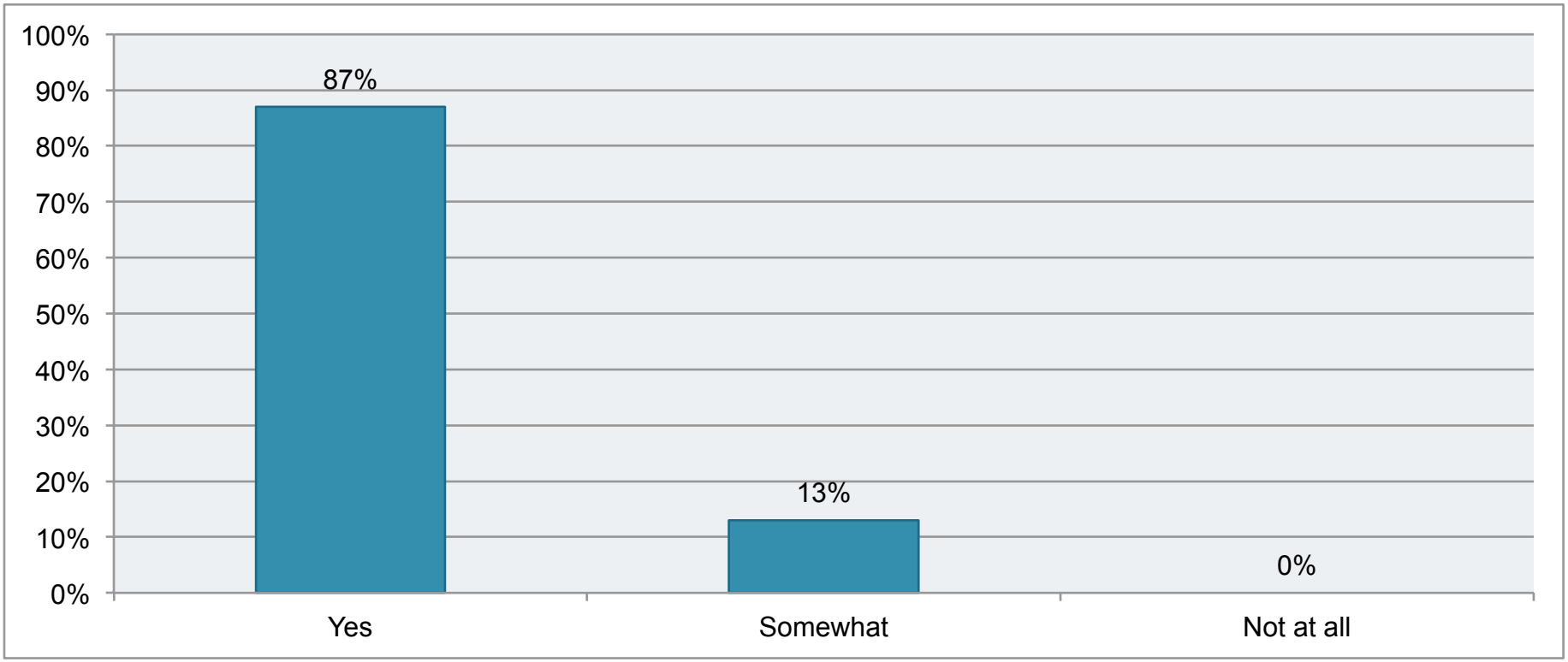
Clinicians number of years in practice:



N = 252

Did Learners Say They Achieved Learning Objective?

Upon completion of this activity, I can now –Recognize the role of postprandial hyperglycemia in type 2 diabetes (T2DM) patients not at target and examine its role in the pathogenesis of diabetic complications; Utilize glucagon-like peptide (GLP)-1 receptor agonist (GLP-1 RA) therapy to address post-prandial hyperglycemia in ways current strategies do not; Compare GLP-1 RAs for glycemic efficacy and differential impact on postprandial glycemic control; Discuss various GLP-1 RA combination strategies to effectively control fasting and post-prandial hyperglycemia:



Yes! 100% believed they did. Data was collected in 6 cities.

Sample Size: N = approximately 884

Outcome Study Methodology

Goal

To determine the effect this CME activity had on learners with respect to competence to apply critical knowledge, confidence in treating patients with diseases or conditions discussed, and change in practice behavior.

Dependent Variables

1. **Level 3-5: Knowledge, Competence, and Performance**

   Case-based vignettes and pre- and post-test knowledge questions were asked with each session in the CME activity. Identical questions were also asked to a sample of attendees 4 weeks after the program to assess retention of knowledge. Responses can demonstrate learning and competence in applying critical knowledge. The use of case vignettes for this purpose has considerable predictive value. Vignettes, or written case simulations, have been widely used as indicators of actual practice behavior. [1]

2. **Practitioner Confidence**

   Confidence with the information relates directly to the likeliness of actively using knowledge. Practitioner confidence in his/her ability to diagnose and treat a disease or condition can affect practice behavior patterns.

3. **Level 5: Self-Reported Change in Practice Behavior**

   Four weeks after CME activity, practitioners are asked if they changed practice behavior and what barriers they encountered.

1. Peabody, J.W., J. Luck, P. Glassman, S. Jain, J. Hansen, M. Spell and M. Lee (2004). Measuring the quality of physician practice by using clinical vignettes: a prospective validation study. Ann Intern Med14(10): 771-80.

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Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

Faculty

Louis Kuritzky, MD
Jeff Unger, MD
Sam Grossman, PharmD
Gary Scheiner, MD, CDE

Learning Objectives

1. Recognize the role of postprandial hyperglycemia in type 2 diabetes (T2DM) patients not at target and examine its role in the pathogenesis of diabetic complications.

2. Utilize glucagon-like peptide (GLP)-1 receptor agonist (GLP-1 RA) therapy to address post-prandial hyperglycemia in ways current strategies do not.

3. Compare GLP-1 RAs for glycemic efficacy and differential impact on postprandial glycemic control.

4. Discuss various GLP-1 RA combination strategies to effectively control fasting and post-prandial hyperglycemia.

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Key Findings

Postprandial Hyperglycemia and GLP-1 Receptor Agonists:
Effective Strategies to Achieve Goals

Knowledge/Competence	Learners demonstrated improvement from pre to post-testing in their answers to *three* out of *four* of the case-based regarding managing postprandial hyperglycemia and GLP-1 Receptor Agonists
Confidence	Whereas the majority of learners rated themselves as having very low confidence in their understanding of treating patients with diabetes before the education, most of the learners showed high gains in confidence after the program.
Intent to Perform	As a result of this program, 97% of learners now state that they will, often or always, consider the effect of antihyperglycemic medications on postprandial glucose levels, compared to 84% prior to the program. This persisted at 4 weeks.
Change of Practice Behavior 4 Weeks Post N= 25	96% of learners who responded to our four week survey indicated that they had changed their practice behavior to implement the learning objectives of this program within four weeks after they attended the activity.

Case Vignette Knowledge and Competence Assessment Questions

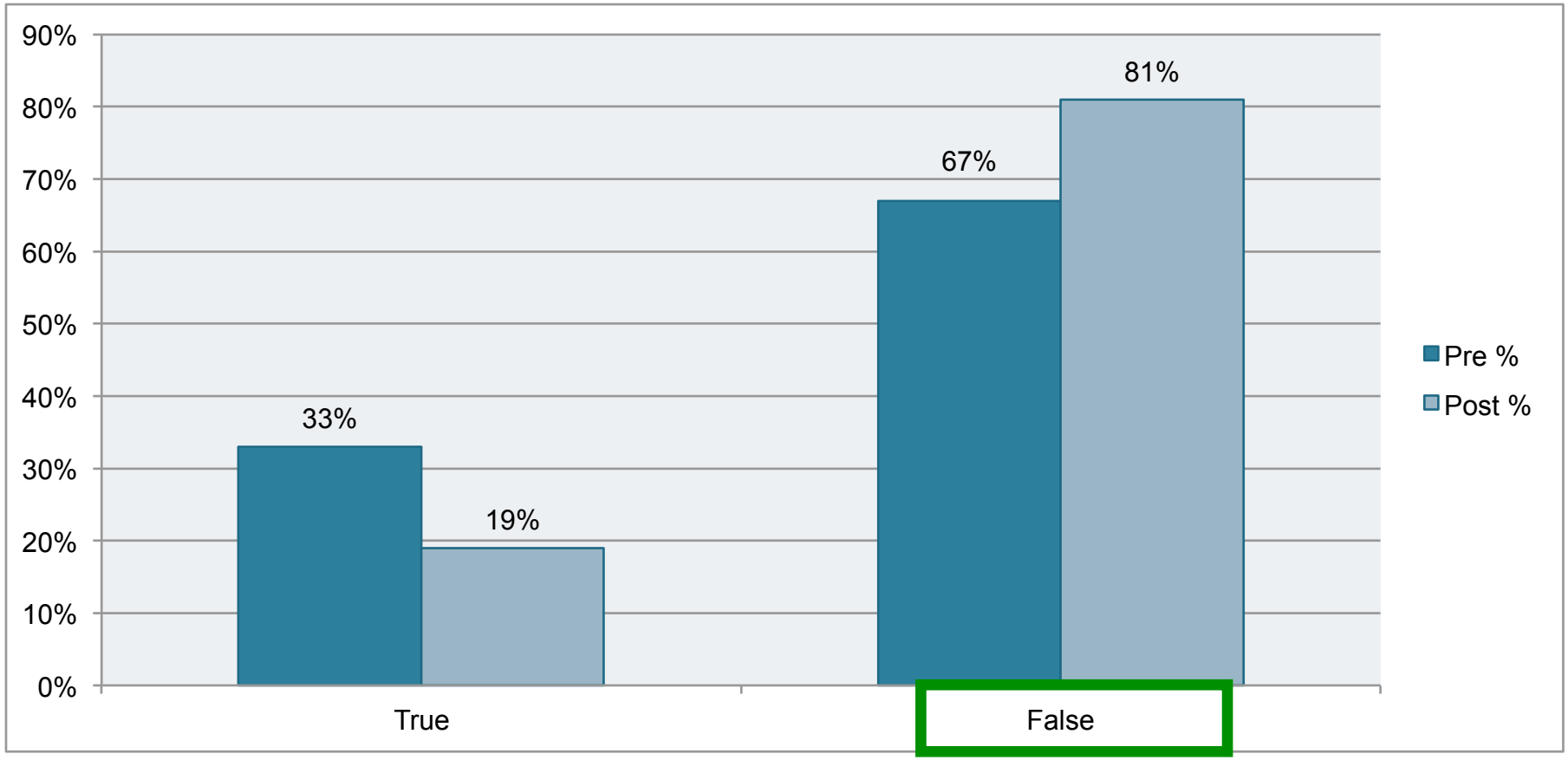
(presented before and after lecture—boxed answer is correct)

According to analysis of the Baltimore Longitudinal Aging study, risk for all-cause mortality increases with rising fasting blood glucose levels above 110 mg/dL, but not with postprandial blood glucose levels above 180 mg/dL.

True or False?

(Learning Objective 1)

P Value: <0.001 – Significant



Pre N = 266 Post N = 315

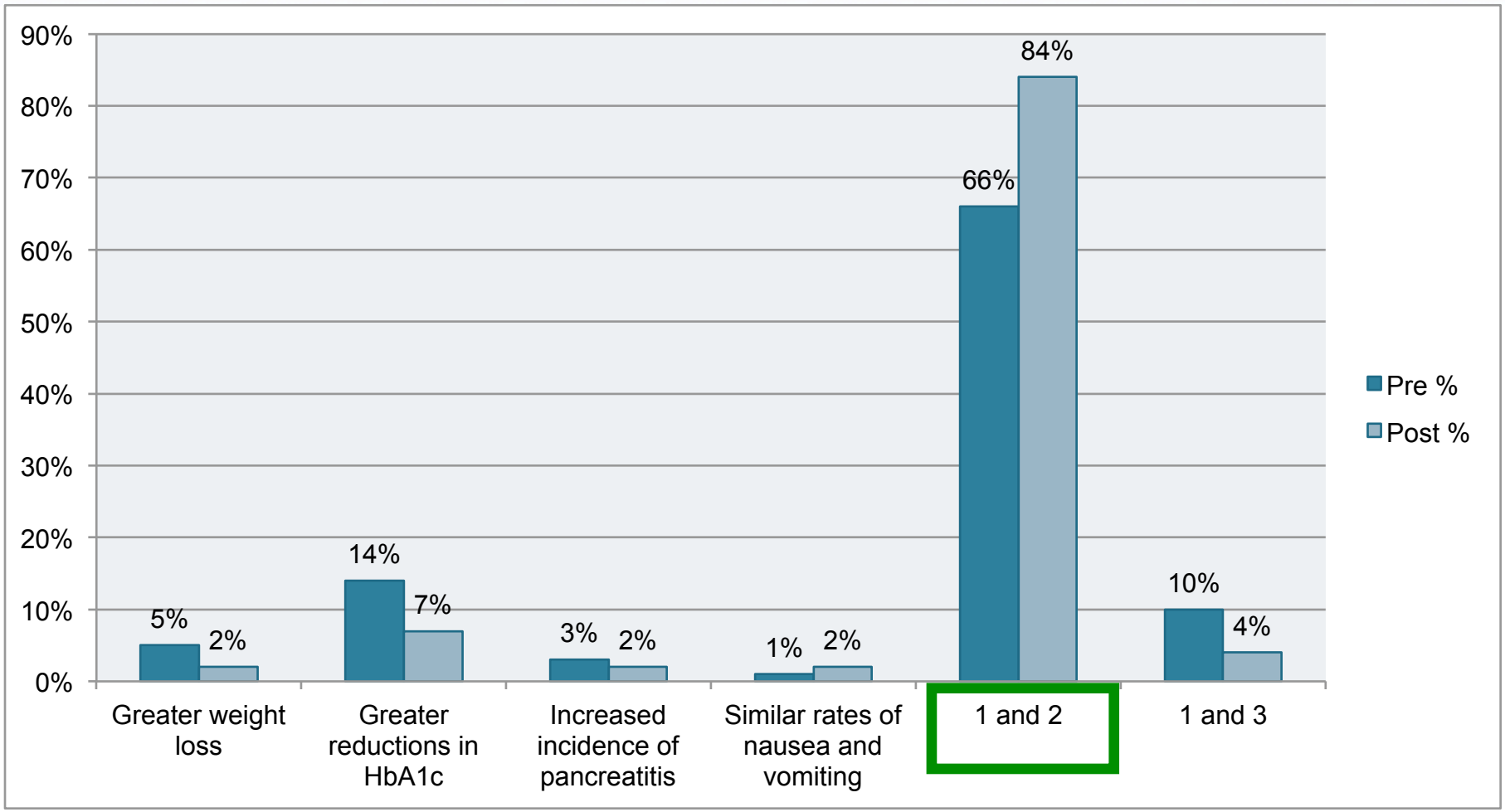
Green highlight indicates significant difference between pre and post testing.

Case Vignette Knowledge and Competence Assessment Questions

(presented before and after lecture—boxed answer is correct)

Which of the following would you expect when comparing the addition of a GLP-1RA vs DPP4 to patients already taking metformin?
(Learning Objective 2)

P Value: <0.001 – Significant



Pre N = 290 Post N = 318

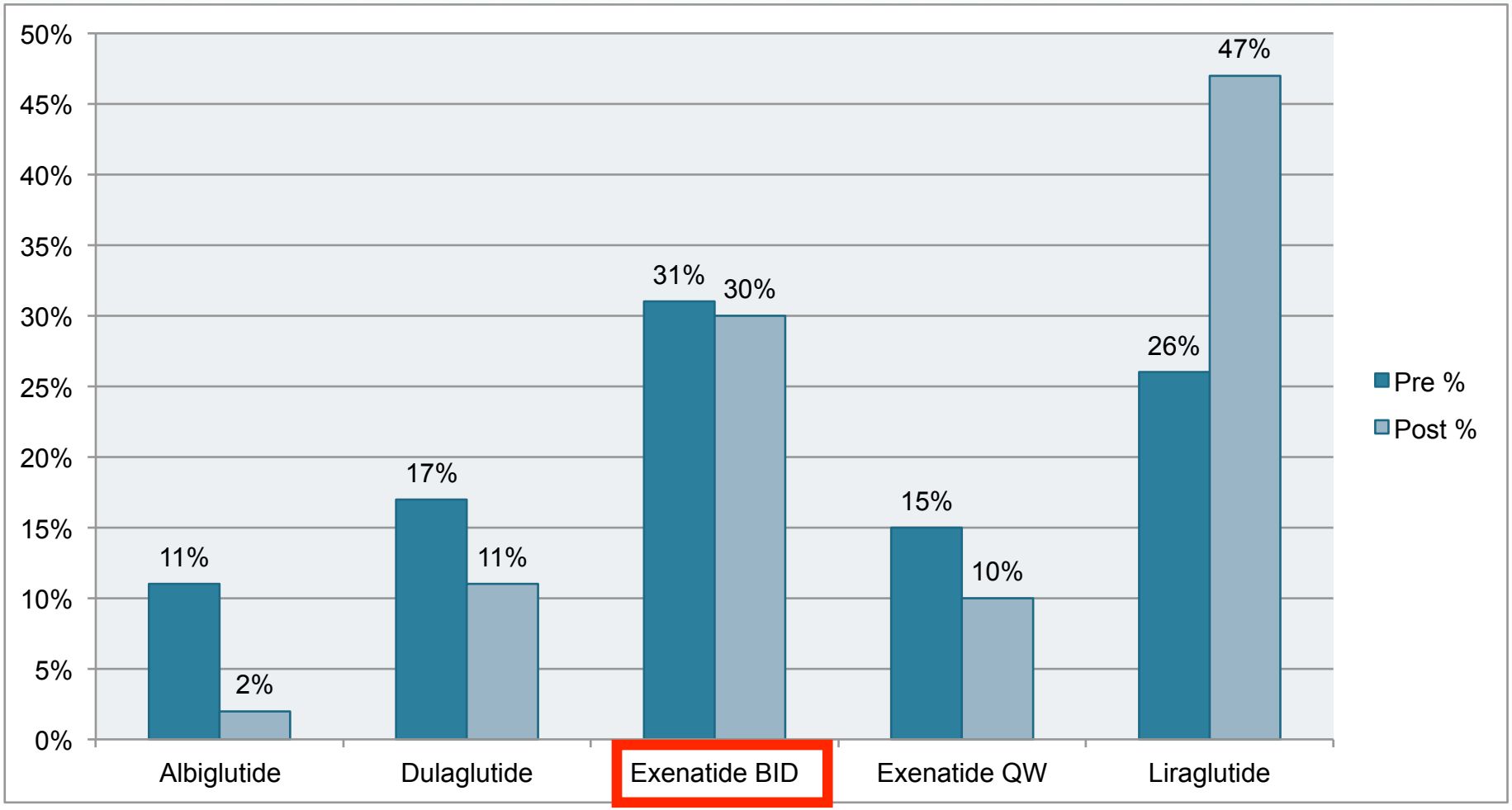
Green highlight indicates significant difference between pre and post testing.

Case Vignette Knowledge and Competence Assessment Questions

(presented before and after lecture—boxed answer is correct)

Although no direct head to head comparisons have been made, which of the following agents appears to have the greatest effect on post prandial glucose lowering?
(Learning Objective 2,3)

P Value: 0.636 – Not Significant



Pre N = 287 Post N = 331

Red highlight indicates no significant difference between pre and post testing.

Case Vignette Knowledge and Competence Assessment Questions

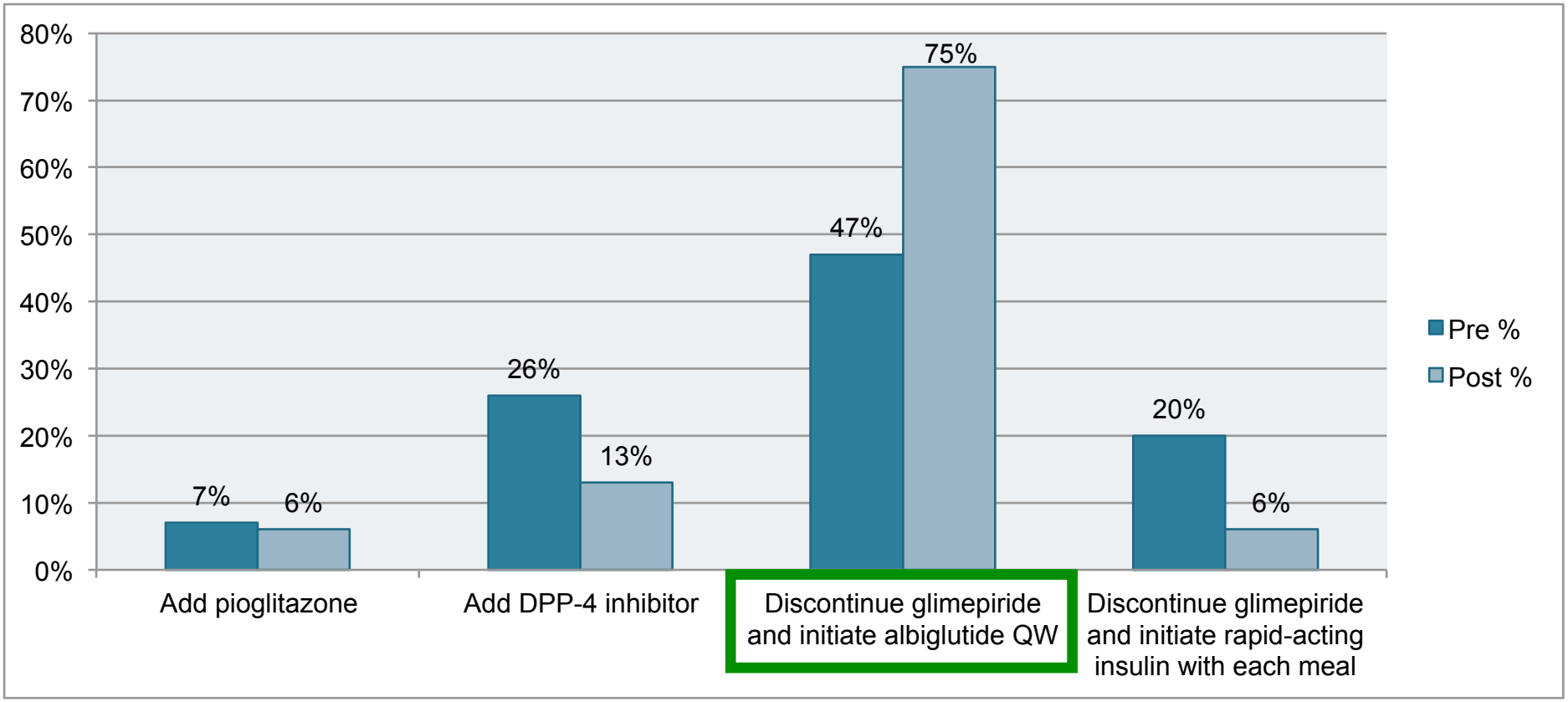
(presented before and after lecture—boxed answer is correct)

A 56-year-old man with an 11-year history of type 2 diabetes presents for a checkup. Current medications include metformin 1000 mg bid, glimepiride 4 mg qd, and insulin detemir 60 U at night. His HbA1c is 8.1% and fasting blood glucose 150 mg/dL.

According to clinical trial results, which of the following is most likely to lower his post-prandial glucose the most without significant hypoglycemia?

(Learning Objectives 2, 4)

P Value: <0.001 – Significant



Pre N = 318 Post N = 333

Green highlight indicates significant difference between pre and post testing.

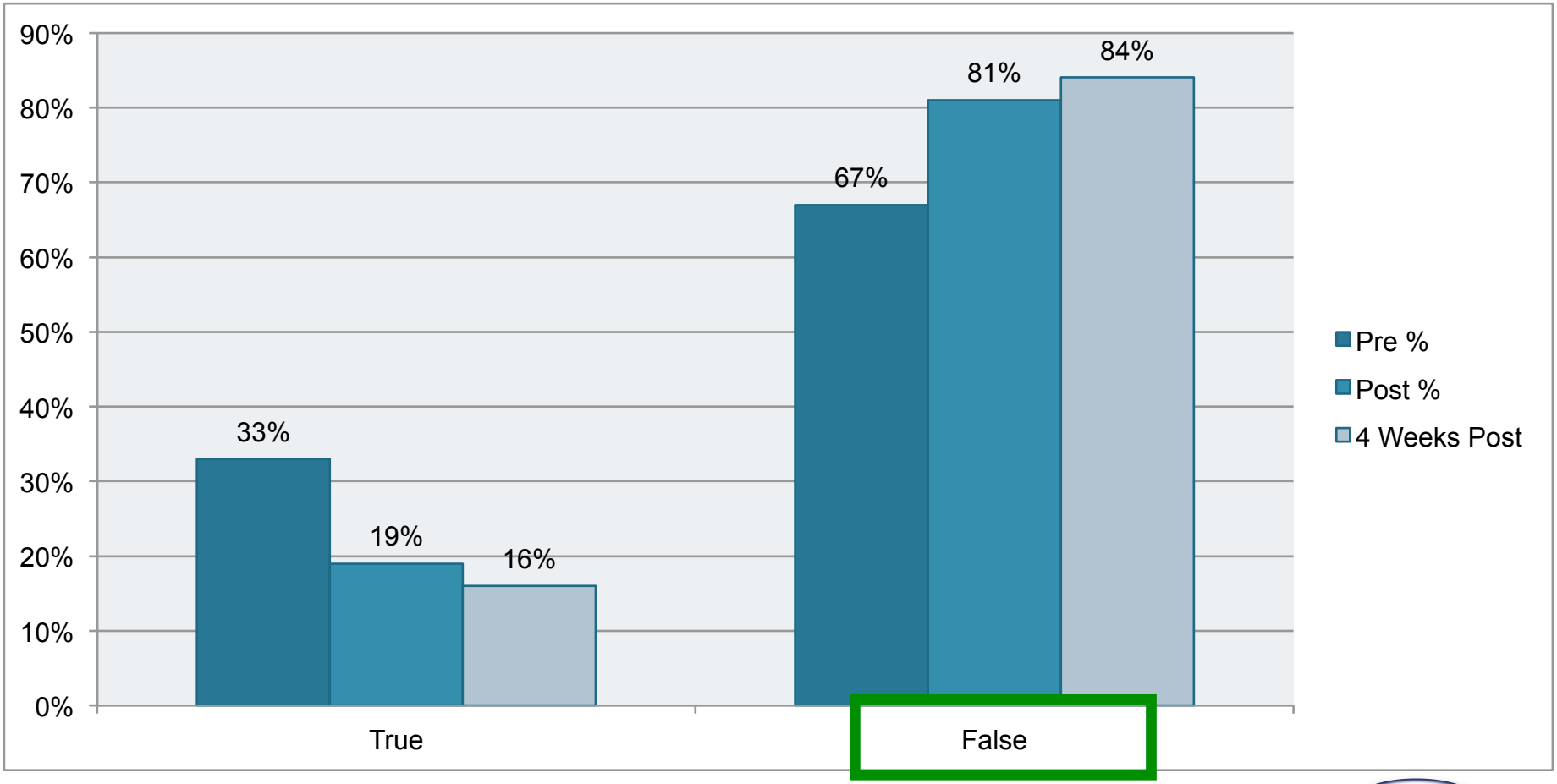
Four Week Case Study Questions

(boxed answer is correct)

According to analysis of the Baltimore Longitudinal Aging study, risk for all-cause mortality increases with rising fasting blood glucose levels above 110 mg/dL, but not with postprandial blood glucose levels above 180 mg/dL.

True or False?

(Learning Objective 1)

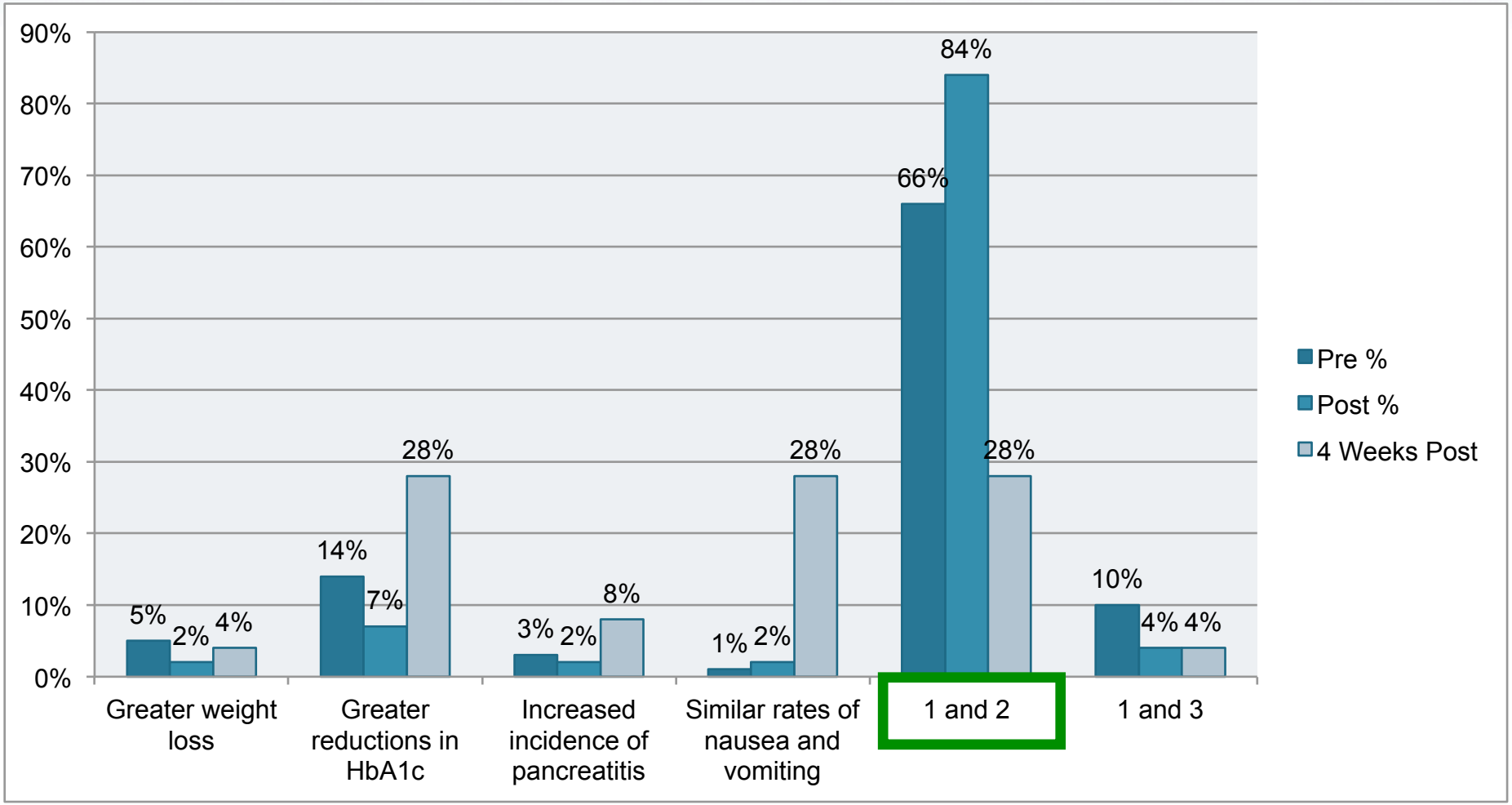


Pre N = 266 Post N = 315 4 Weeks Post N = 25 Green highlight indicates significant difference between pre and post testing.

Four Week Case Study Questions

(boxed answer is correct)

Which of the following would you expect when comparing the addition of a GLP-1RA vs DPP4 to patients already taking metformin?
(Learning Objective 2)

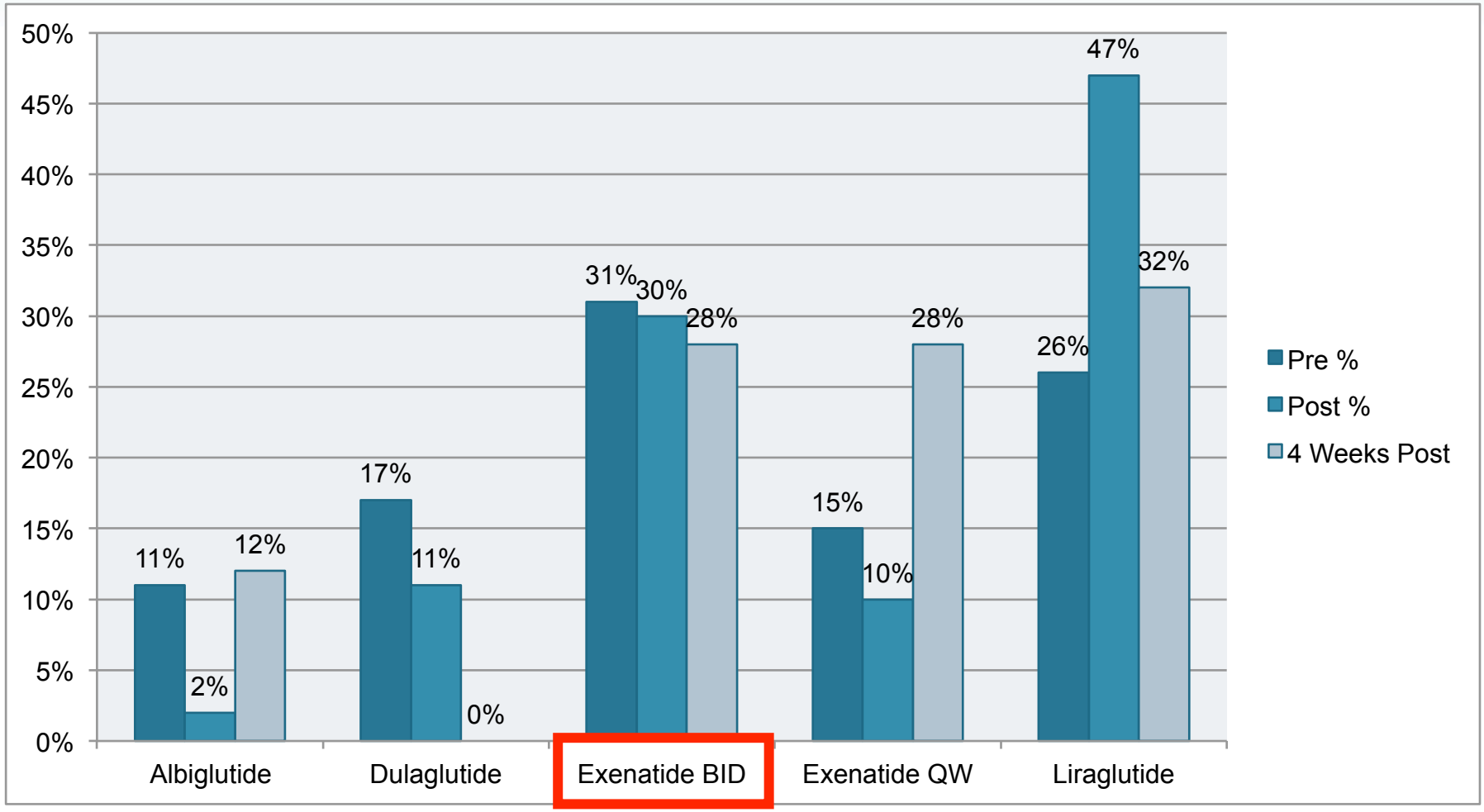


Pre N = 290 Post N = 318 4 Weeks Post N = 25 Green highlight indicates significant difference between pre and post testing.

Four Week Case Study Questions

(boxed answer is correct)

Although no direct head to head comparisons have been made, which of the following agents appears to have the greatest effect on post prandial glucose lowering?
(Learning Objective 2,3)



Pre N = 287 Post N = 331 4 Weeks Post N = 25 Red highlight indicates no significant difference between pre and post testing.

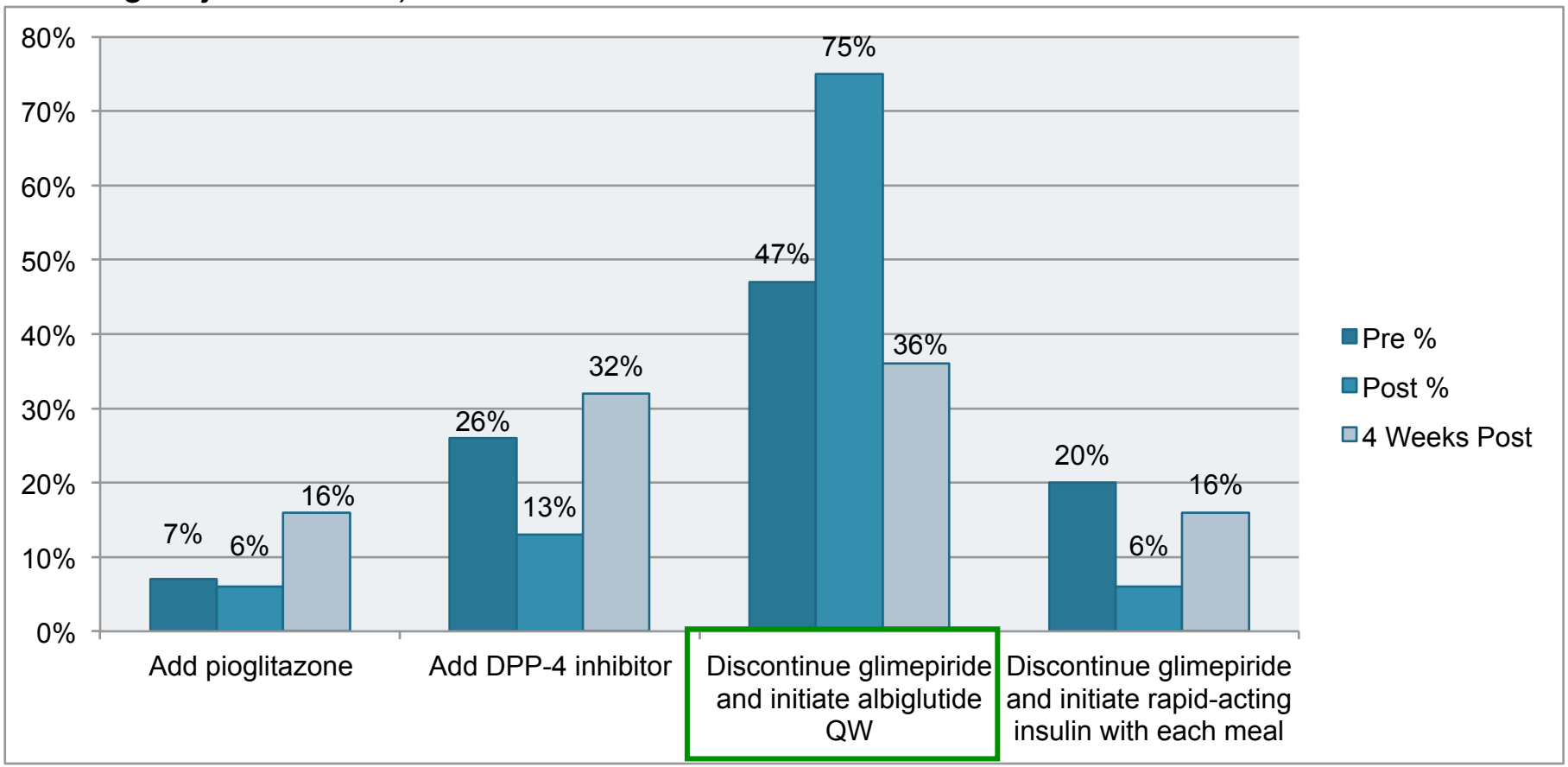
Four Week Case Study Questions

(boxed answer is correct)

A 56-year-old man with an 11-year history of type 2 diabetes presents for a checkup. Current medications include metformin 1000 mg bid, glimepiride 4 mg qd, and insulin detemir 60 U at night. His HbA1c is 8.1% and fasting blood glucose 150 mg/dL.

According to clinical trial results, which of the following is most likely to lower his post-prandial glucose the most without significant hypoglycemia?

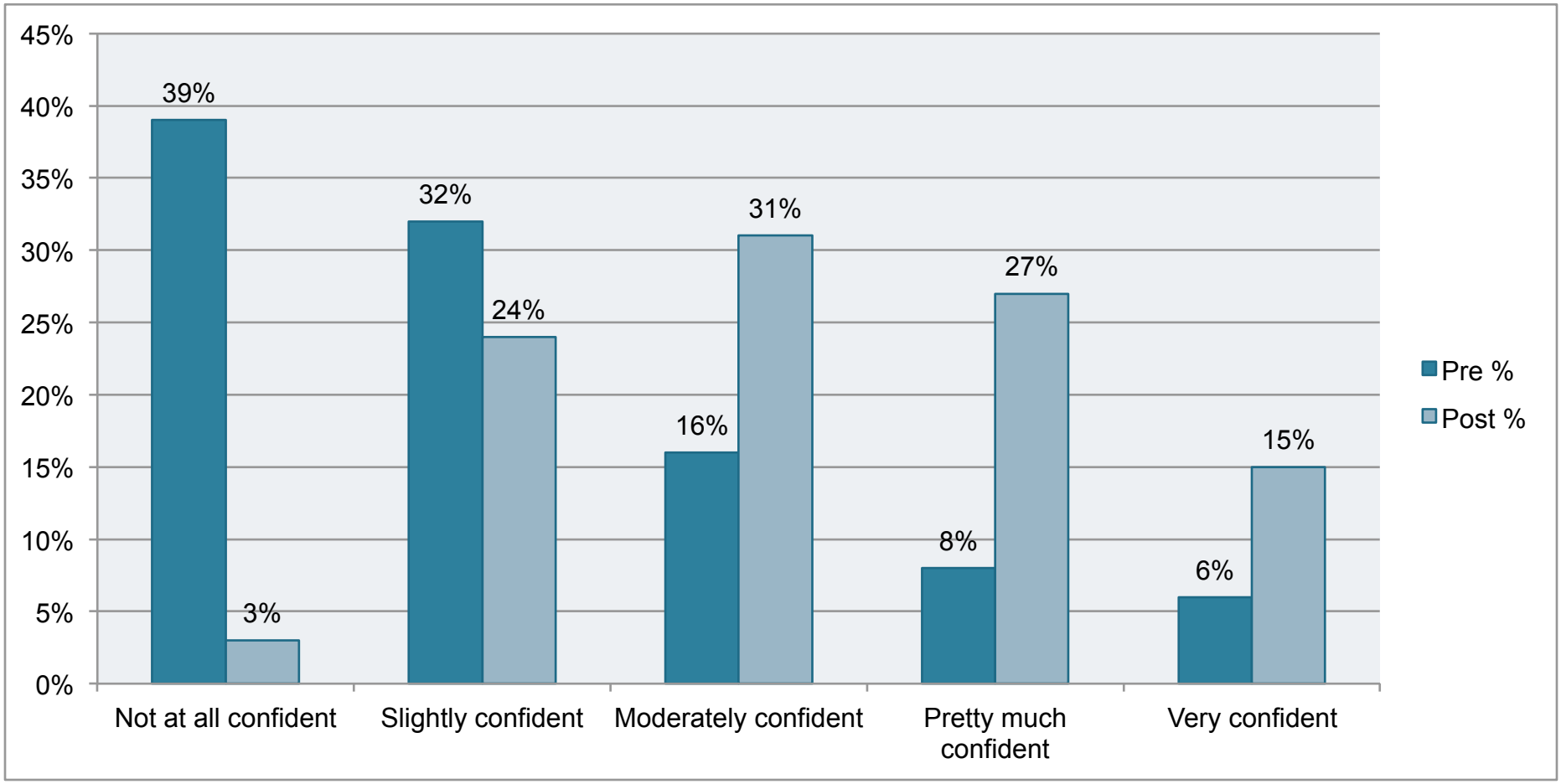
(Learning Objectives 2, 4)



Pre N = 318 Post N = 333 4 Weeks Post N = 25 Green highlight indicates significant difference between pre and post testing.

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

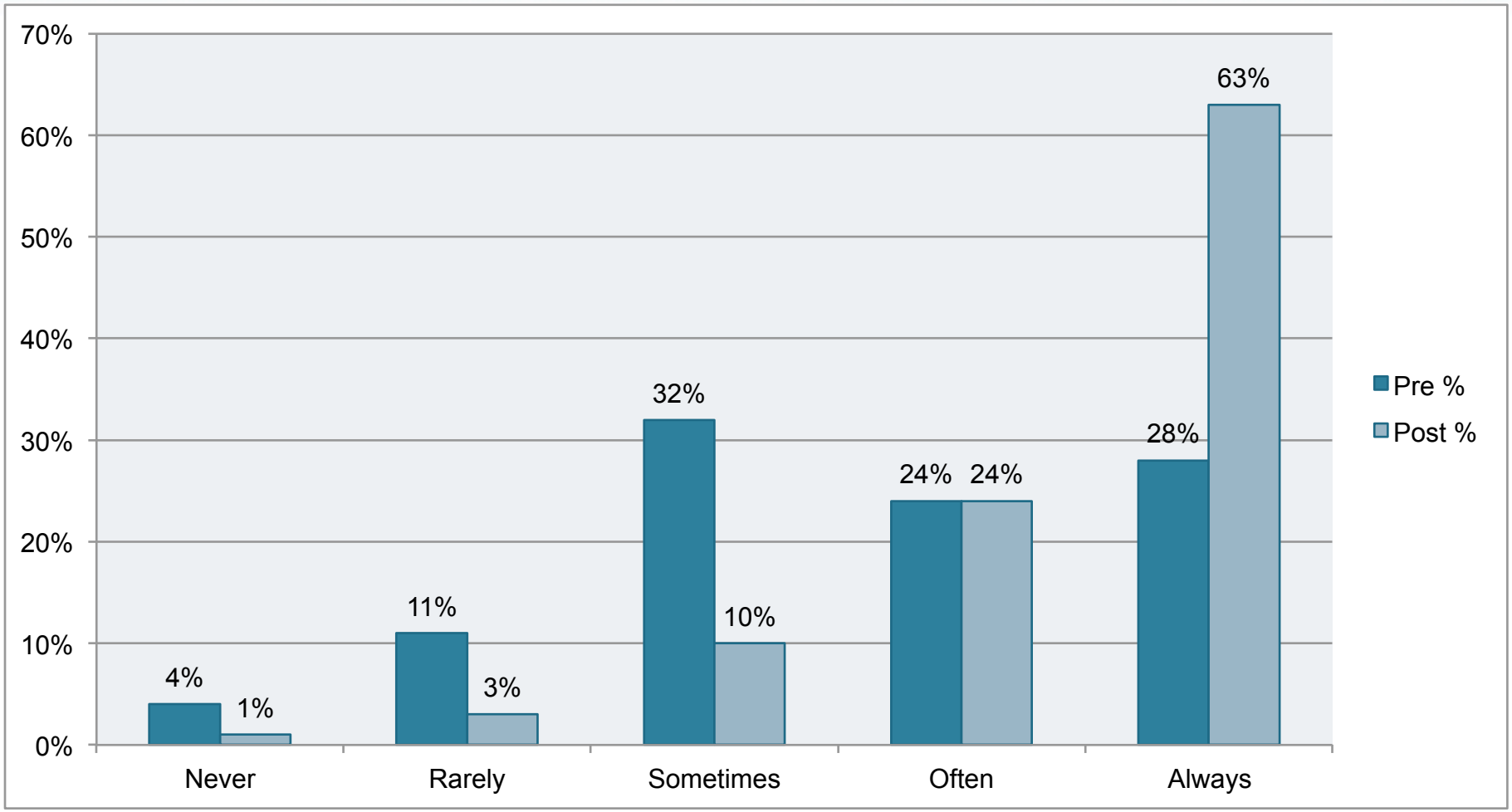
Please rate your confidence in your ability to use GLP-1RAs in combination with other antihyperglycemic medications:



Pre N = 302 Post N = 298

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

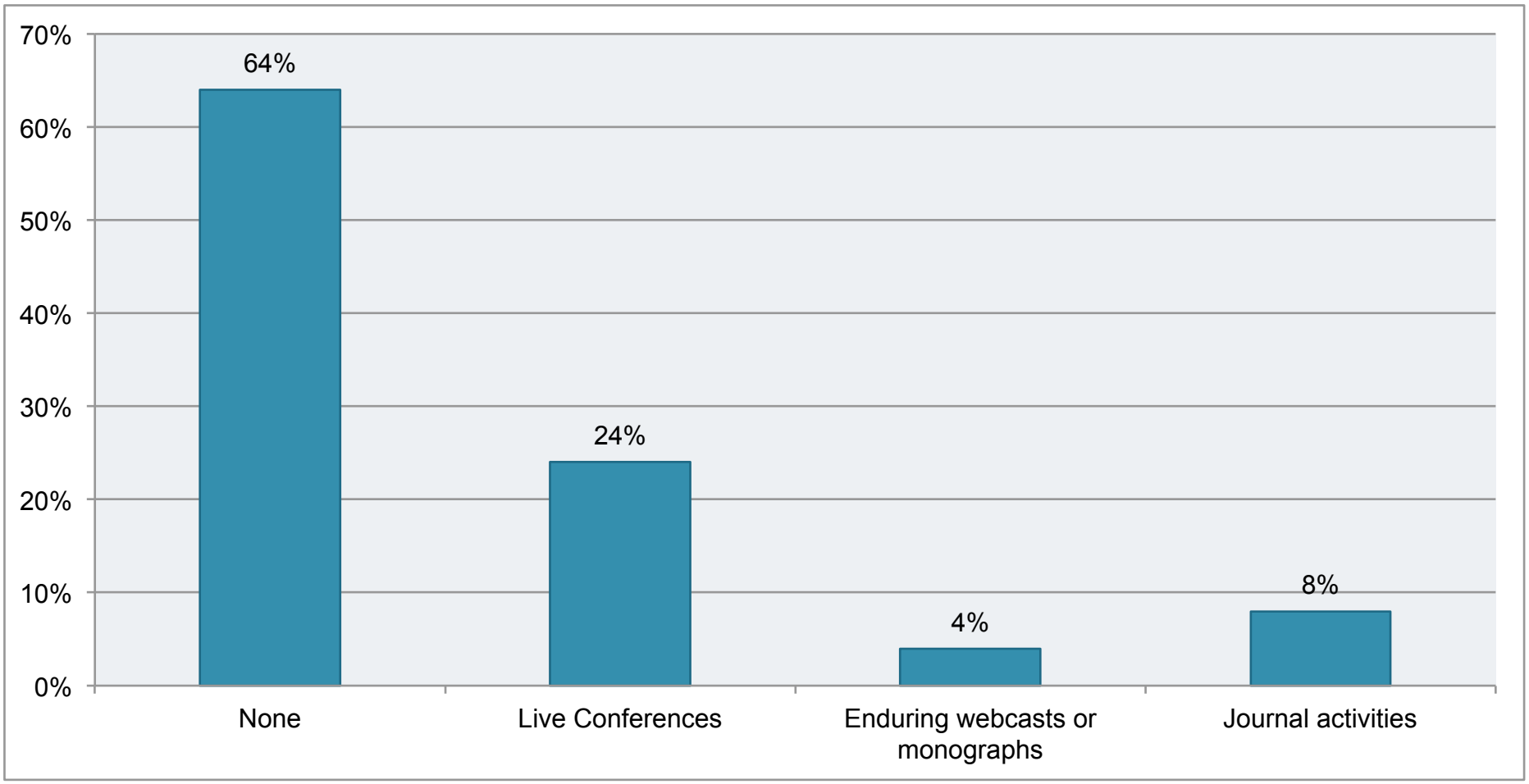
When adjusting therapy in patients with type 2 diabetes, how often do/will you consider the effect of antihyperglycemic medications on postprandial glucose levels?:



Pre N = 297 Post N = 315

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

Describe/list any other educational activities that you attended in the last month concerning the management of postprandial glucose levels in patients with type 2 diabetes?



4 Weeks Post N= 25

Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

What specific skills or practice behaviors have you implemented for patients with diabetes since this CME activity?
(Comments received from attendees at 4 week follow up)

- I follow the guidelines for management
- Better screening for diabetes and complications
- I am following AACE guidelines more closely
- Using GLP-1 meds as second line therapy
- Monitor postprandial glucose better
- Have increased range of medication choices
- Working with a Pharm-D diabetes educator to help manage patient care
- Discussing using GLP-1 RA

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Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

What specific barriers have you encountered that may have prevented you from successfully implementing strategies for patients with atrial fibrillation since this CME activity? (Comments received from attendees at 4 week follow up)

- Poor patient compliance.
- Limited amount of time with patients
- Patient inertia, pharmacy inertia (they often refused to figure out coverage and activate savings cards)
- Medication cost
- Insurance coverage
- Little research on the benefit vs side effects in frail elderly patients

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Postprandial Hyperglycemia and GLP-1 Receptor Agonists: Effective Strategies to Achieve Goals

Data Interpretation: 884 clinicians in 6 meetings
Participant Educational Gains

Recognize that the risk for all cause mortality rises when post-prandial blood sugars rise above 180 mg/dL

Understand that the addition of a GLP-1RA vs DPP4 to patients already taking metformin is likely to promote greater weight loss and greater reductions in A1C

Realize that in a patient with an HbA1c of 8.1% on metformin, glimepiride and insulin detemir, switching glimepiride to a GLP-1 RA is likely to lower post-prandial glucose more than adding pioglitazone, a DPP-4 or switching glimepiride to rapid acting insulin, without significant hypoglycemia

Using GLP-1 Receptor Agonists:
A Better Path For Postprandial Glycemic Control

Persistent Educational Gaps After 4 Weeks

- Clinical profile and side effect differences between GLP-1 RA and DPP-4 agents
- Pharmacologic differences of different GLP-1 RAs and their respective impact on post-prandial hyperglycemia
- Appropriate strategies of care to reach glycemic targets while minimizing hypoglycemia risk

Using GLP-1 Receptor Agonists:
A Better Path For Postprandial Glycemic Control

New Specific Behaviors Reported at 4 weeks

Following guidelines for management

Better screening for diabetes and complications

Using GLP-1 meds as second line therapy

Monitor postprandial glucose better

Working with a Pharm-D diabetes educator to help manage patient care

Using GLP-1 Receptor Agonists:
A Better Path For Postprandial Glycemic Control

Reported Barriers to Care at 4 weeks

- Cost of medications
- Patient compliance
- Formulary issues
- Limited amount of time with patients
- Patient inertia, pharmacy inertia

Using GLP-1 Receptor Agonists:
A Better Path For Postprandial Glycemic Control

Data Interpretation: 884 clinicians in 6 meetings

96% of learners indicated they had changed practice behavior to implement learning objectives of this program within four weeks after the program

Confidence levels improved from 30% to 73% in the ability to use GLP-1RAs in combination with other antihyperglycemic medications

KEY TAKE HOME POINTS

15% increase in participants considering the effect of antihyperglycemic medications on postprandial glucose levels

19% of attendees report seeing 25 or more patients with Diabetes weekly; 63% see > than 10, suggesting significant number of patients impacted

Discussion and Implications
Using GLP-1 Receptor Agonists:
A Better Path For Postprandial Glycemic Control

The need for continued education in the area of Diabetes and the effective use of GLP-1 Receptor Agonists, was demonstrated based on literature reviews and surveys completed prior to the conference series. Attendee knowledge was assessed at 3 points for this program: prior to the lecture, immediately following the lecture and again at 4 weeks after the conference using the case vignettes listed above.

Data Interpretation:

Data collected from 884 clinicians after 6 meetings, indicated a statistically significant improvement in knowledge in three of the four questions presented. Specifically, as a result of this lecture, participants:

1. Recognize that the risk for all cause mortality rises when post-prandial blood sugars rise above 180 mg/dL;
2. Understand that the addition of a GLP-1RA vs DPP4 to patients already taking metformin is likely to promote greater weight loss and greater reductions in A1C;
3. Realize that in a patient with an HbA1c of 8.1% on metformin, glimepiride and insulin detemir, switching glimepiride to a weekly GLP-1 RA is likely to lower post-prandial glucose more than adding pioglitazone, a DPP-4 or switching glimepiride to rapid acting insulin, without significant hypoglycemia.

Learners struggled with the idea that a short acting GLP-1 RA like Exenatide BID, in the absence of direct head to head studies, has the greatest effect on post prandial glucose lowering when compared to other daily or weekly preparations. This knowledge gap persisted at 4 weeks.

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Discussion and Implications

Using GLP-1 Receptor Agonists:
A Better Path For Postprandial Glycemic Control

84% of learners prior to the program stated that they often or always, consider the effect of antihyperglycemic medications on postprandial glucose levels, while 97% said they would do this afterwards. Moderate to very confident levels in the ability to use GLP-1RAs in combination with other antihyperglycemic medications rose from 30% to 73%.

Data obtained from participants 4 weeks after the program demonstrated moderate decline in learning from the post-test scores in all areas except regarding the increased risk for all cause mortality with post-prandial hyperglycemia. This suggests significant educational gaps persist.

Persistent gaps in knowledge were evident with additional education needed in the following areas:

1. Clinical profile and side effect differences between GLP-1 RA and DPP-4 agents
2. Pharmacologic differences of different GLP-1 RAs and their respective impact on post-prandial hyperglycemia
3. Appropriate strategies of care to reach glycemic targets while minimizing hypoglycemia risk

96% of learners who responded to our four week survey indicated that they had changed their practice behavior to implement the learning objectives of this program within four weeks after they attended the activity.

19% of attendees report seeing 25 or more patients with Diabetes on a weekly basis and 63% are seeing more than 10, suggesting a significant number of patients will be impacted by this program. 64% of participants had not other exposure to educational activities concerning the management of postprandial glucose levels in patients with type 2 diabetes in the month after the course, suggesting their changes were most likely due to this program.

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Discussion and Implications

Using GLP-1 Receptor Agonists:
A Better Path For Postprandial Glycemic Control

Attendees indicated multiple new, specific, practice behaviors they implemented as a result of this program that included:

1. Following guidelines for management
2. Better screening for diabetes and complications
3. Using GLP-1 meds as second line therapy
4. Monitor postprandial glucose better
5. Working with a Pharm-D diabetes educator to help manage patient care

Barriers to care included:

1. Poor patient compliance
2. Limited amount of time with patients
3. Patient inertia, pharmacy inertia
4. Medication cost
5. Insurance coverage
6. Benefit vs side effects in frail elderly patients

The notable changes in post test scores, and intent to change practice patterns regarding the use of GLP-1 Receptor Agonists in the management of diabetes signifies a clear gap in knowledge and an unmet need among Nurse Practitioners and Physician Assistants. It continues to be an important area for future educational programs.

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