Getting Comfortable with SGLT-2 Therapy: New Insights

Grant # ME201621693

Final Outcome Report

1 Live Virtual Conference on March 4, 2017

Report Date: April 13, 2017

Course Director

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Course Accreditation

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 *4.0 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 4 contact hours of continuing education.*

* This applies to the entire CME activity entitled Conversations in Primary Care

Commercial Support

Conversations in Primary Care: 2017 series of CME activities were supported through educational grants or donations from the following companies:

Arbor Pharmaceuticals
Bayer HealthCare
Boehringer Ingelheim Pharmaceuticals, Inc.
Lilly USA, LLC
Shire

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Dates and Times

Conversations in Primary Care: Update 2017
Live Virtual Conference Schedule

February 11, 2017
10:00am – 2:30pm

March 4, 2017
10:00am – 2:30pm

March 25, 2017
10:00am – 2:30pm

* **Bolded** cities are where the lecture was given

Titles of Presentations

- Adult ADHD in Primary Care: Addressing Unmet Needs

- Recognition and Management of Idiopathic Pulmonary Fibrosis: The Role of Primary Care

- Atrial Fibrillation: Reducing Risk and Individualizing Therapeutic Choices

- Legalize it? A Clinician's Guide to Medical Marijuana

- **Getting Comfortable with SGLT-2 Therapy: New Insights**

- Challenges in Hypertension: Incorporating Evolving Clinical Data into Practice

- Leaning in to LARCs; Long Acting Reversible Contraception Options

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

- 428 attendees on March 4, 2017

- 22% Physicians; 75% NPs or PAs; 1% RNs; 2% Other

- 43% in community-based practice

- 82% PCPs, 3% Cardiologist; 4% Hospitalist; 11% Other or did not respond

- 94% provide direct patient care

Did we reach the right audience?   Yes!

Level 2: Satisfaction

- 98% rated the activity as excellent
- 99% indicated the activity improved their knowledge
- 95% stated that they learned new and useful strategies for patient care
- 88% 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 428

Were our learners satisfied? Yes!

Getting Comfortable with SGLT-2 Therapy:
New Insights

Patients seen each week in a clinical setting with diabetes:
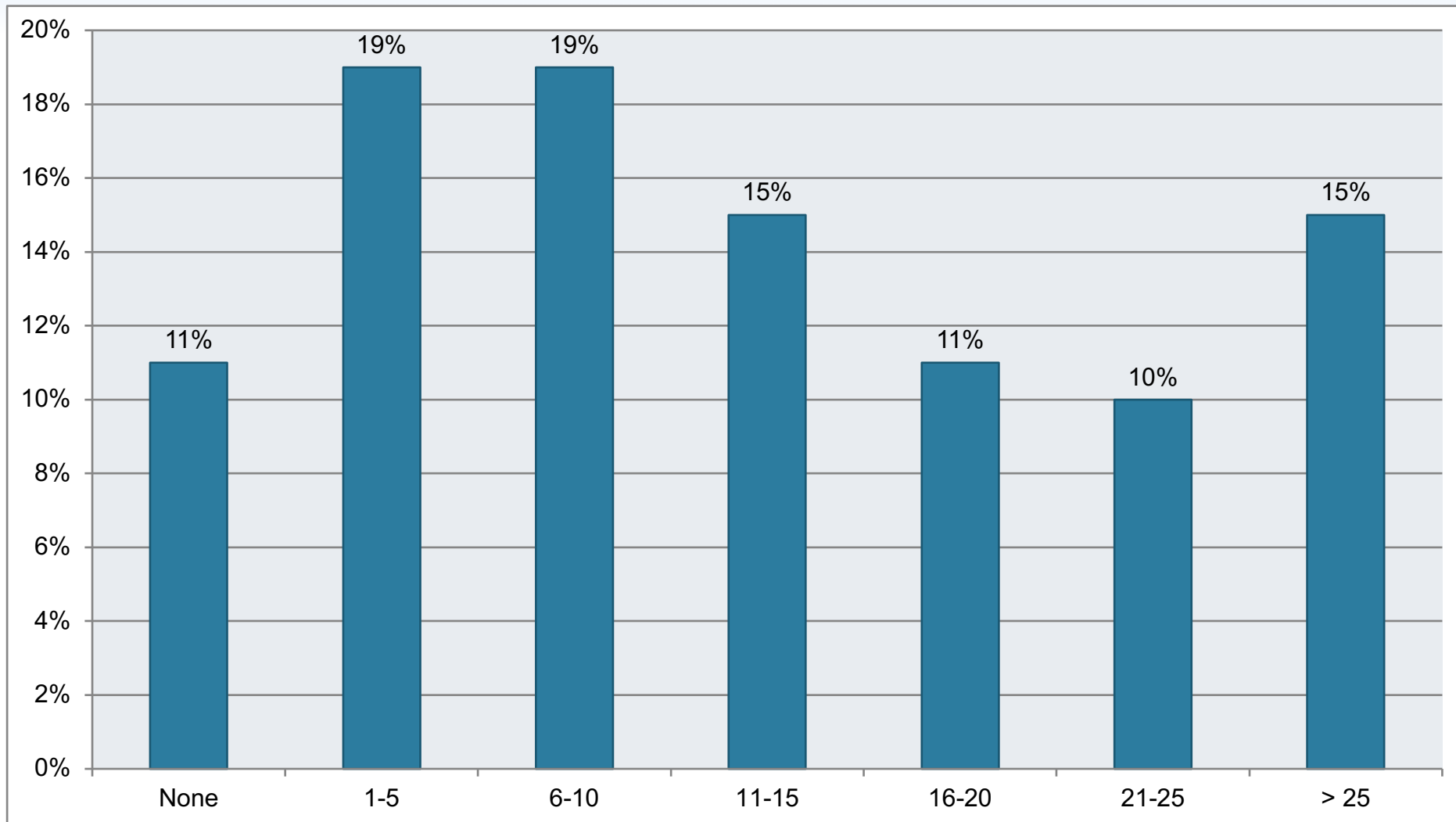
Sample Size: N = approximately 428

Did Learners Say They Achieved Learning Objective?

Upon completion of this activity, I can now – Describe the role of the kidney in glucose metabolism in health and disease; review the physiologic effects and clinical efficacy of SGLT-2 therapy in various patient populations; review emerging data on possible renal and macrovascular effects of evidence-based diabetes treatment options; integrate the impact of treatment decisions on postprandial hyperglycemia and risk of hypoglycemia.

Bar chart:
- Yes: 71%
- Somewhat: 28%
- Not at all: 1%

Yes! 99% believed they did.

Sample Size: N = approximately 428
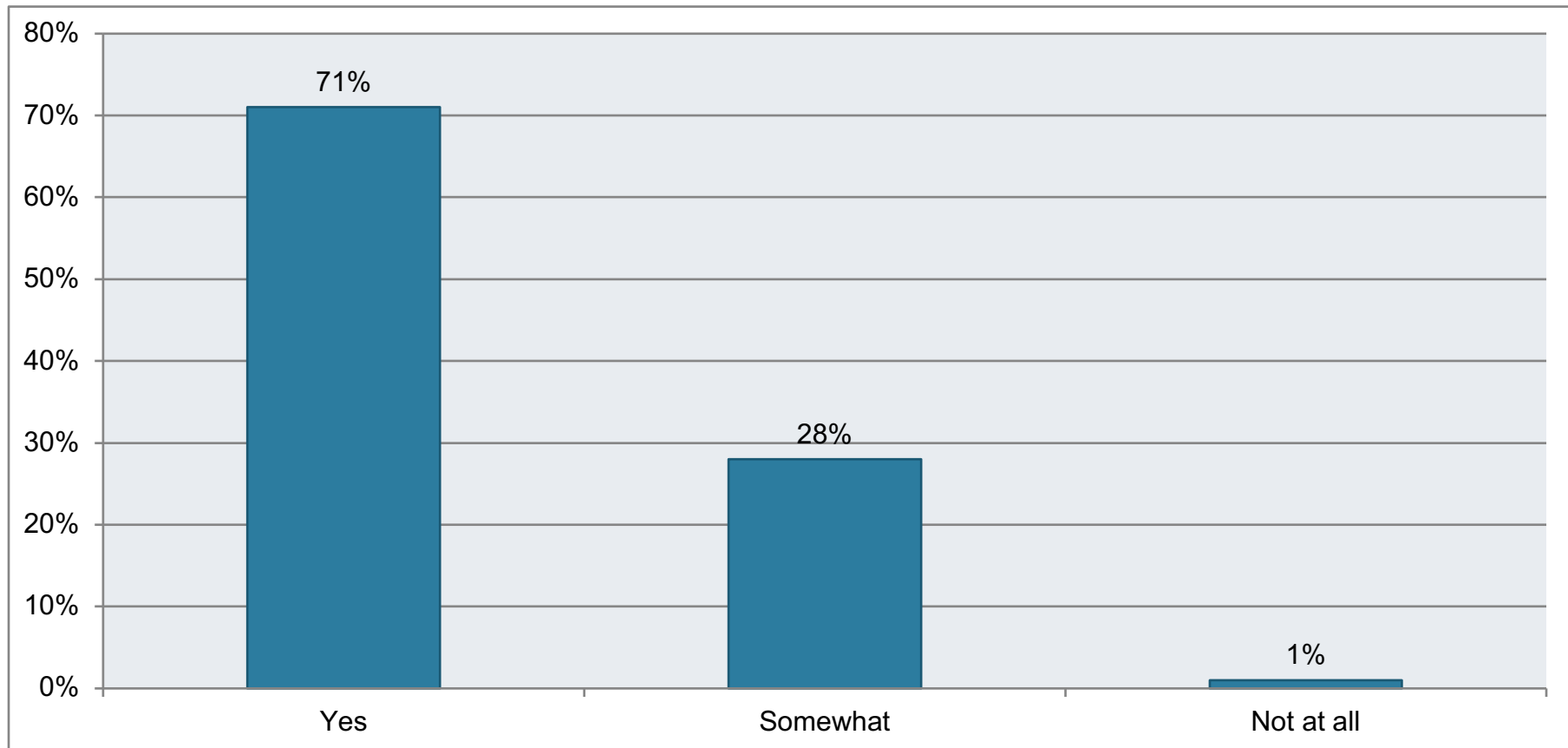
Outcome Study Methodology

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.

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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Getting Comfortable with SGLT-2 Therapy: New Insights

Faculty

Mark Stolar, MD
Associate Professor of Clinical Medicine
Feinberg School of Medicine
Northwestern University
Chicago, IL

Learning Objectives

1. Describe the role of the kidney in glucose metabolism in health and disease.

2. Review the physiologic effects and clinical efficacy of SGLT-2 therapy in various patient populations.

3. Review emerging data on possible renal and macrovascular effects of evidence-based diabetes treatment options.

4. Integrate the impact of treatment decisions on postprandial hyperglycemia and risk of hypoglycemia.

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Key Findings
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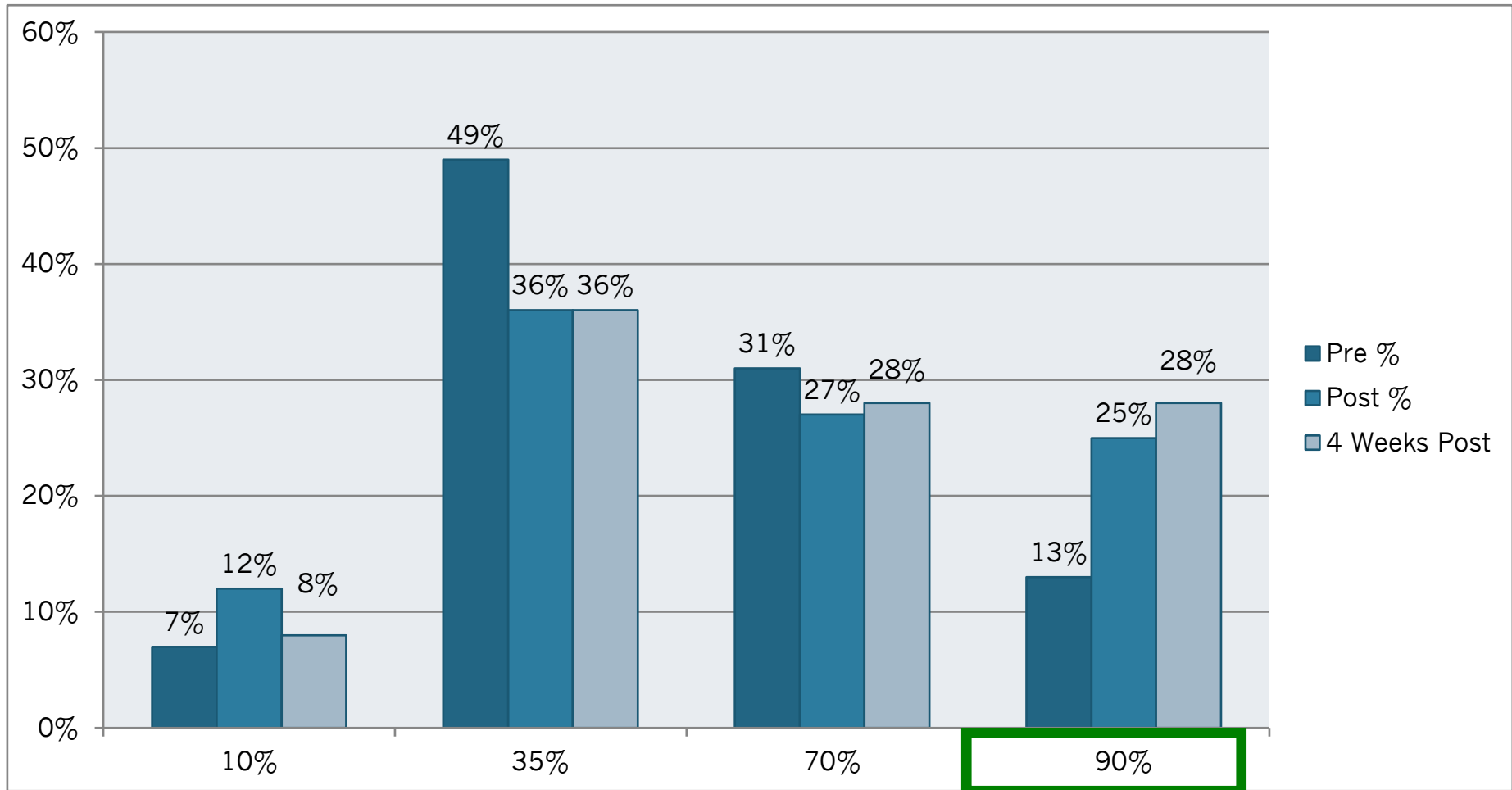|	
Knowledge/Competence	Learners demonstrated improvement from pre to post-testing in their answers to *all three* of the case-based questions regarding approach to treating patients with diabetes, two of which achieved statistical significance.
Confidence	Whereas the majority of learners rated themselves as having low to moderate confidence in their understanding of treating patients with diabetes before the education, most of the learners showed significant gains in confidence after the program.
Intent to Perform	As a result of this program, 93% of learners now state that they will, often or always, consider the effect of antidiabetic therapy based on risk for hypoglycemia levels, compared to 85% prior to the program.
Change of Practice Behavior 4 Weeks Post N= 142	91% 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 attending the activity.

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Case Vignette Knowledge and Competence Assessment Questions
(presented pre-post lecture, and after 4 weeks —boxed answer is correct)

Under normal conditions, the SGLT-2 and GLUT-2 transporters mediate reabsorption of about what proportion of glucose filtered by the kidney? (Learning Objective 1)

Pre-Post P Value: 0.019 – Significant

Pre N = 119   Post N = 140   4 Weeks Post N = 142   Green highlight indicates significant difference between pre and post testing.

Case Vignette Knowledge and Competence Assessment Questions
(presented pre-post lecture, and after 4 weeks —boxed answer is correct)

In the EMPA-REG trial, the use of empagliflozin in patients with high cardiovascular risk was associated with what significantly different outcome compared to placebo?
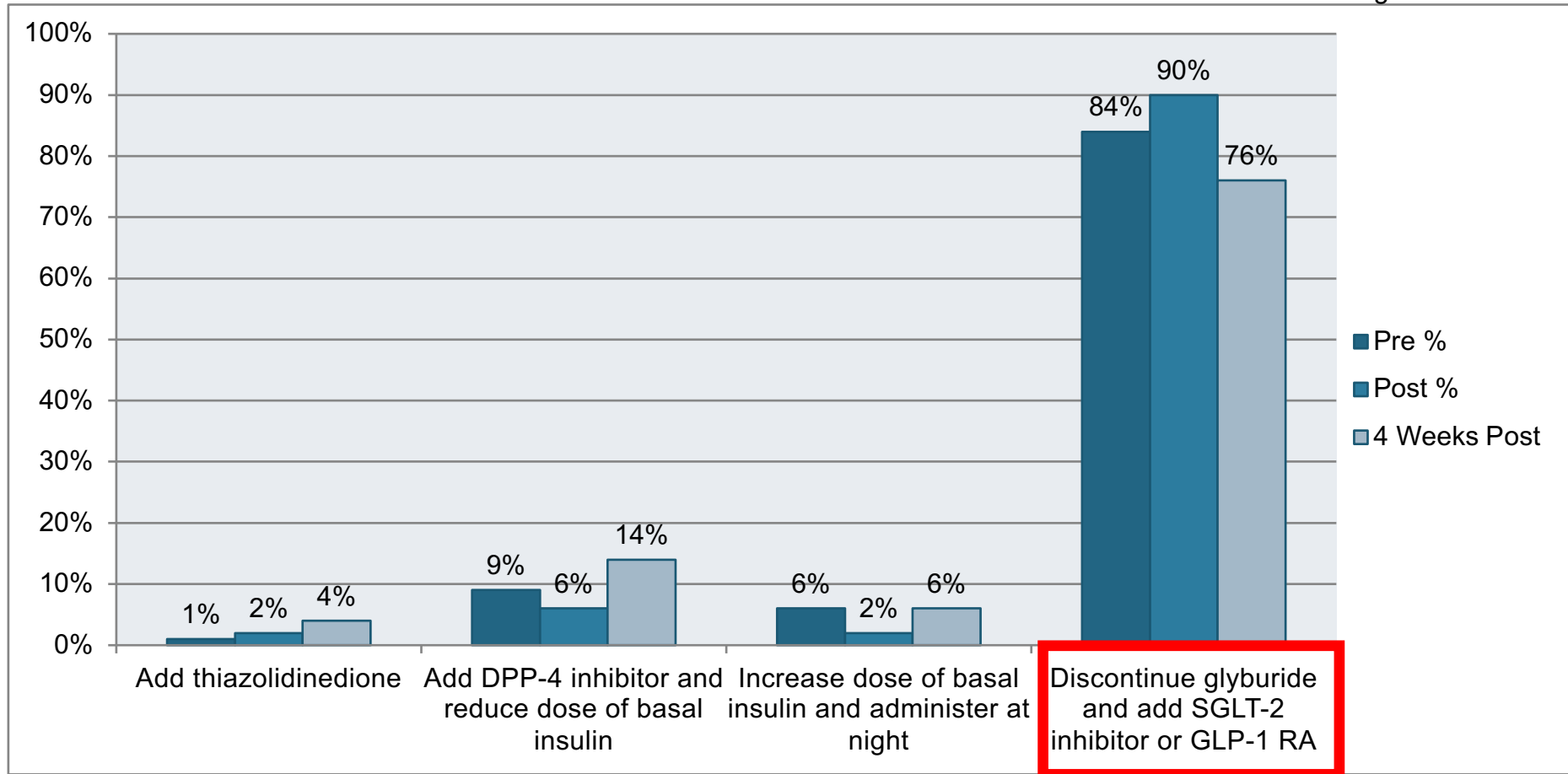(Learning Objective 2)

Pre-Post P Value: <0.001 – Significant
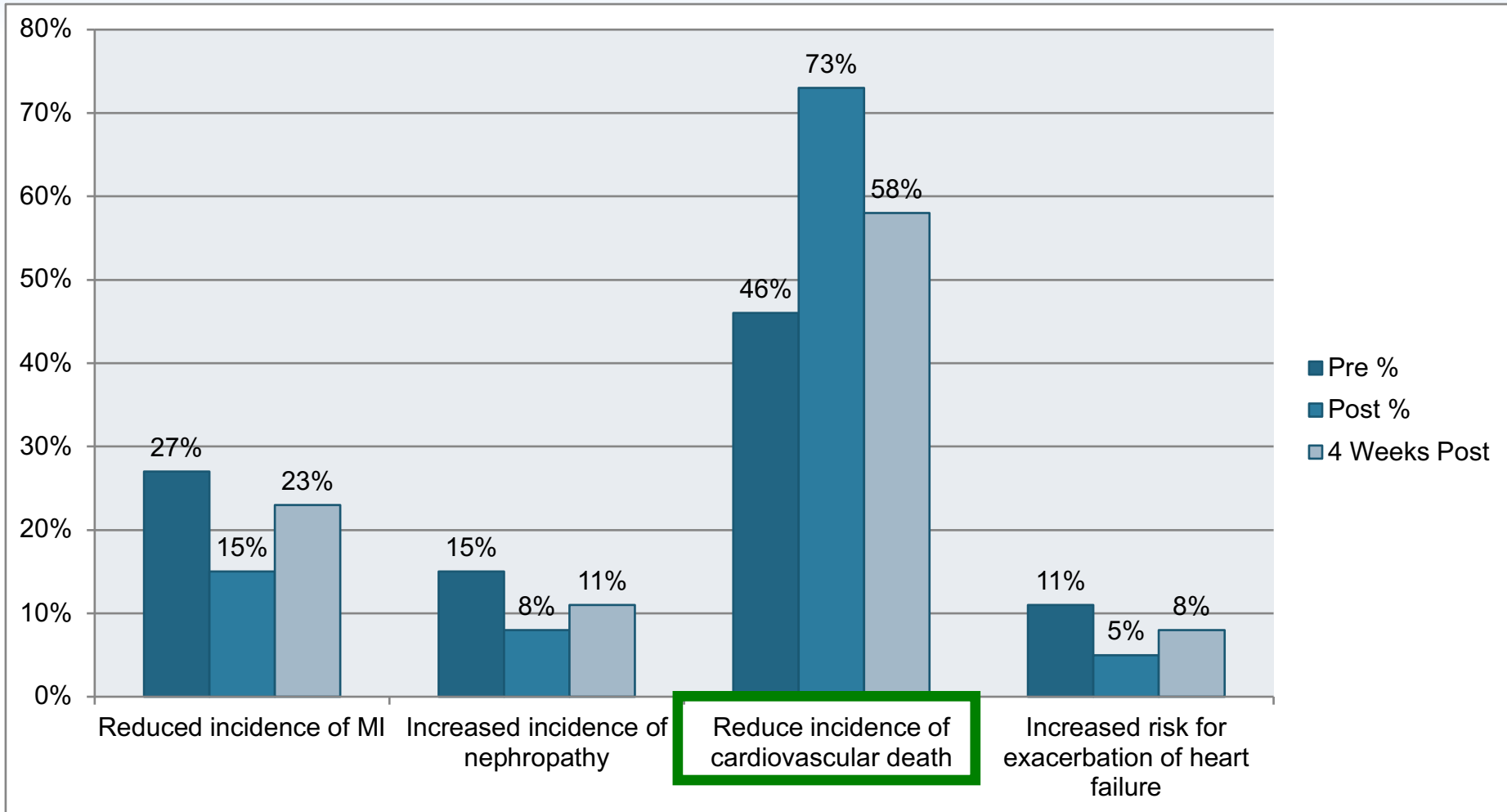
Pre N = 136   Post N = 130   4 Weeks Post N = 142   Green highlight indicates significant difference between pre and post testing.

Case Vignette Knowledge and Competence Assessment Questions
(presented pre-post lecture, and after 4 weeks —boxed answer is correct)

A 53-year-old obese woman with a history of hypertension (BP 138/86) and type 2 diabetes presents for a checkup. Her A1C is 7.9%. She reports recent weight gain (10 lbs) and occasional hypoglycemia (FPG <70 mg/dL). Current medications include metformin 1000 mg bid, glyburide 8 mg qd, basal insulin glargine 40 U qam, and hydrochlorothiazide 25 mg qd. **What might be an appropriate action at this time?** (Learning Objective 3 and 4)
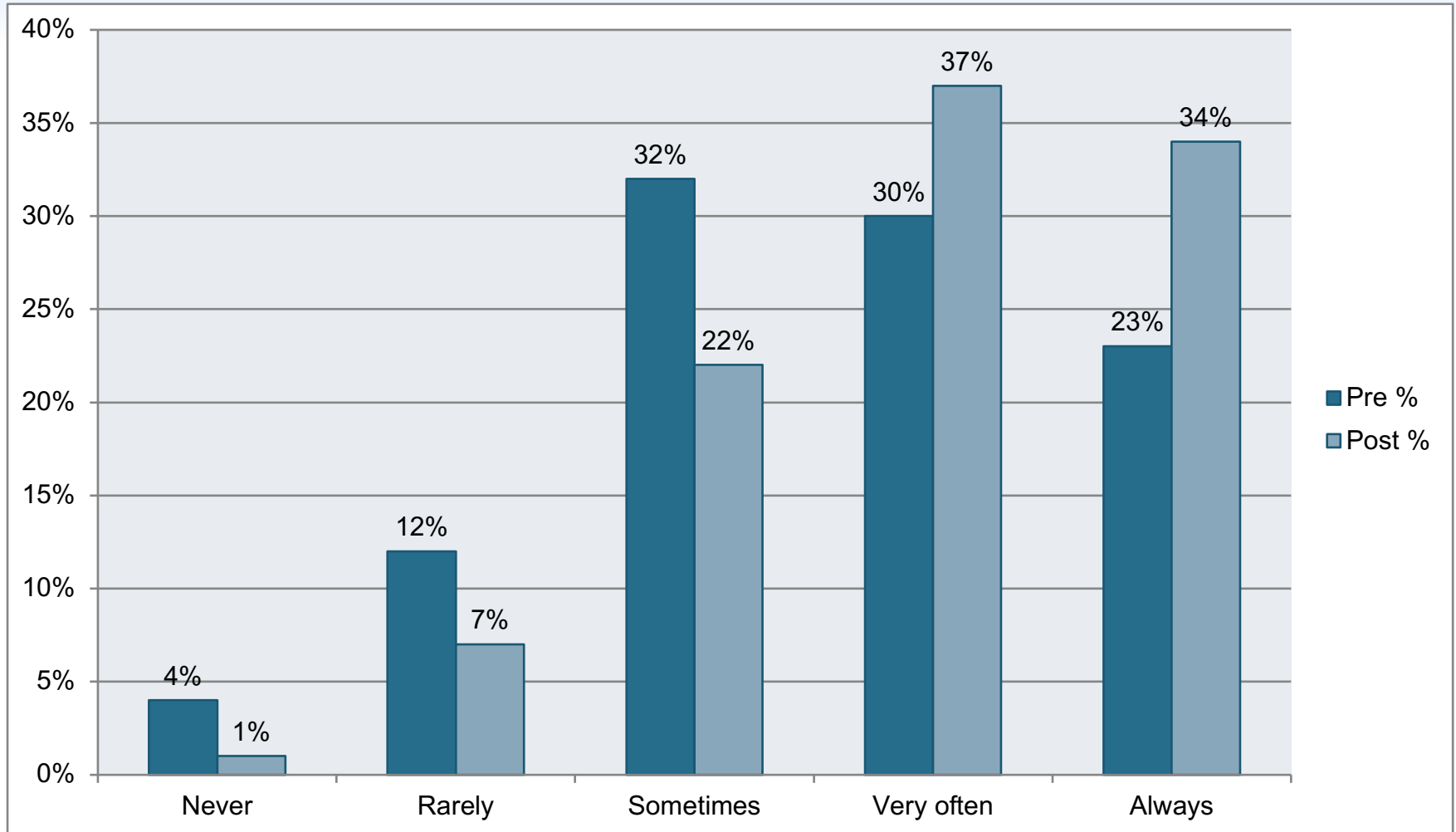
Pre-Post P Value: 0.117 – Not Significant

Pre N = 141   Post N = 140   4 Weeks Post N = 142   Red highlight indicates no significant difference between pre and post testing.

Change in Practice Behavior Question
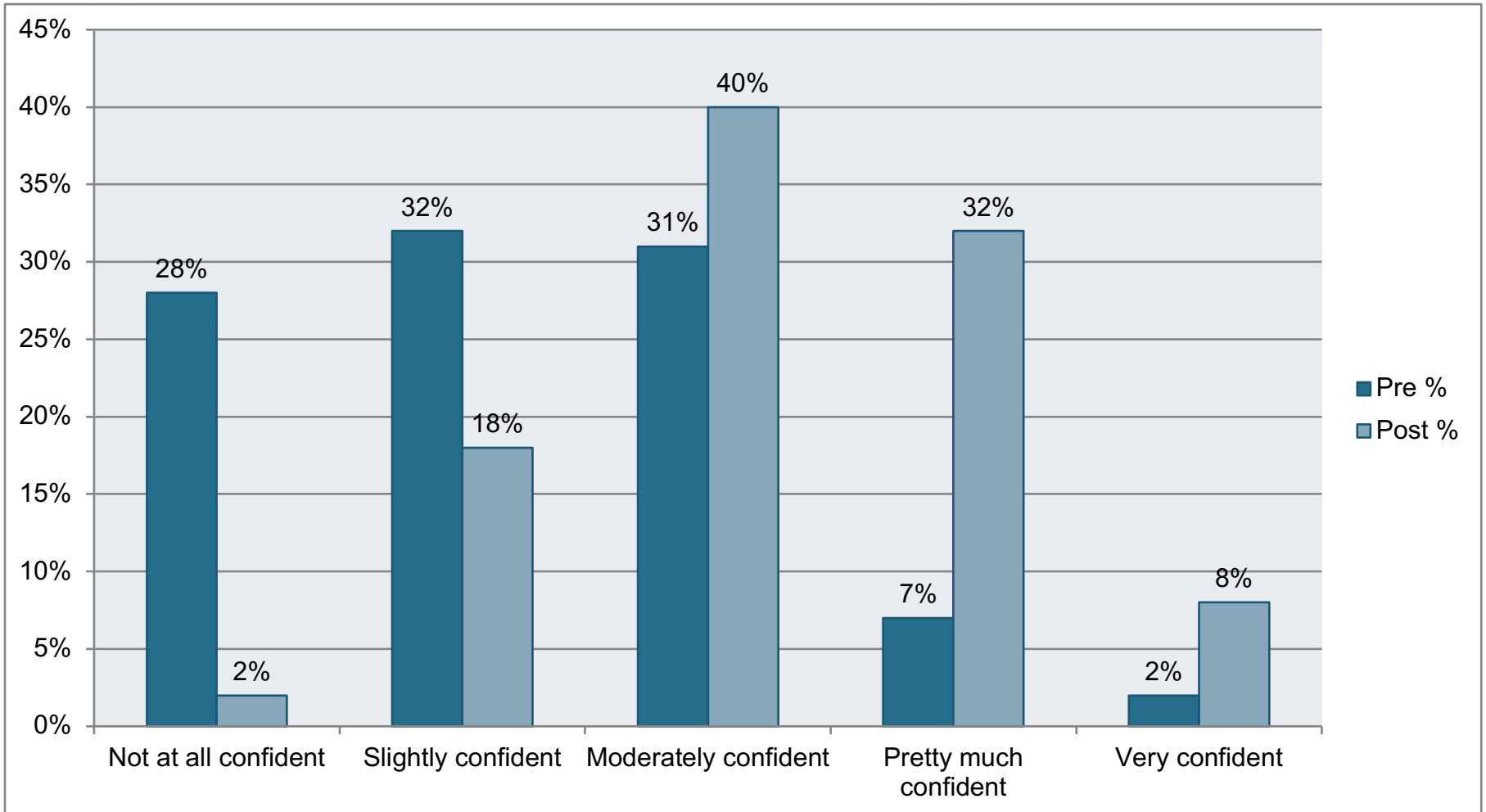## (presented pre-post lecture)

How often do/will you modify antidiabetic therapy based on risk for hypoglycemia?
(Learning Objectives 2)

Pre N = 155   Post N = 158

Confidence Question
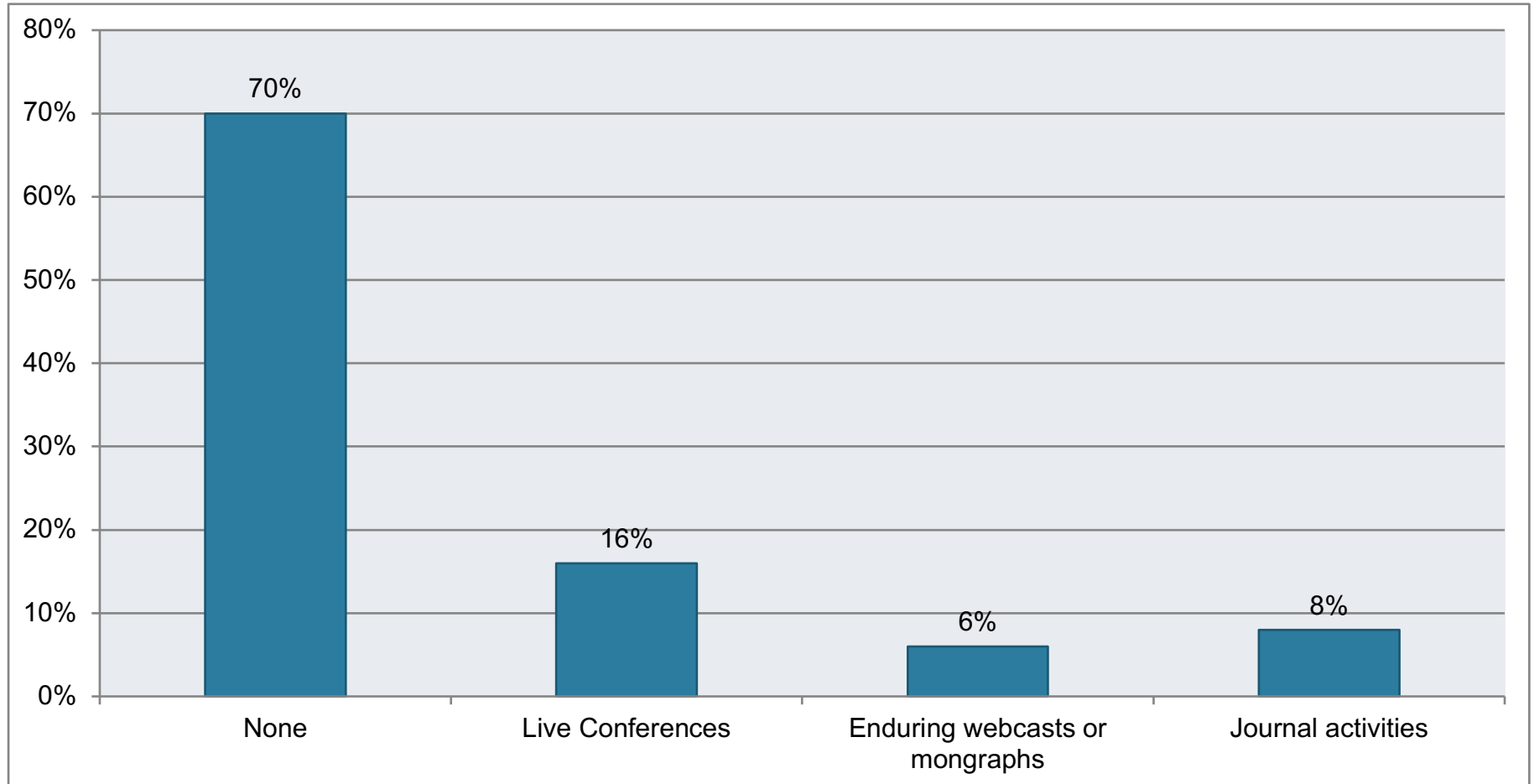## (Presented pre-post lecture)

Please rate your confidence in ability to select patients appropriate for treatment with SGLT-2 inhibitors:

Pre N = 162   Post N = 163

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Describe/list any other educational activities that you attended in the last month concerning the treatment of diabetes?

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New Insights

What specific skills or practice behaviors have you implemented for patients with diabetes since this CME activity?

(Sample comments received from attendees at 4 week follow up)

- "I am more comfortable with managing diabetes medications"
- "I have a better understanding of SGLT-2 medications and when to use them alone or in combination "
- "I am more comfortable discussing diet and exercise with patients"
- "I spend more time educating patients and encouraging medication compliance"
- "I monitor for hypoglycemia more carefully"
- "I aim for better glycemic control at onset to prevent long-term complications"

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

- Patient's resistance to home blood sugar monitoring
- Patients concern for UTI risk with SGLT-2 class
- Lack of health insurance
- Medication cost
- Insurance formulary limitations
- Patient non-compliance with diet and exercise
- Hypoglycemic episodes
- Patient compliance with treatment
- Time constraints

Getting Comfortable with SGLT-2 Therapy: New Insights

Data Interpretation: 428 clinicians at 1 live virtual meeting

Participant Educational Gains

Understand that the SGLT-2 and GLUT-2 transporters mediate 90% of the glucose reabsorption by the kidneys

Are more aware that in the EMPA-REG trial, the use of empagliflozin in patients with high cardiovascular risk was associated with a significant reduction of cardiovascular death compared to placebo

Are more likely to replace a sulfonylurea with an SGLT-2 or GLP-1 RA in a poorly controlled obese patient, with hypertension and occasional hypoglycemia

Are more likely to modify antidiabetic therapy in patients at risk for hypoglycemia

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New Insights
Data Interpretation: 428 clinicians at 1 live virtual meeting

Persistent Educational Gaps at 4 Weeks:

The cardiovascular benefits of SGLT-2 inhibition seen in the EMPA-REG trial

Modifying medication to achieve target A1C goals while minimizing hypoglycemia

The role of SGLT-2 inhibition on the normal physiology of glucose excretion

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New Specific Behaviors Reported at 4 weeks

Greater comfort with managing diabetes medications

Better able to educate patients on this class of medications

Better understanding of SGLT-2 medications and when to use them alone or in combination

Greater comfort with discussing diet and exercise with patients

Monitoring for hypoglycemia more closely

Getting Comfortable with SGLT-2 Therapy:
New Insights
Reported Barriers to Care at 4 weeks

Medication cost

Insurance coverage and formulary restrictions

Time constraints

Patient non-compliance with lifestyle recommendations, medications and treatment plan

Patient's resistance to home blood sugar monitoring

Getting Comfortable with SGLT-2 Therapy:
New Insights
Data Interpretation: 428 clinicians at 1 live virtual meeting

88% said they would implement new strategies that they learned in their practice

90% improvement in confidence levels in the ability to appropriately use SLGT-2 inhibitors in patients with type 2 diabetes

KEY TAKE HOME POINTS

Significant improvement in awareness of the potential impact of SGLT-2 inhibition on cardiovascular death, as demonstrated in the EMPA-REG Trial

15% of attendees report seeing 25 or more patients with Diabetes weekly; 51% see > than 10, suggesting significant number of patients impacted

Discussion and Implications
Getting Comfortable with SGLT-2 Therapy:
New Insights

The need for continued education in the area of Diabetes and the appropriate use of SGLT-2 Inhibitors, 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 428 clinicians after 1 meeting, indicated improvement in knowledge and intent to change behavior in all 4 of the questions presented. Two of the responses on the knowledge questions achieved statistical significance. Specifically, as a result of this lecture, participants:

    1. Understand that the SGLT-2 and GLUT-2 transporters mediate 90% of the glucose reabsorption by the kidneys;

    2. Are more aware that in the EMPA-REG trial, the use of empagliflozin in patients with high cardiovascular risk was associated with a significant reduction of cardiovascular death compared to placebo;

    3. Are more likely to replace a sulfonylurea with an SGLT-2 or GLP-1 RA in a poorly controlled obese patient, with hypertension and occasional hypoglycemia;

    4. Are more likely to modify antidiabetic therapy in patients at risk for hypoglycemia.

Moderate to very confident levels in the ability to appropriately use SLGT-2 inhibitors in patients with type 2 diabetes rose 90% from 42% to 80%. 88% of participants are likely to utilize information learned from this presentation in their practice. 15% of attendees report seeing 25 or more patients with Diabetes on a weekly basis and 51% are seeing more than 10, suggesting a significant number of patients will be impacted by this program.

The program content was reinforced to participants with a "Clinical Highlights" document containing key teaching points from the program. This is distributed 1 week after the meeting.

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Discussion and Implications
Getting Comfortable with SGLT-2 Therapy:
New Insights

4 Week Follow Up Data

Data obtained from participants 4 weeks after the program demonstrated significantly greater awareness of the responsibilities of the SGLT-2 and GLUT-2 transporters in glucose reabsorption but some decline in learning regarding the impact of an SGLT-2 inhibitor on cardiovascular risk of death as seen in the EMPA-REG trial and how to most effectively modify pharmacotherapy in a patient not at goal while having occasional hypoglycemia.

Persistent gaps in knowledge were evident with additional education needed in the following areas:
1. The role of SGLT-2 inhibition on the normal physiology of glucose excretion
2. The cardiovascular benefits of SGLT-2 inhibition seen in the EMPA-REG trial
3. Modifying medication to achieve target A1C goals while minimizing hypoglycemia

New Practice Behaviors

Attendees indicated multiple new, specific, practice behaviors they implemented as a result of this program that included:
1. Greater comfort with managing diabetes medications
2. Better understanding of SGLT-2 medications and when to use them alone or in combination
3. Greater comfort with discussing diet and exercise with patients
4. Better able to educate patients on this class of medications
5. Monitoring for hypoglycemia more closely
6. Targeting better glycemic control at disease onset

1 month after this conference, 70% of attendees had no other exposure to a CME program, indicating that much of their behavior change was likely a result of this program.

Discussion and Implications
Getting Comfortable with SGLT-2 Therapy:
New Insights

Barriers to Care

Barriers to care reported by clinicians at 4 weeks included:

1. Medication cost
2. Insurance coverage and formulary restrictions
3. Patient non-compliance with lifestyle recommendations, medications and treatment plan
4. Patient's resistance to home blood sugar monitoring
5. Patients concern for UTI risk with SGLT-2 class
6. Hypoglycemic episodes
7. Time constraints

What Can We Learn:

After the program, there were knowledge gains in all areas addressing SGLT-2 therapy and strategies to optimize care while minimizing hypoglycemia for patients with diabetes but there was some decline in two areas after 4 weeks suggesting persistent educational gaps. The notable changes in post test scores and confidence levels signify a clear gap in knowledge and an unmet need among primary care clinicians. It continues to be an important area for future educational programs.

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