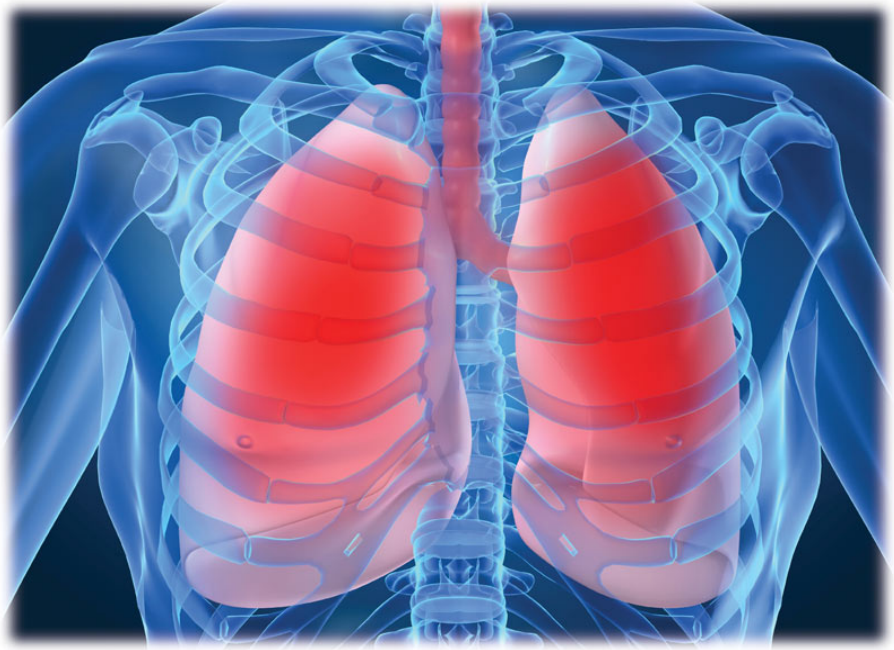
NATIONAL ASSOCIATION FOR CONTINUING EDUCATION



Pulmonary Hypertension:
A Disease in Evolution

Final Outcome Report

Challenges in Pulmonary and Critical Care: 2012

Presented at:
Cleveland Clinic Florida
Weston, Florida
December 1, 2012

Report Date: May 2, 2013

Course Director

Franck Rahaghi, MD, MHS, FCCP
Director, Pulmonary Hypertension Clinic
Director, Pulmonary Education and Rehabilitation
Chair of Quality
Cleveland Clinic Florida
Weston, FL

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 7 *AMA PRA Category 1 Credits*™. Physicians should only claim the credit commensurate with the extent of their participation in the activity.

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of University of Massachusetts Medical School and the National Association for Continuing Education. The University of Massachusetts Medical School is accredited by the ACCME to provide continuing medical education for physicians.

The University of Massachusetts Medical School 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.

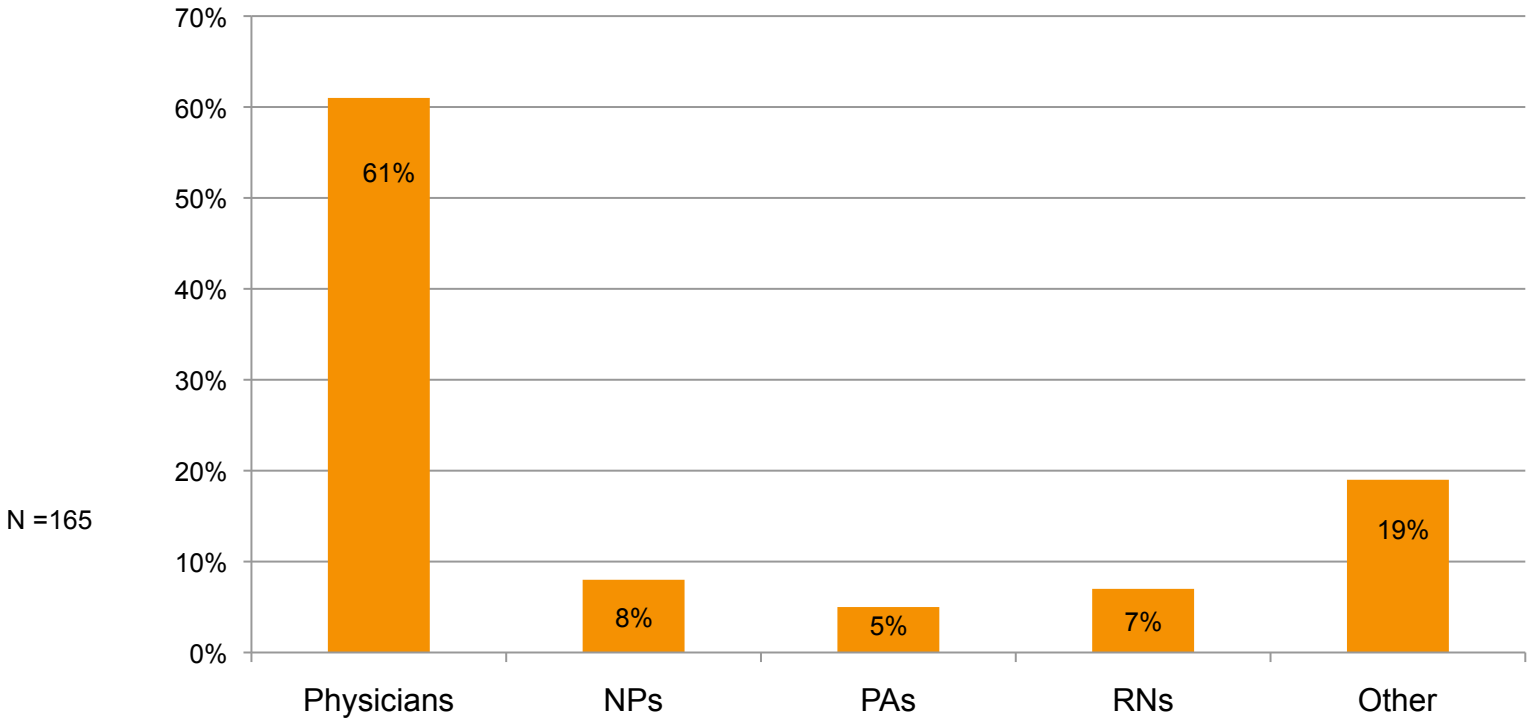
Commercial Support

Challenges in Pulmonary and Critical Care: 2012 CME activity was supported through educational grants or donations from the following companies:

Actellion
Baxter
Boehringer Ingelheim Pharmaceuticals, Inc.
Boston Scientific
CSL Behring
Genentech
Grifols
Hospira, Inc.
United Therapeutics Corporation

Level 1: Participation

- 122 attendees
- 61% Physicians; 8% NPs; 5% PAs; 7% RNs; 19% Other
- Over 40% in community-based practice
- 37% PCPs, 40% Pulmonologists; 3%Rheumatology; 3% Cardiologists; 17% Other or did not respond



Did we reach the right audience? Yes!

Level 2: Satisfaction

- 100% rated the activity as very good to excellent
- 98% indicated the activity improved their knowledge
- 98% stated that they learned new strategies for patient care
- 85% said they would implement new strategies that they learned in their practice
- 100% said the program was fair-balanced and unbiased

Were our learners satisfied? Yes!

Agenda

7:15-7:50	Continental Breakfast and Registration
7:50-8:00	Welcome Remarks Franck Rahaghi, MD, MHS, FCCP
8:00-9:00	Electromagnetic Navigation Bronchoscopy and Bronchial Thermoplasty:Two Techniques That Are Revolutionizing Bronchoscopy Eduardo Oliveira, MD, MBA
9:00-10:00	COPD: New Developments, New Treatment Horizons Charlie Strange, MD
10:00- 10.15	Break/Exhibits
10:15-11:15	Alpha-1 Antitrypsin Deficiency: How to Change Franck Rahaghi, MD, MHS, FCCP
11:15-12:15	Pulmonary Hypertension: A Disease Evolution Ioana Preston, MD
12:150- 1:00	Lunch Break/Exhibits
1:00-2:00	Idiopathic Pulmonary Fibrosis: Updates from IPFNET and New Horizons Robert Kaner, MD
2:00-3:00	New Directions in Treatment of Asthma Raed A. Dweik, MD
3:00-3:15	Break/Exhibits
3:15-4:15	Sedation in the ICU Jinesh Mehta, MD
4:15-5:315	Management of Chronic Cough Gustavo Ferrer, MD
5:15-5:30	Closing Remarks Franck Rahaghi, MD, MHS, FCCP

Levels of Evaluation

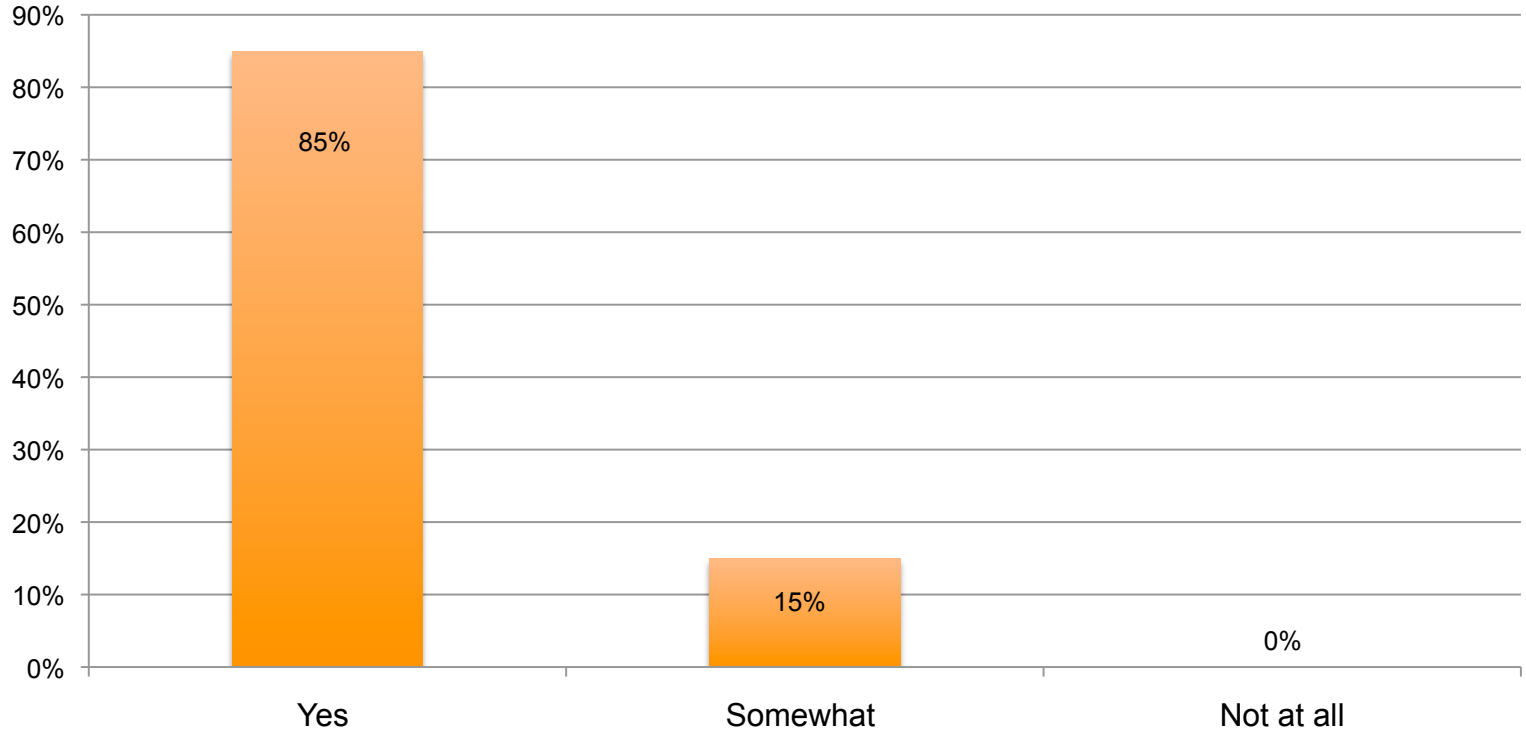
Consistent with the policies of the ACCME, NACE evaluates the effectiveness of all CME activities using a systematic process based on the following model:

1. Participation
2. Satisfaction
3. Learning
   A. Declarative Knowledge
   B. Procedural Knowledge
4. Competence
5. Performance
6. Patient Health
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 2: Satisfaction

Upon completion of this activity, I can now – Explain the pathophysiology of pulmonary arterial hypertension (PAH); Discuss the workup of patients suspected of having PAH; Discuss criteria for diagnosis and accurate assessment of disease severity in patients with PAH; List therapeutic options in the management of patients with PAH and discuss effective use of targeted treatment options for PAH; Discuss the pipeline of new PAH medications:



Did learners indicate they achieved the learning objectives?

Yes! 100% believed they did.

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.

Outcome Study Methodology (Cont.)

4. Readiness to Change Behavior (Prochaska and DeClemente Model)

CME activities can motivate providers to move through different stages of change which can ultimately lead them to take action and modify their practice behavior in accordance with the objectives of the education. Movement through these stages of change is an important dependent variable to consider in evaluating the impact of CME. Participants were asked to evaluate their stage of change with respect to specific topics being presented.

- **Pre-contemplation stage**: I do not manage (PAH), nor do I plan to this year.
- **Contemplation stage:** I did not manage (PAH) before this course, but as a result of attending this course I'm thinking of managing it now.
- **Pre-contemplation/confirmation stage**: I do manage patients with (PAH) and this course confirmed that I do **not** need to change my treatment methods.
- **Preparation for action stage**: I do manage patients with (PAH) and this course helped me change my treatment methods.

Prochaska, et al (1988). *Journal of Consulting and Clinical Psyhcology*., 56, 520-528.

Pulmonary Hypertension: A Disease in Evolution

Faculty
Ioana Preston, MD
Assistant Professor, Pulmonary and Critical Care Division
Tufts University School of Medicine
Co-Director, Pulmonary Hypertension Center
Boston, MA

Learning Objectives

- Explain the pathophysiology of pulmonary arterial hypertension (PAH)
- Discuss the workup of patients suspected of having PAH
- Discuss criteria for diagnosis and accurate assessment of disease severity in patients with PAH
- List therapeutic options in the management of patients with PAH and discuss effective use of targeted treatment options for PAH
- Discuss the pipeline of new PAH medications

Key Findings

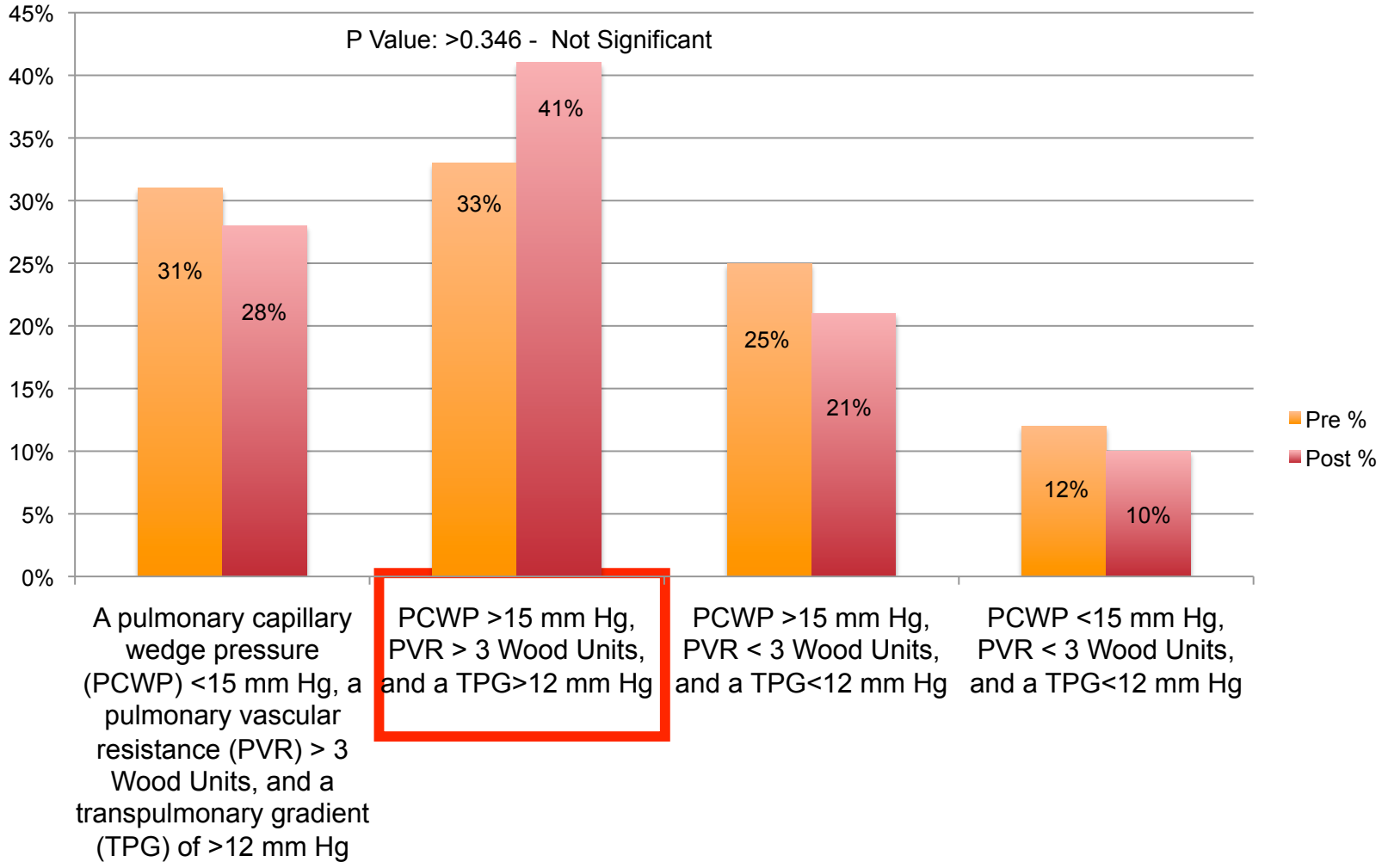
Pulmonary Hypertension: A Disease in Evolution

Knowledge/Competence	Learners demonstrated improvement in their answers from pre to post-testing on three of the three case-based questions regarding Pulmonary Hypertension.
Confidence	Whereas the majority of learners rated themselves as having very low confidence in their understanding of treating Pulmonary Hypertension before the education most of the learners showed very high gains in confidence after the program.
Intent to Perform	As a result of this program, 27% of learners who did not manage Pulmonary Hypertension before are considering doing so, while 38% indicated that they will change their treatment methods
Change of Practice Behavior N=57	93% 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.)

The definition of pulmonary hypertension in the setting of heart failure with preserved ejection fraction PH-HFpEF includes:



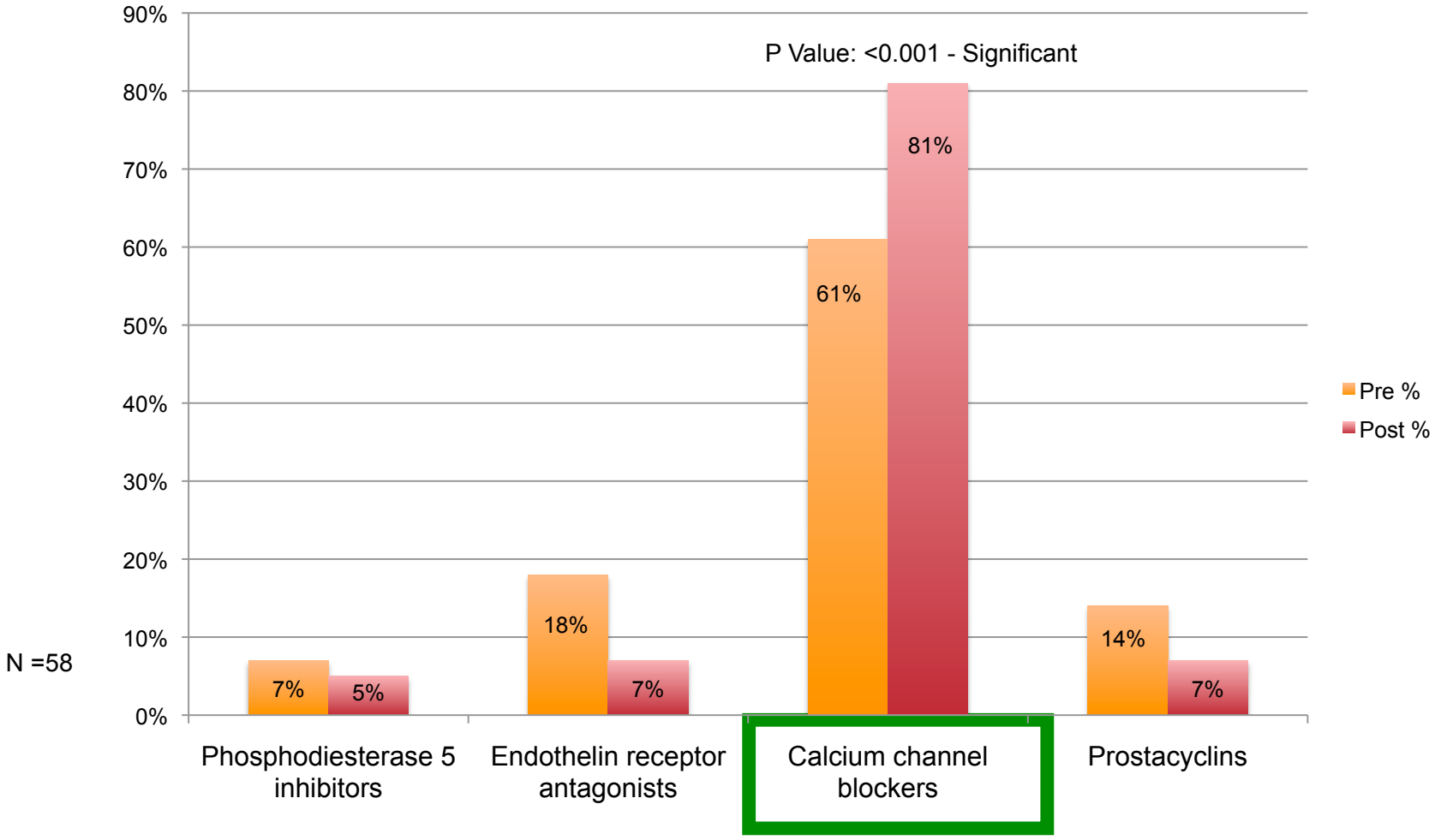
N =58

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.)

ATS/ERS recommend Alpha-1 Testing In Chronic Obstructive Pulmonary Disease (COPD)



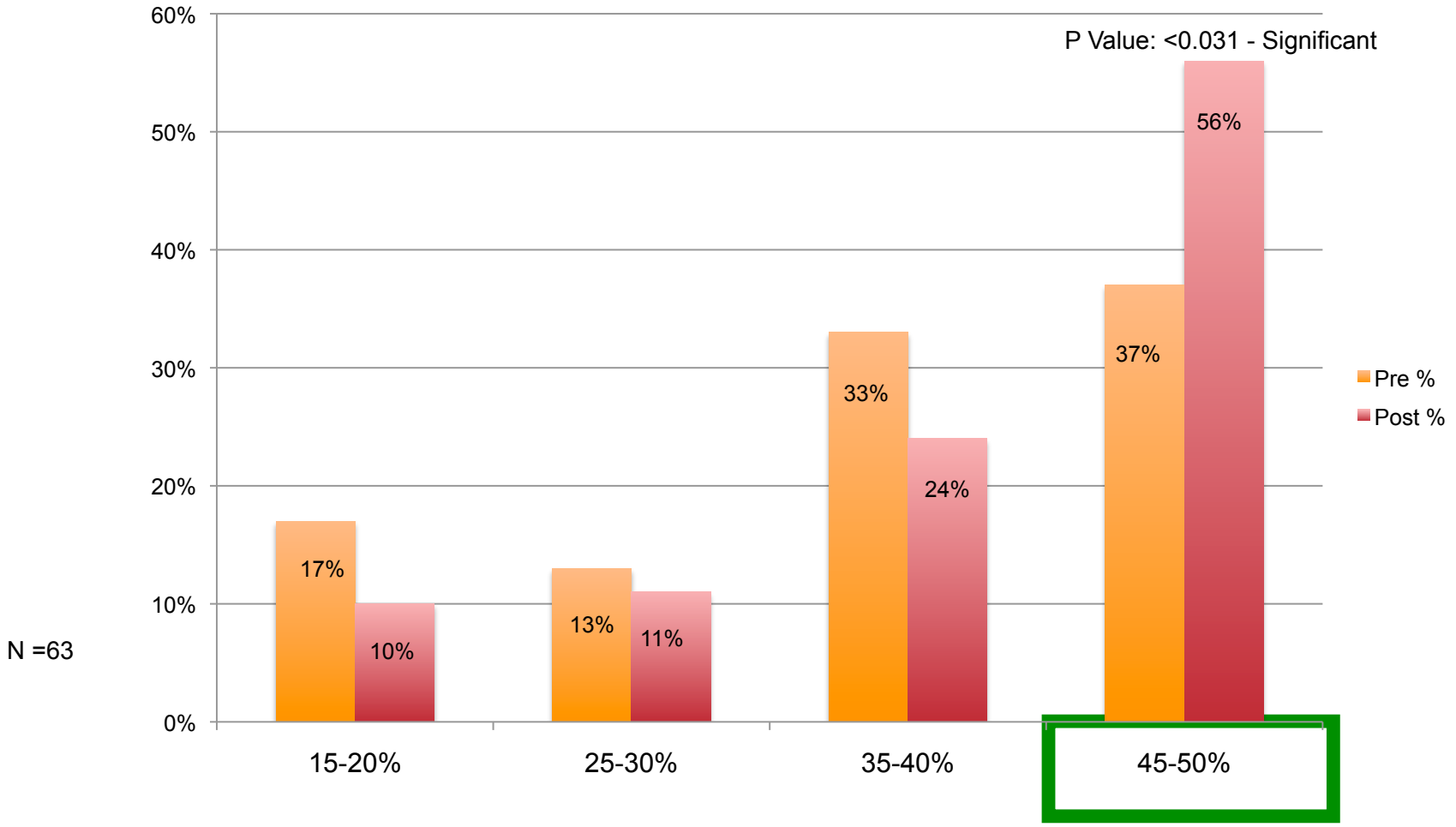
N =58

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.)

In the current era of PAH treatment, combination therapies are used in what percentage of patients?

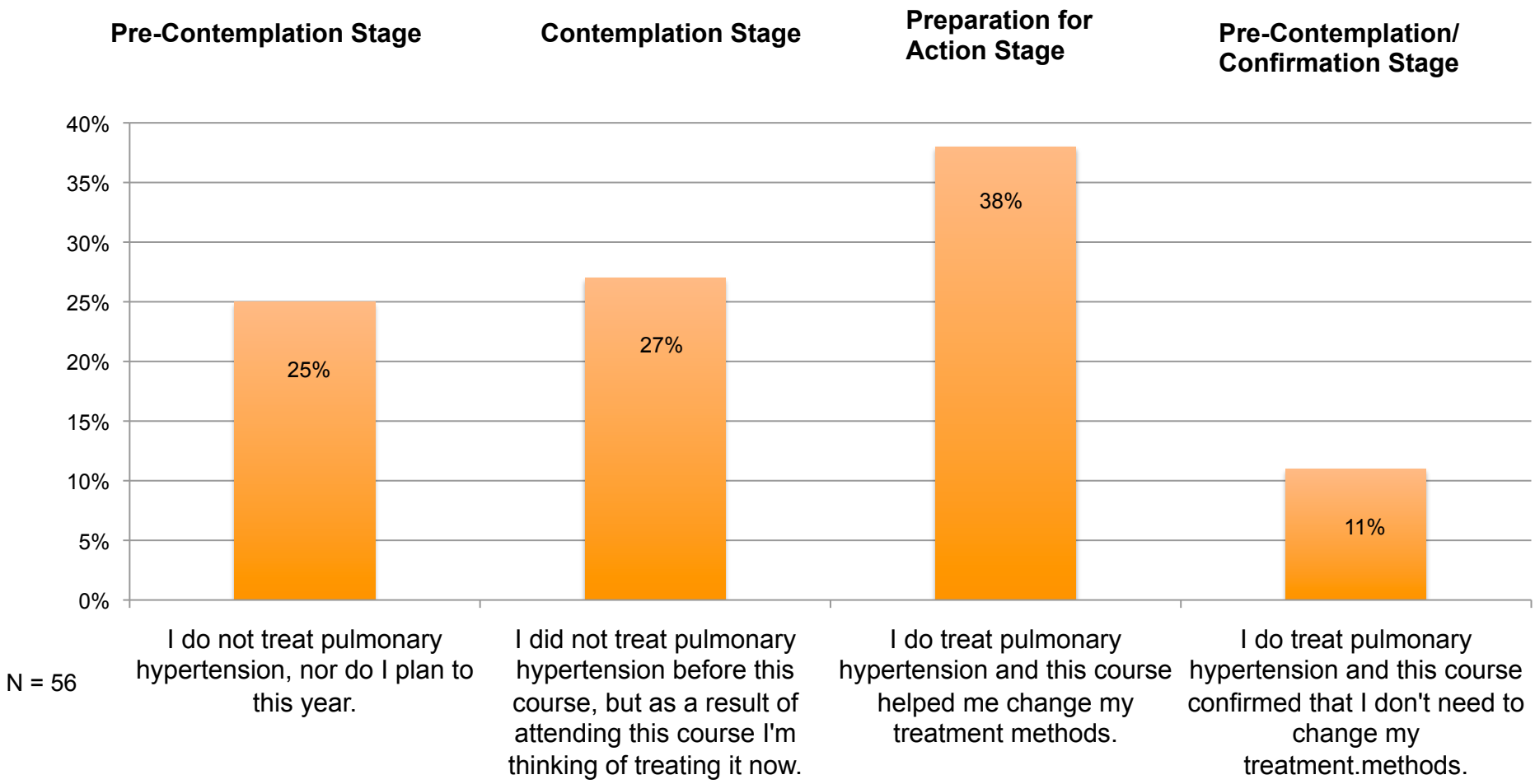


Green highlight indicates significant difference between pre and post testing.

Change in Practice Behavior Question

Presented after lecture.

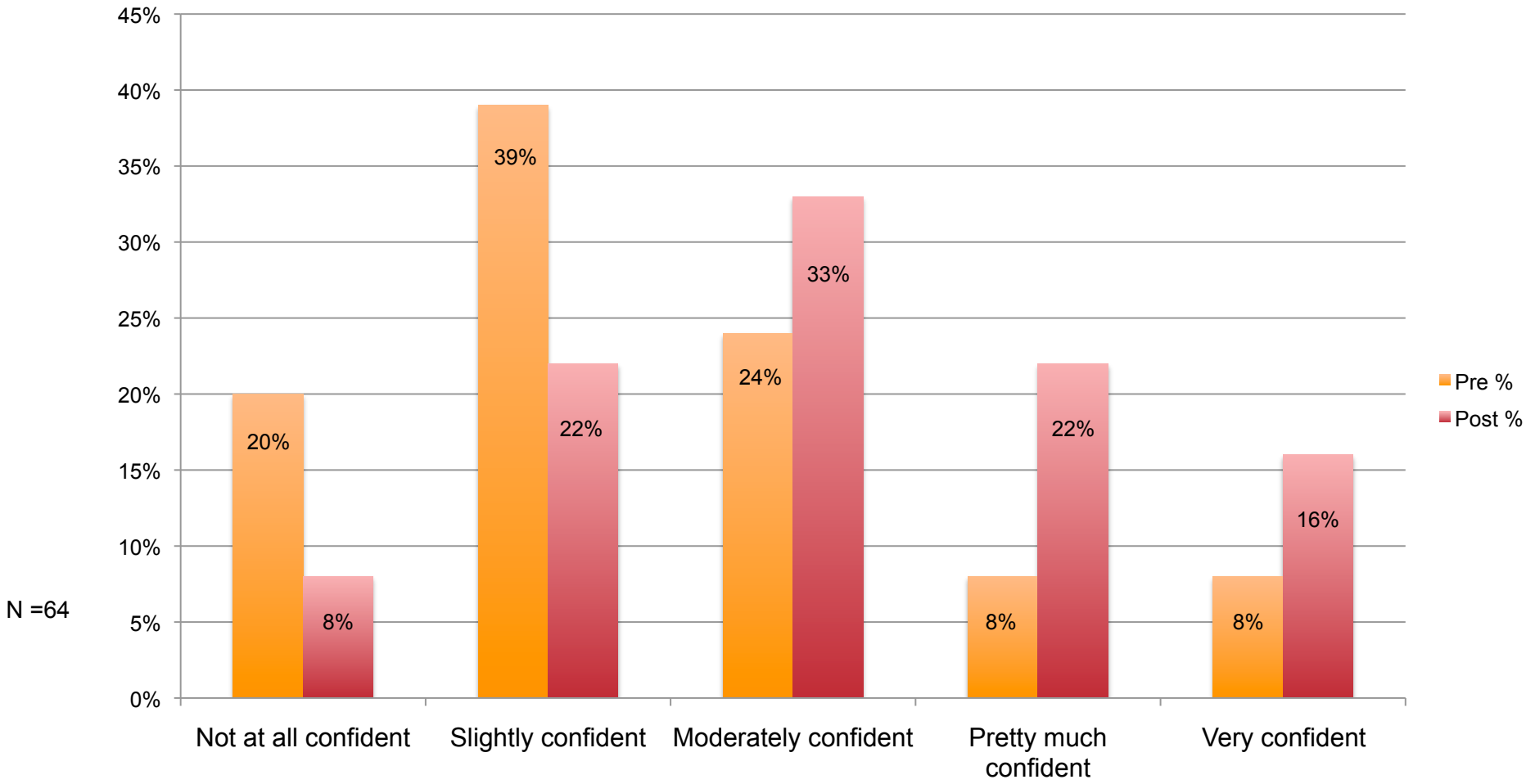
Which of the statements below describes your approach to anticoagulation of patients with Pulmonary Hypertension?



N = 56

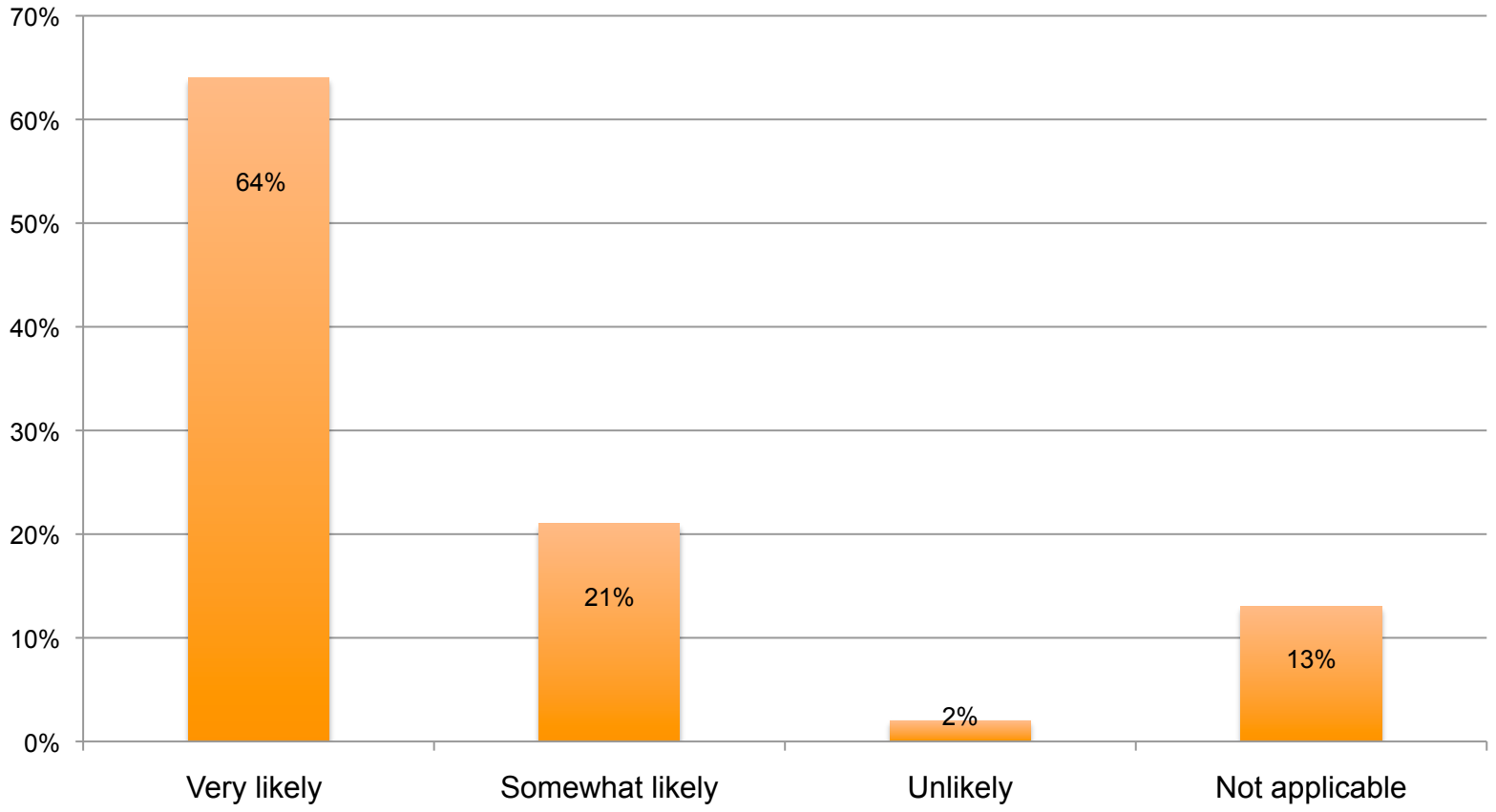
Changes in Confidence from Pre to Post-Testing
Pulmonary Hypertension: A Disease in Evolution

On a scale of 1 to 5 please rate how confident you would be in treating patients with this condition.



N =64

Intention to Change Practice Behavior and Implement Learning



N =165

Discussion and Implications

Pulmonary Hypertension: A Disease in Evolution

Pulmonary arterial hypertension (PAH) is a serious and often progressive disorder that may be idiopathic or associated with various underlying medical conditions. PAH causes right ventricular dysfunction and impaired activity tolerance, and can lead to right-heart failure and death. With the development of new therapies for PAH—screening, prompt diagnosis, and accurate assessment of disease severity become increasingly important. However, PAH patients continue to be referred too late in the disease process, at a time when hemodynamic abnormalities are at an advanced stage. Many patients are referred on potentially harmful calcium channel blockers therapy without adequate prior evaluation for pulmonary vasoreactivity. The objective of this activity was to explain the pathophysiology of PAH, discuss how to work up a patient with suspected PAH, explain the diagnostic criteria, and implement appropriate therapies.

Knowledge/Competence: Attendee knowledge was assessed at two points for this activity—prior to the activity and immediately following the activity using the case vignettes and knowledge questions described earlier. The results indicated improvement in knowledge as measured by positive changes in pre to post-test scores on all three questions asked, with statistical significance achieved in the two of the three.

Readiness to Change: Thirty-eight percent of attendees noted that they currently treat patients with PAH and that this activity provided information that would lead to further changes in their care of patients with PAH. Twenty-seven percent indicated that they did not treat patients with PAH prior to this activity, but would consider doing so after having been exposed to the information taught.

Confidence: Participants indicated a modest overall increase in self-reported confidence levels in treating patients with COPD. Attendees who reported that they felt moderately confident rose from very confident rose from 8% to 22% and those who reported high confidence rose from 8% to16% by the end of the activity.

Summary: Eighty five percent of the attendees suggested they were going to change their practice patterns as a result of this program. This activity was successful in the goal of improving understanding about evaluating patients suspected of PAH and managing their disease. The activity had a positive impact in terms of self-reported improvement in confidence and the likelihood of practice change. Future programming should continue to educate clinicians on current guidelines as well as effective, therapies for PAH.