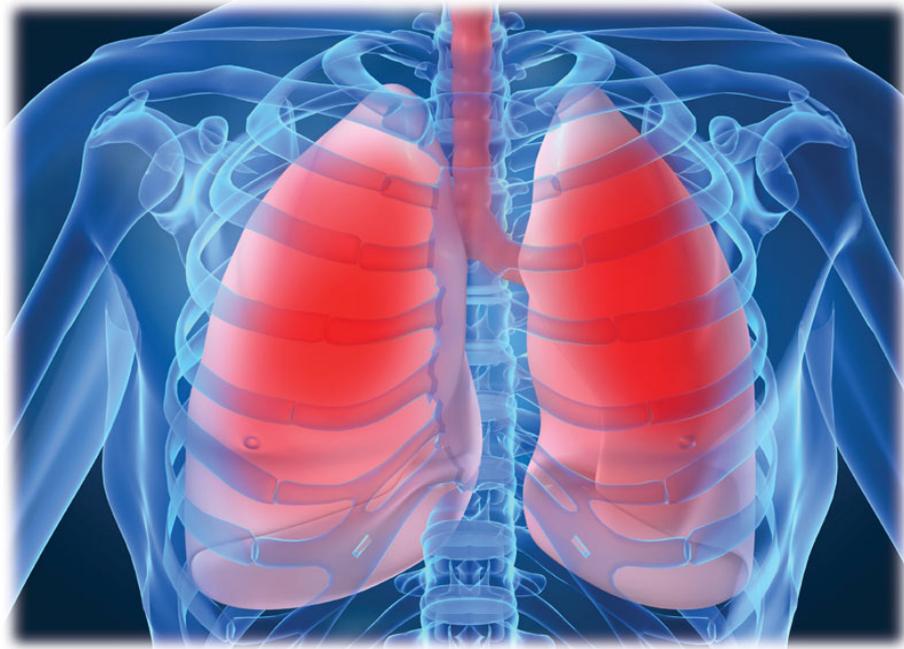




NATIONAL ASSOCIATION FOR CONTINUING EDUCATION



Pulmonary Hypertension:
A Disease in Evolution

Final Outcome Report

Challenges in Pulmonary and Critical Care: 2013

**Presented at:
Cleveland Clinic Florida
Weston, Florida
December 7, 2013**

Report Date: January 2, 2013

Course Director

Franck Rahaghi, MD, MHS, FCCP

Director, Pulmonary Hypertension Clinic
Director, Pulmonary Education and Rehabilitation
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.

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 7.0 contact hours of continuing education (which includes 0.75 pharmacology hours).

Commercial Support

Challenges in Pulmonary and Critical Care: 2013 CME activity was supported through educational grants from the following companies:

Actelion

Baxter Healthcare

Boehringer Ingelheim Pharmaceuticals, Inc.

Boston Scientific

CSL Behring

Genentech

Grifols

Agenda

7:00-7:45	Continental Breakfast and Registration	12:15- 1:00	Lunch Break/Exhibits
7:45-8:00	Welcome Remarks Franck Rahaghi, MD, MHS, FCCP	1:00-2:00	Update in PE and CTEPH Charles D. Burger, MD
8:00-9:00	Pulmonary Hypertension: A Disease in Evolution Murali Chakinala, MD, FCCP	2:00-3:00	Idiopathic Pulmonary Fibrosis: What have we learned and where are we going? Franck Rahaghi, MD, MHS, FCCP
9:00-10:00	Update in Interventional Bronchoscopy 2013 Eduardo C. Oliveira, MD	3:00-3:15	Break/Exhibits
10:00- 10.15	Break/Exhibits	3:15-4:15	Lung Cancer: State of the Art 2013 Jinesh Mehta, MD
10:15-11:15	COPD: New Developments, New Treatment Horizons Anas Hadeh, MD, FCCP	4:15-4:30	Concluding Remarks Franck Rahaghi, MD, MHS, FCCP
11:15-12:15	Alpha-1 Antitrypsin Deficiency: 50th Anniversary of a Disease Robert A. Sandhaus, MD, PhD		

Levels of Evaluation

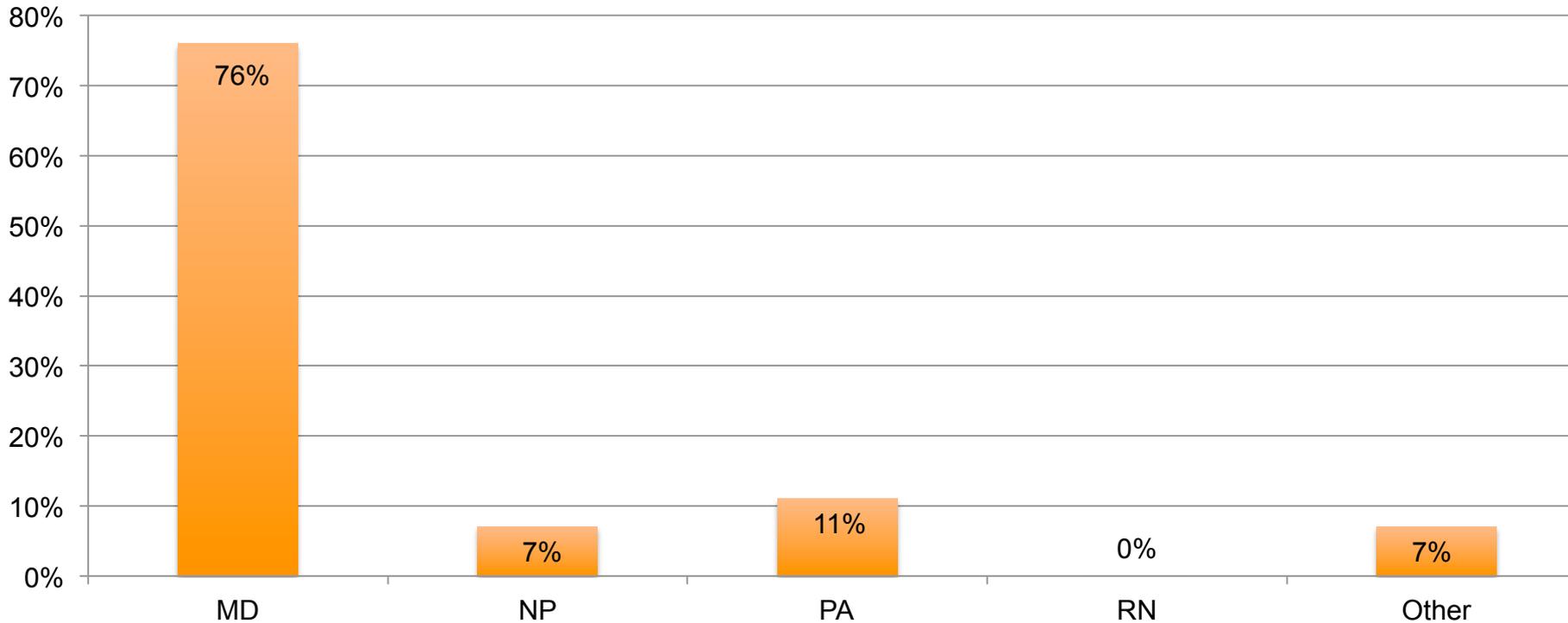
Consistent with the policies of the ACCME, NACE evaluates the effectiveness of all CME activities using a systematic process based on the following model:

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 1: Participation

- 129 attendees
- 76% Physicians; 7% NPs; 11% PAs; 0% RNs; 7% Other
- Over 46% in community-based practice
- 45% PCPs, 33% Pulmonologists; 3% Rheumatology; 3% Dermatology; 16% Other or did not respond



N = 57

Did we reach the right audience? **Yes!**

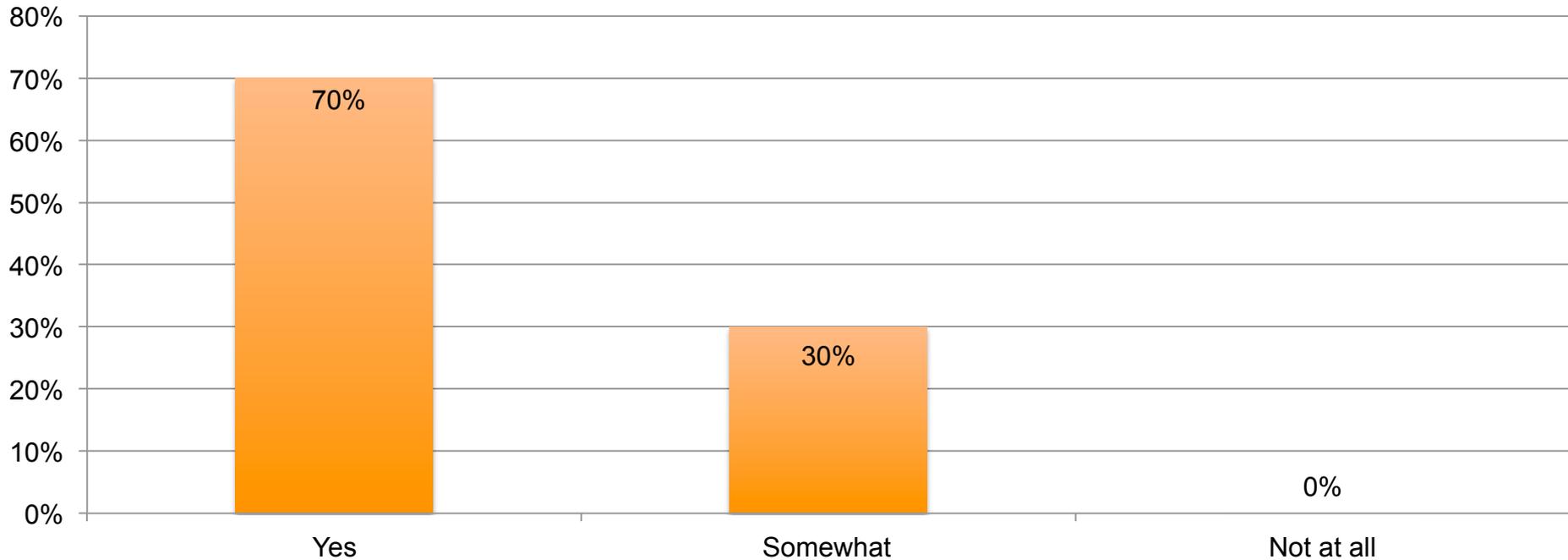
Level 2: Satisfaction

- 100% rated the activity as very good to excellent
- 98% indicated the activity improved their knowledge
- 96% stated that they learned new strategies for patient care
- 79% 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!**

Level 2: Satisfaction

Upon completion of this activity, I can now – Discuss the pathophysiology of pulmonary arterial hypertension (PAH); Explain criteria for diagnosis and accurate assessment of disease severity in patients with PAH; Address therapeutic options in the management of patients with PAH and effective use of targeted treatment options for PAH.



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 Med 14(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.

Pulmonary Hypertension: A Disease in Evolution

Faculty

Murali Chakinala, MD, FCCP
Associate Professor of Medicine
Director, Pulmonary Hypertension Center
Co-Director HHT Center
Washington University School of Medicine
St. Louis, MO

Learning Objectives

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

Key Findings

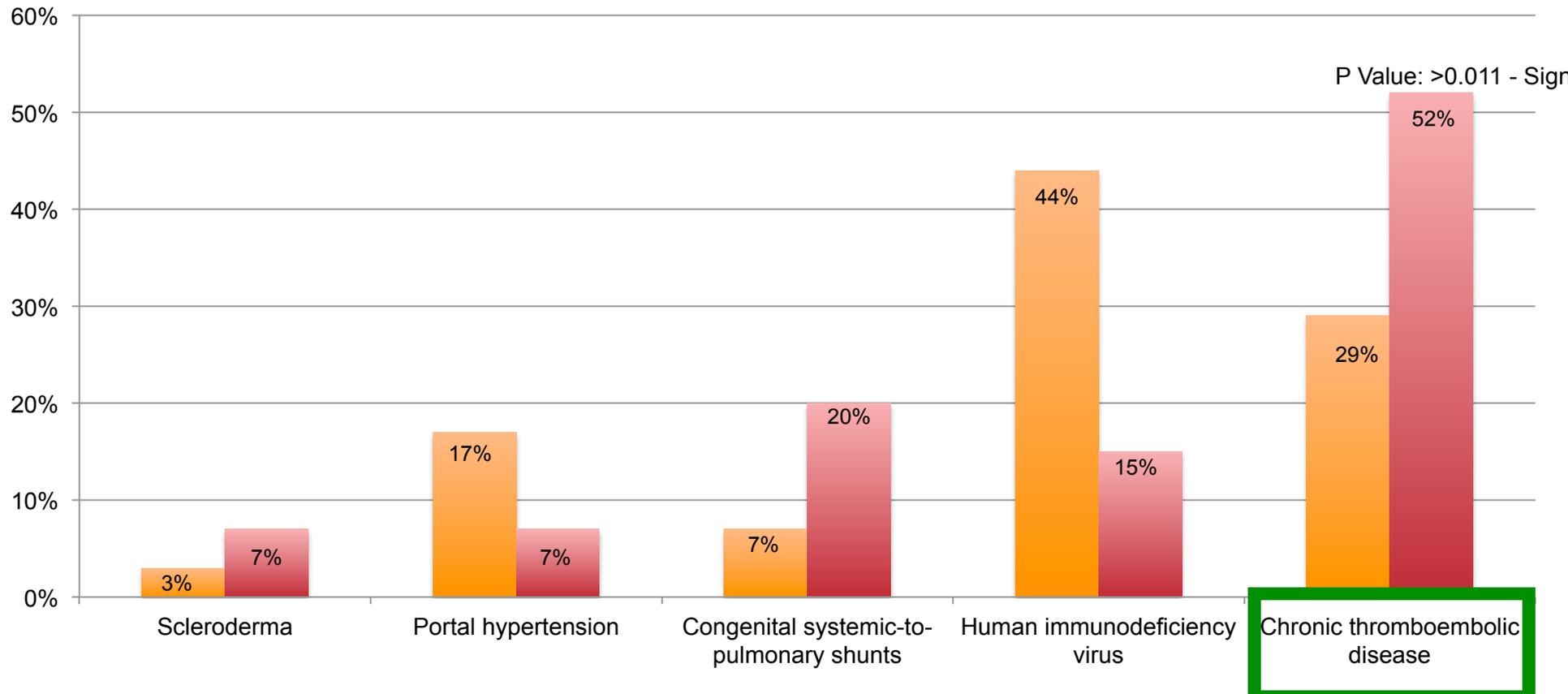
Pulmonary Hypertension: A Disease in Evolution

Knowledge/Competence	Learners demonstrated improvement in their answers from pre to post-testing on four of the four case-based questions regarding Pulmonary Arterial Hypertension.
Confidence	Whereas the majority of learners rated themselves as having very low confidence in their understanding of treating Pulmonary Arterial Hypertension before the education most of the learners showed gains in confidence after the program.
Intent to Perform	As a result of this program, 5% of learners who did not manage Pulmonary Arterial Hypertension before are considering doing so, while 32% indicated that they will change their treatment methods
Change of Practice Behavior N=61	84% 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.)

Which of the following underlying conditions do NOT cause Group 1 pulmonary hypertension?



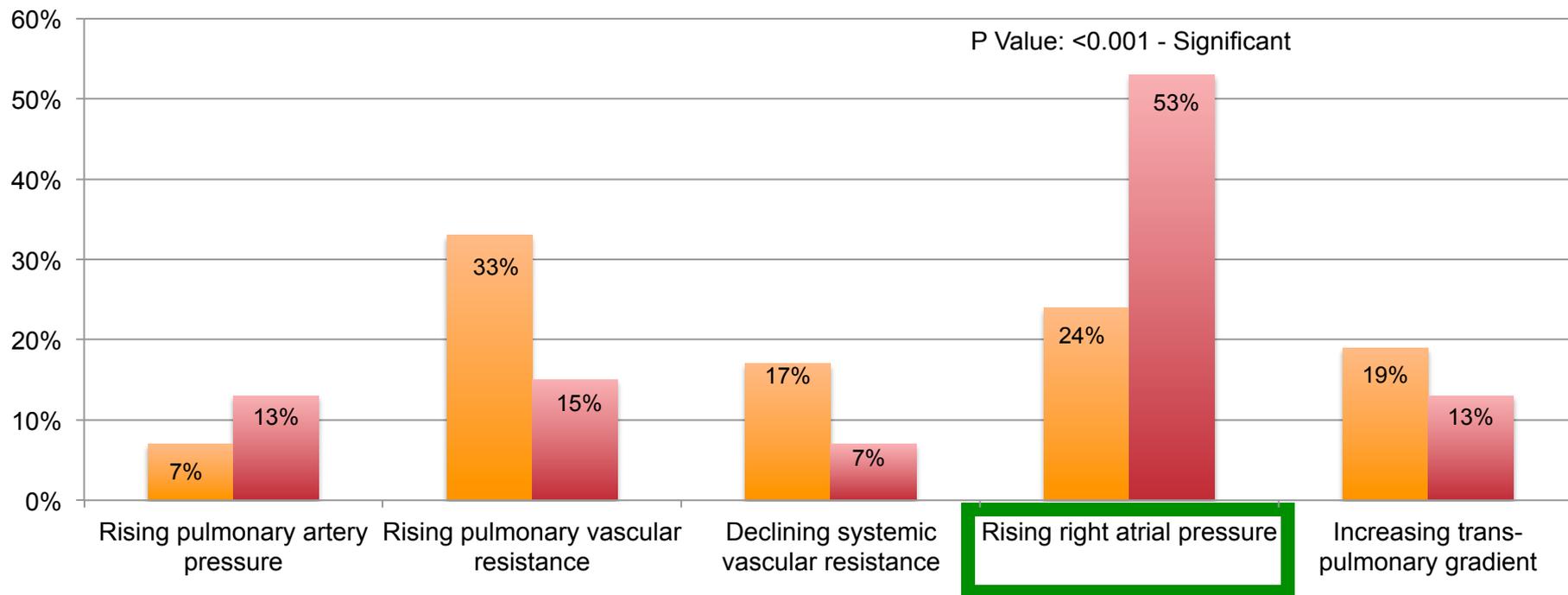
N =60

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 hemodynamic alteration confers the worst prognosis in PAH ?



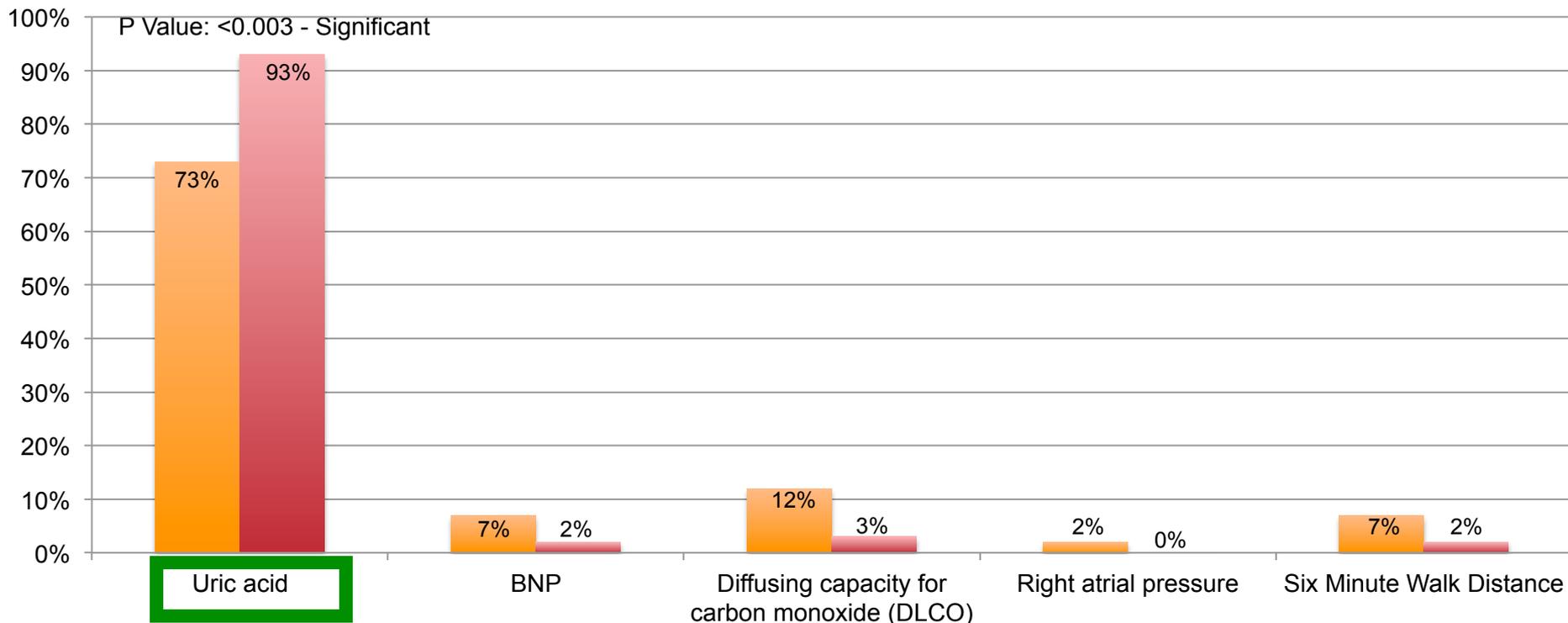
N =58

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.)

Which item is NOT part of the REVEAL risk score calculation?



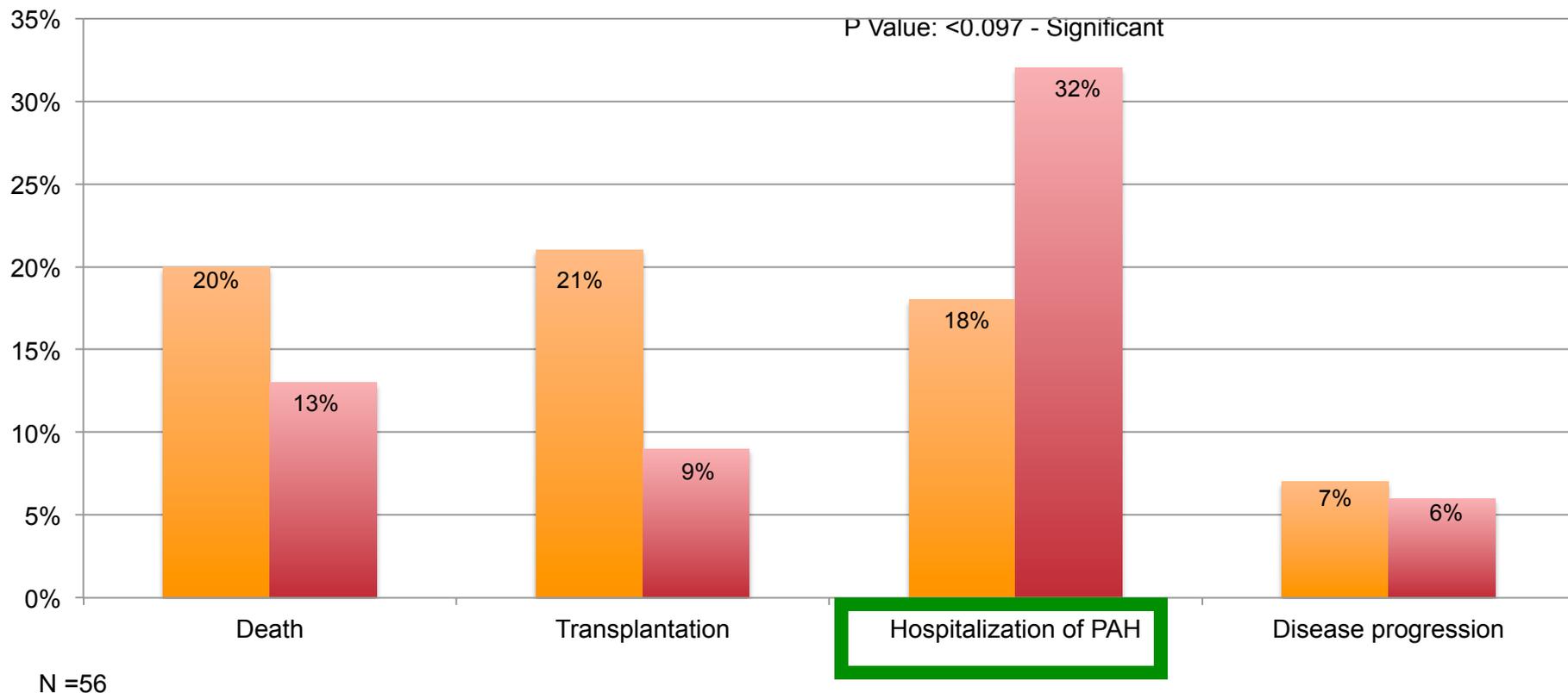
N =59

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 clinical endpoint was NOT part of the definition of clinical worsening in the SERAPHIN trial of macitentan ?

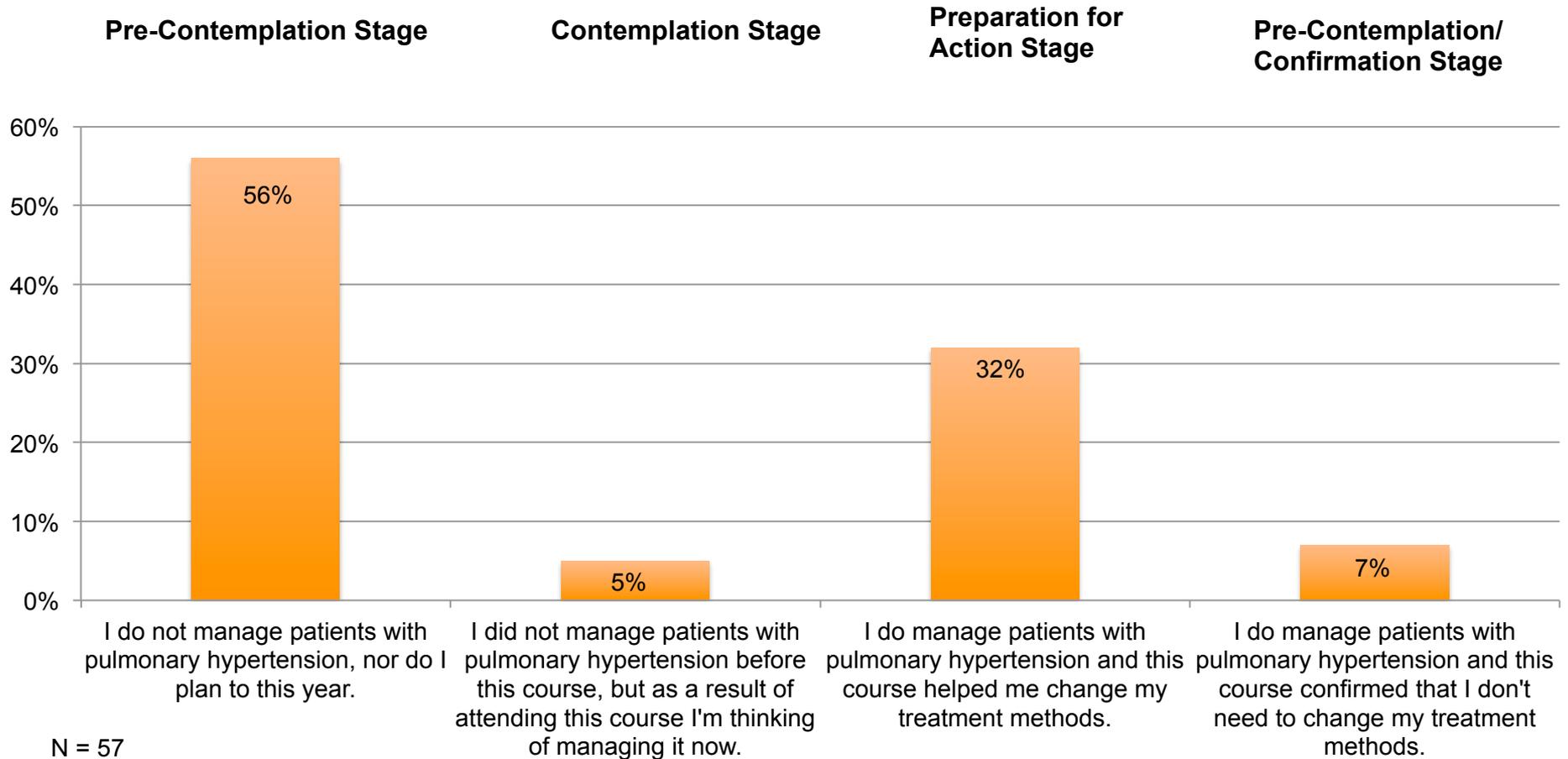


Green highlight indicates significant difference between pre and post testing.

Change in Practice Behavior Question

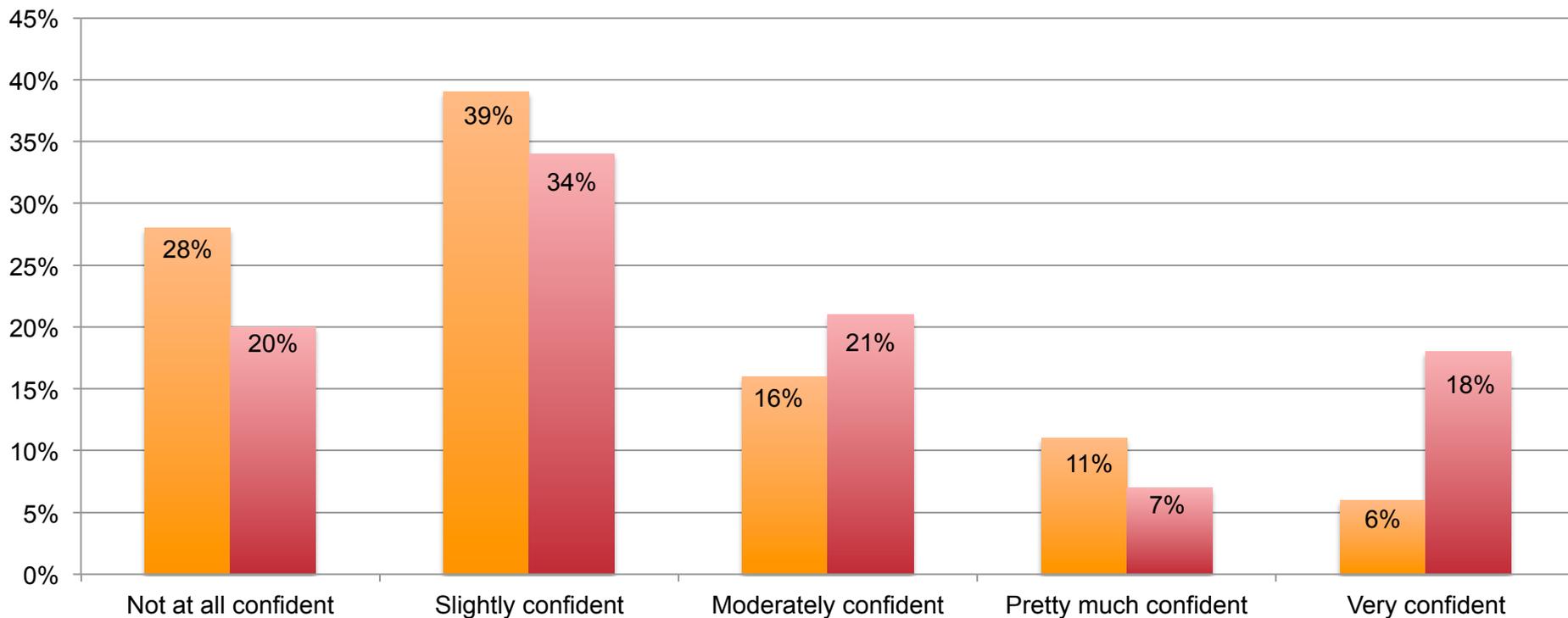
Presented after lecture.

Which of the statements below describes your approach to diagnosing and treating patients with Pulmonary Hypertension?



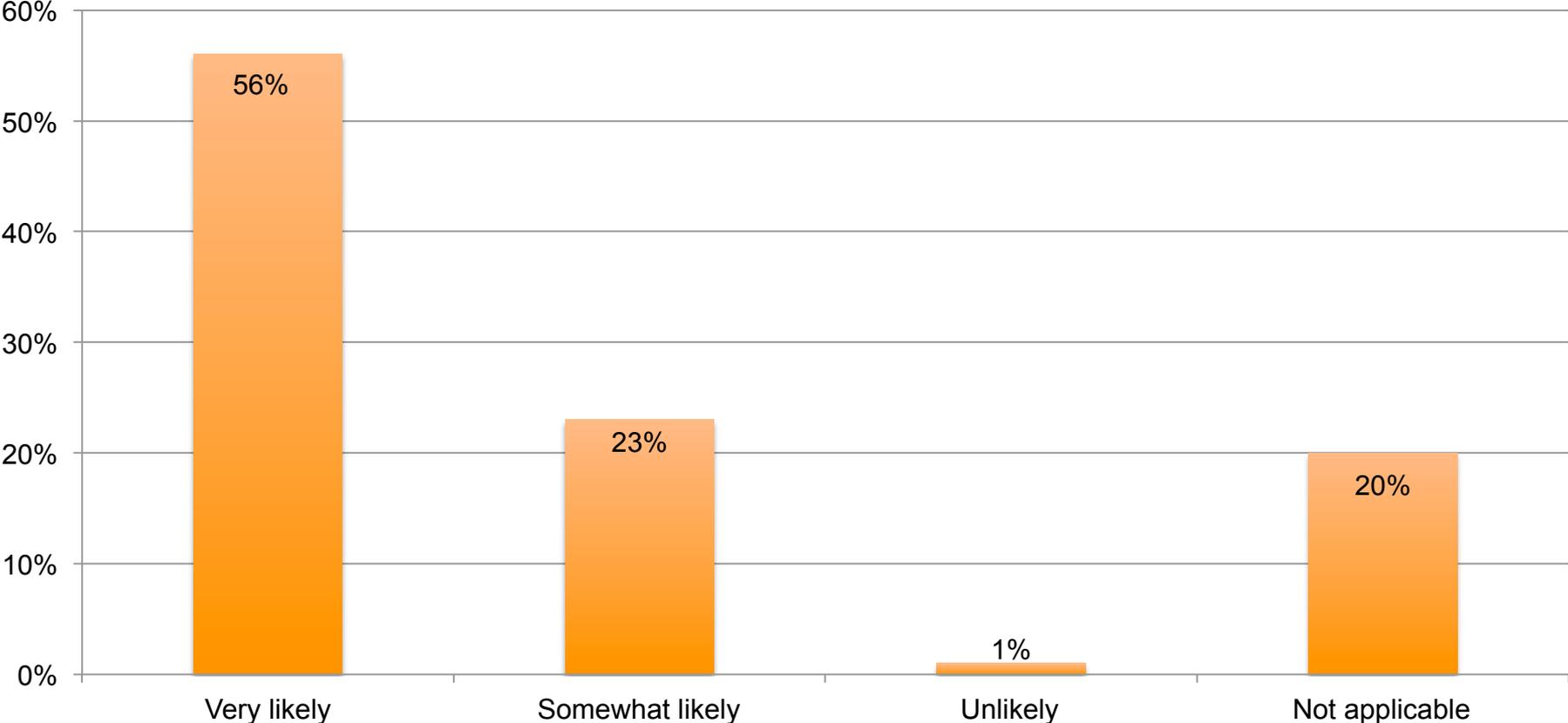
Changes in Confidence from Pre to Post-Testing Pulmonary Hypertension: A Disease in Evolution

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 =119

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 four questions asked, with statistical significance achieved in four out of four.

Readiness to Change: Thirty-seven percent of attendees claimed they would either start diagnosing and treating PAH now or would change their practice after having been exposed to the information taught in the course

Confidence: Participants indicated a shift in self-reported confidence levels in treating patients with PAH. Attendees who reported that they felt very confident rose from 6% to 18%

Intention for Change in Practice Behavior: Fifty-six percent of participants reported that they were very likely to utilize information learned from this activity in their practice.

Summary: Seventy nine 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.