Outcome Report
Pulmonary Hypertension: Reflections on New Directions

Challenges in Pulmonary and Critical Care: 2010

Presented at:
Cleveland Clinic Florida
Weston, Florida
December 4, 2010

Course Director

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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 educational activity for a maximum of 4 AMA PRA Category 1 Credits™.

The Cleveland Clinic Florida designates this educational activity for a maximum of 2 AMA PRA Category 1 Credits™.

* This applies to the full day CME activity entitled Challenges in Pulmonary and Critical Care: 2010.
Commercial Support

Challenges in Pulmonary and Critical Care: 2010 CME activity was supported through educational grants or donations from the following companies:

Actelion
CSL Behring
Gilead Sciences
Talecris Biotherapeutics
United Therapeutics Corporation

Agenda

7:45-8:15 Continental Breakfast and Registration
8:15-8:30 Welcome Remarks
Franck Rahaghi, MD, MHS, FCCP
8:30-9:30 Bronchiectasis in Adults
Anas Hadeh, MD
9:30-10:30 Update on Idiopathic Pulmonary Fibrosis: State of the Art and the New Guidelines
Gustavo Ferrer, MD
10:30-10:50 Keynote Speaker: Representative Debbie Wasserman Schultz, Florida’s 20th District – Health Care in the United States
10:50-11:15 Break/Vendor Area
11:15-12:15 Interventional Bronchoscopy Update: Valves for Emphysema and Treatments of Asthma
Eduardo Oliveira, MD, MBA
12:15-1:15 Lunch/Exhibits
1:15-2:15 Pulmonary Hypertension:
Reflections on New Directions
Franck Rahaghi, MD, MHS, FCCP
2:15-3:15 Alpha-1 Antitrypsin Deficiency:
Future of Diagnosis and Treatment
Michael Campos, MD
3:15-3:30 Break/Vendor Area
3:30-4:30 Pulmonary Case Rounds:
Interesting Cases in Pulmonary Medicine
Franck Rahaghi, MD, MHS, FCCP
4:30-4:45 Closing Remarks
Franck Rahaghi, MD, MHS, FCCP

Cancelled
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


Level 1: Participation

- 94 attendees
- 70% Physicians; 7% NPs; 11% PAs; 7% RNs; 5% Other
- Over 80% in community-based practice
- 46% PCPs, 2% Endocrinologists; 4% Cardiologists; 19% Pulmonologists; 0% Gastroenterologist; 27% Other or did not respond

Did we reach the right audience? Yes!
Level 2: Satisfaction

- 98% rated the activity as very good to excellent
- 98% indicated the activity improved their knowledge
- 86% stated that they learned new strategies for patient care
- 77% said they would implement new strategies that they learned in their practice
- 99% said the program was fair-balanced and unbiased

Were our learners satisfied? Yes!

Level 2: Satisfaction

Upon completion of this activity, I can now –

Understand the pathophysiology of pulmonary arterial hypertension (PAH);
Diagnose and accurately assess disease severity in PAH;
Effectively use recommended therapies including targeted treatment options for PAH

Did learners indicate they achieved the learning objectives? Yes! 99% 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

• Level 3: Competence to Apply Critical Knowledge
Case-based vignettes and pre- and post-test knowledge questions were asked with each session in the CME activity. 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

• 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.

• Level 4: Self-Reported Change in Practice Behavior
Intent to change and change four weeks after CME activity.


Pulmonary Hypertension: Reflection on New Direction
Franck Rahaghi, MD, MHS
Faculty
Franck Rahaghi, MD, MS
Director, Pulmonary Hypertension Clinic
Director, Pulmonary Education and Rehabilitation
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Cleveland Clinic Florida, Weston, FL

Learning Objectives

• Understand the pathophysiology of pulmonary arterial hypertension (PAH)
• Diagnose and accurately assess disease severity in PAH
• Effectively use recommended therapies including targeted treatment options for PAH
Key Findings
Pulmonary Hypertension: Reflection on New Direction

Knowledge/Competence
Learners only demonstrated significant improvement in their answers from pre to post-testing on one of the three case-based questions regarding methods to diagnose and treat PAH.

Confidence
Participants indicated that they improved in confidence to care for patients with PAH following the educational program.

Intent to Perform
Learners stated that they were very likely (48%) to somewhat likely (39%) to implement strategies learned at this session in their practice.

Change of Practice Behavior
On a follow-up survey completed 4 weeks after the activity 79% of learners who responded reported that they strongly agree or agree that they have implemented changes in their practice based on the information they learned in the CME activity.

Responses to Critical Knowledge and Case-Based Questions
Pulmonary Hypertension: Reflection on New Direction

AJ is a 36 yo female with Group I stage III disease that is getting worse, she has already been on a PDE5. Her 6 min walk went from 380 to 300m, her pressures in Echo increased from 45 to 65, and she feels worse

<table>
<thead>
<tr>
<th>Responses to Critical Knowledge and Case-Based Questions</th>
<th>Pre %</th>
<th>Post %</th>
<th>Best answer p &lt; .01</th>
</tr>
</thead>
<tbody>
<tr>
<td>We should change the medication to IV prostacyclin</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>We can also Add IV prostacyclin to the PDE5</td>
<td>21</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>We can also try an ETRO first</td>
<td>15</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>All of the above</td>
<td>50</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>
Pulmonary Veno-occlusive Disease is now classified under which Group?

Responses to Critical Knowledge and Case-Based Questions (cont)
Pulmonary Hypertension: Reflection on New Direction

65 year old with COPD diagnosed 15 years ago. He has been treated with Prednisone and Methotrexate for 10 years off and on. He presents with increased dyspnea. On exam, there is increased JVD, basilar crackles (coarse), no wheezing. Chest CT basilar honeycombing, patchy infiltrates, slowly worsening over the last years. Evidence of pulmonary artery enlargement Echo showed RVSP of 55, NL LV, LN Valves FVC 60%, FEV1 65%, VC 60%, DLCO 30% 6 min walk 300m from HR 85/94% to HR 101/86% This patient:

Responses to Critical Knowledge and Case-Based Questions
Pulmonary Hypertension: Reflection on New Direction

Pre % 8 21 72
Post % 3 23 74
Changes in Confidence from Pre to Post-Testing
Pulmonary Hypertension: Reflection on New Direction

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

<table>
<thead>
<tr>
<th></th>
<th>Not at all confident</th>
<th>Slightly confident</th>
<th>Moderately confident</th>
<th>Pretty much confident</th>
<th>Very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre %</td>
<td>21</td>
<td>35</td>
<td>31</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Post %</td>
<td>4</td>
<td>24</td>
<td>33</td>
<td>17</td>
<td>22</td>
</tr>
</tbody>
</table>

Intention to Change Practice Behavior and Implement Learning
Pulmonary Hypertension: Reflection on New Direction

How likely are you to implement strategies learned from this presentation in your practice?

<table>
<thead>
<tr>
<th></th>
<th>Very Likely</th>
<th>Somewhat Likely</th>
<th>Unlikely</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post %</td>
<td>48</td>
<td>39</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>
Self-Reported Changes in Practice Behavior Four Weeks After the Activity
Pulmonary Hypertension: Reflection on New Direction

**Learning Objectives:**
Understand the pathophysiology of pulmonary arterial hypertension (PAH); Diagnose and accurately assess disease severity in PAH; Effectively use recommended therapies including targeted treatment options for PAH

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**Discussion and Implications**
Pulmonary Hypertension: Reflection on New Direction

The need for continued education in the evaluation and treatment of Alpha-one Anti-trypsin Deficiency was demonstrated based on literature reviews and surveys completed prior to the conference series.

Dr. Franck Rahaghi, the NACE faculty for this program, received high ratings on his effectiveness in delivering this material. Attendee knowledge was assessed using the case vignettes listed above with results indicating a statistically significant improvement in the post testing on only one of three questions asked. However, participants reported that they are better able as a result of this lecture to: understand the pathophysiology of pulmonary arterial hypertension (PAH), diagnose and accurately assess disease severity in PAH, and effectively use recommended therapies including targeted treatment options for PAH.

Participants clearly reported greater confidence in care for patients with PAH following the activity.

A substantial majority of participants also reported on a 1 month follow up survey to have implemented the learning objectives of this activity.

The not so notable changes in post-test scores signify a clear gap in knowledge and an unmet need amongst clinicians in the area of PAH. It continues to be an important area for future educational programs.