Course Director
Franck Rahaghi, MD, MHS, FCCP
Director, Pulmonary Hypertension Clinic
Director, Pulmonary Education and Rehabilitation
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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 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 1.25 pharmacology hours).

* This applies to the full day CME activity entitled Challenges in Pulmonary and Critical Care: 2014.
Commercial Support

Challenges in Pulmonary and Critical Care: 2014 CME activity was supported through educational grants from the following companies:

Actelion
Boehringer Ingelheim Pharmaceuticals, Inc.
CSL Behring
Grifols
Intermune
VITAS Innovative Hospice Care
United Therapeutics
Agenda

7:00-8:00  Continental Breakfast and Registration

8:00-8:10  Welcome Remarks
Franck Rahaghi, MD, MHS, FCCP

8:10-9:10  Pulmonary Hypertension: New Horizons and New Perspectives
Robert Schilz, DO, PhD

9:10-10:10  Sleep Apnea: Changes in Practice, Hope for better outcomes
Laurence Smolley, MD

10:10-10:25  Break/Exhibits

Anas Hadeh, MD, FCCP

11:25-12:25  Alpha-1 Antitrypsin Deficiency: Evidence for Efficacy
Robert A. Sandhaus, MD, PhD

12:25-1:10  Lunch Break/Exhibits

1:10-2:10  Transition to End of Life Care: The How and Why
Nydia Martinez Galvis, MD

2:10-3:10  Idiopathic Pulmonary Fibrosis: A New Hope
Franck Rahaghi, MD, MHS, FCCP

3:10-3:25  Break/Exhibits

3:25-4:25  Update in Interventional Bronchoscopy 2014
Eduardo Oliveira, MD, MBA, FCCP

4:25-4:30  Concluding Remarks
Franck Rahaghi, MD, MHS, FCCP

4:30-5:00  Concluding Remarks
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

- 101 attendees
- 58% Physicians; 15% NPs; 3% PAs; 5% RNs; 19% Other
- Over 62% in community-based practice
- 42% PCPs, 35% Pulmonologists; 2% Rheumatology; 3% Cardiology; 18% Other or did not respond

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

- 100% rated the activity as very good to excellent
- 100% indicated the activity improved their knowledge
- 100% stated that they learned new strategies for patient care
- 82% 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!
Upon completion of this activity, I can now –
Discuss the etiology of alpha-1 antitrypsin deficiency (AATD); Explain the treatments for AATD; Discuss how to change your office flow to incorporate testing for AATD, utilization of ancillary staff, and the pulmonary function lab

Did learners indicate they achieved the learning objectives?
Yes! 93% 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.

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 (XXX illness), nor do I plan to this year.
- **Contemplation stage**: I did not manage (XXX illness) 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 (XXX illness) and this course confirmed that I do **not** need to change my treatment methods.
- **Preparation for action stage**: I do manage patients with (XXX illness) and this course helped me change my treatment methods.

Alpha-1 Antitrypsin Deficiency: Evidence for Efficacy

Faculty
Robert A. Sandhaus, MD, PhD
Professor of Medicine
Director, Alpha 1-Antitrypsin Deficiency Program
National Jewish Health
Denver, CO

Learning Objectives

• Discuss the etiology of alpha-1 antitrypsin deficiency (AATD)
• Explain the treatments for AATD
• Discuss how to change your office flow to incorporate testing for AATD, utilization of ancillary staff, and the pulmonary function lab
### Key Findings

**Alpha-1 Antitrypsin Deficiency: Evidence for Efficacy**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Competence</td>
<td>Learners demonstrated improvement from pre to post-testing in their answers to one out of four of the case-based questions regarding Alpha-1 Antitrypsin Deficiency.</td>
</tr>
<tr>
<td>Confidence</td>
<td>Whereas the majority of learners rated themselves as having very low confidence in their understanding of treating Alpha-1 Antitrypsin Deficiency before the education most of the learners showed gains in confidence after the program.</td>
</tr>
<tr>
<td>Intent to Perform</td>
<td>As a result of this program, 35% of learners who did not manage patients with Alpha-1 before are considering doing so, while 32% indicated that they will change their treatment methods.</td>
</tr>
<tr>
<td>Change of Practice Behavior</td>
<td>89% 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.</td>
</tr>
</tbody>
</table>

N=27
Who should be tested for alpha-1 antitrypsin deficiency (Alpha-1)?

- All adults with non-reversible airway obstruction (81% correct post-test, 73% correct pre-test)
- Only patients with COPD who are less than 50 years old (9% correct post-test, 2% correct pre-test)
- Only patients with panacinar emphysema (based on CXR or CT scan) (7% correct post-test, 2% correct pre-test)
- Only patients with COPD who have never smoked, regardless of age (11% correct post-test, 14% correct pre-test)

P Value: >0.336 – Not Significant

Pre N = 44
Post N = 43

Red highlight indicates no significant difference between pre and post testing.
All of these statements about alpha-1 antitrypsin (AAT) are true EXCEPT?

- It is a neutrophil elastase inhibitor
- It is secreted mostly in the lungs
- Its deficiency can result in COPD
- Mutations in the AAT gene can result in liver damage

Green highlight indicates significant difference between pre and post testing.

Pre N = 40
Post N = 40
In the management of those diagnosed with Alpha-1, what is the most important first step?

- Initiation of inhaled corticosteroid therapy
- Referral to lung transplantation program
- Smoking cessation counseling
- Initiation of augmentation therapy

P Value: >0.322 – Not Significant

Pre N = 41
Post N = 45

Red highlight indicates no significant difference between pre and post testing.
Which statement is true about patients with alpha-1 antitrypsin deficiency (Alpha-1)?

- Lung disease in Alpha-1 is difficult to distinguish from usual COPD: Pre 67% Post 78%
- People with Alpha-1 always develop emphysema or COPD: Pre 16% Post 10%
- Emphysema in Alpha-1 involves the lung bases exclusively: Pre 12% Post 3%
- People with Alpha-1 get quickly diagnosed once they present to their physicians: Pre 5% Post 10%

P Value: >0.347 – Not Significant

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

Pre N = 43
Post N = 40
Change in Practice Behavior Question
Presented after lecture.

Which of the statements below describes your approach to diagnosing and treating patients with Alpha-1 Antitrypsin Deficiency?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Pre-Contemplation Stage</th>
<th>Contemplation Stage</th>
<th>Preparation for Action Stage</th>
<th>Pre-Contemplation/Confirmation Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not manage patients with Alpha-1 Antitrypsin Deficiency, nor do I plan to this year.</td>
<td>16%</td>
<td>35%</td>
<td>32%</td>
<td>16%</td>
</tr>
<tr>
<td>I did not manage patients with Alpha-1 Antitrypsin Deficiency before this course, but as a result of attending this course I'm thinking of managing it now.</td>
<td>0%</td>
<td>5%</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>I do manage patients with Alpha-1 Antitrypsin Deficiency and this course helped me change my treatment methods.</td>
<td>20%</td>
<td>30%</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>I do manage patients with Alpha-1 Antitrypsin Deficiency and this course confirmed that I don't need to change my treatment methods.</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
<td>10%</td>
</tr>
</tbody>
</table>

N = 31
Changes in Confidence from Pre to Post-Testing
Alpha-1 Antitrypsin Deficiency: Evidence for Efficacy

On a scale of 1 to 5: Please rate how confident you would be treating a patient with Alpha-1 Antitrypsin Deficiency:

![Bar chart showing changes in confidence from pre to post-testing.](chart.png)

<table>
<thead>
<tr>
<th>Confidence Level</th>
<th>Pre %</th>
<th>Post %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all confident</td>
<td>13%</td>
<td>10%</td>
</tr>
<tr>
<td>Slightly confident</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Moderately confident</td>
<td>18%</td>
<td>26%</td>
</tr>
<tr>
<td>Pretty much confident</td>
<td>28%</td>
<td>26%</td>
</tr>
<tr>
<td>Very confident</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>

Pre N = 40
Post N = 39
Intention to Change Practice Behavior and Implement Learning

- Very likely: 63%
- Somewhat likely: 20%
- Unlikely: 0%
- Not applicable: 17%

N = 89
Discussion and Implications

Alpha-1 Antitrypsin Deficiency: Evidence for Efficacy

Alpha-1 Antitrypsin Deficiency (AATD) is an under-diagnosed condition. The need for continued education in the area of AATD was established in a comprehensive needs assessment and gap analysis completed prior to the symposia. Planners sought to help primary care providers better explain the prevalence of alpha-1 antitrypsin deficiency (AATD), be better able to discuss AATD testing by ancillary staff and the pulmonary function lab, and enable them to explore novel approaches to increase AATD testing.

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 listed above. The results indicated some improvement in knowledge of the areas tested as measured by positive changes in pre to post-test scores on three of the four questions asked.

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

Confidence: Participants indicated a strong overall increase in self-reported confidence levels in assessing patients for AATD. Attendees who reported that they felt very confident rose from 4% to 32% by the end of the activity.

Intention for Practice Change: Sixty-four percent of the attendees indicated that they were very likely to change their practice with respect to caring for patients who may have AATD after the activity, and 21% suggested that they would be likely to do so.

This activity was successful in the goal of improving understanding of AATD to primary care providers and pulmonologists and had a positive impact in terms of self-reported likelihood of practice change. There appears to be a need for further education on this topic with respect to understanding of AATD and screening patients who may have risk factors for this condition.