

Conversations in Primary Care: 2020

Optimizing COPD Care – What's Missing?



Grifols Grant ID: 4018

January 21, 2020

Conversations in Primary Care, 2020:

This curriculum focused on management of patients with COPD

Participation



7,253* Total Attendees



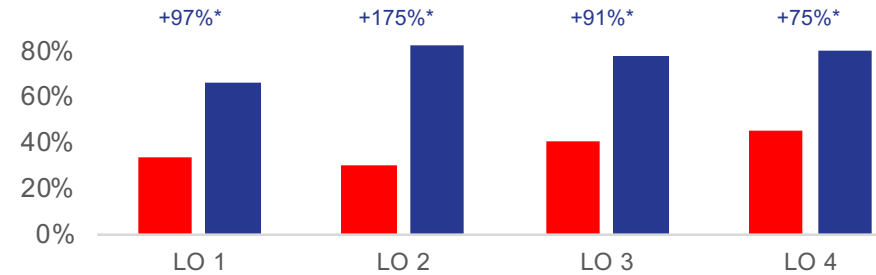
4 Virtual Sessions



2903 certificates issued to date

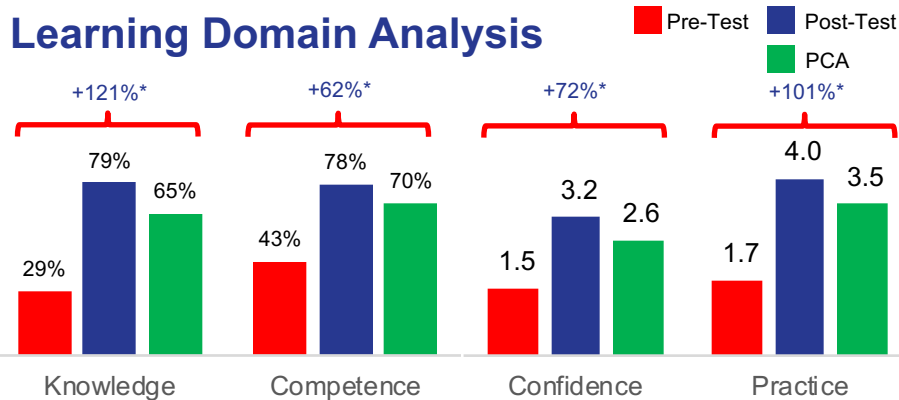
2020 Session	Date	Attendees
Conversations in Primary Care, Episode 2	3/14/20	1,821
Conversations Episode 2, Rebroadcast	3/21/20	905
Conversations in Primary Care, Episode 3	4/4/20	3,169
Conversations Episode 3, Rebroadcast	4/11/20	1,358
Total		7,253

Learning Gains Across Objectives



- **LO 1, 97%* Improvement:** Discuss the pathophysiology of AAT deficiency (AATD) and its impact on chronic obstructive pulmonary disease (COPD) risk
- **LO 2, 175%* Improvement:** Interpret the clinical significance of laboratory test results for AATD
- **LO 3, 91%* Improvement:** Discuss treatment options for AATD incorporating the latest guideline recommendations
- **LO 4, 75%* Improvement:** Discuss strategies to enhance detection and treatment of AATD in clinical practice

Learning Domain Analysis



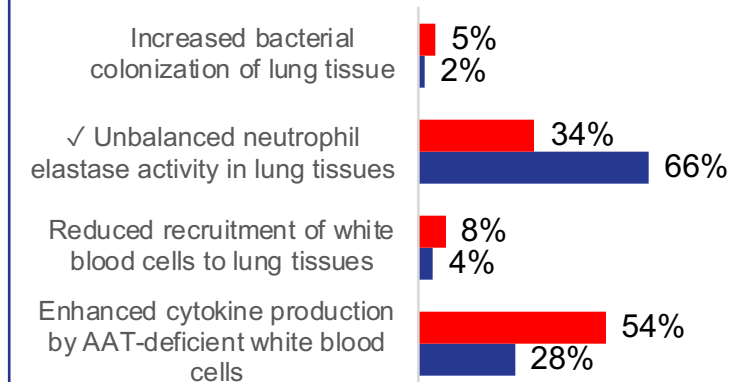
- In each of the four curriculum learning domains, substantial and significant gains were achieved from Pre- to Post-Test
- The strongest improvement, from a low Pre-Test average, was seen in Knowledge, driven by an item on genotypes predisposed for the development of emphysema
- In Confidence and practice strategy, strong improvements from very low Pre-Test average ratings were observed
- High Post-Test ratings in practice strategy were seen, on intent to order one-time AAT testing for patients with COPD

Persistent Learning Gaps/Needs

Pathophysiology of AATD

Though improvements were made from Pre- to Post-Test, low Post-Test scores were measured on an item discussing the role of unbalanced neutrophil elastase activity in lung tissues as the basis for AATD pathology

In patients with Alpha-1 antitrypsin deficiency (AATD), which of the following mechanism is the basis for AATD pathology?



Course Director

Franck Rahaghi, MD, MHS, FCCP

Director of Advanced Lung Disease Clinic
Director, Pulmonary Hypertension Clinic
Head of Alpha-1 Foundation Clinical Resource Center
Chairman, Dept. of Pulmonary and Critical Care
Cleveland Clinic Florida
Weston, FL

Activity Planning Committee

Gregg Sherman, MD

Michelle Frisch, MPH, CHCP

Sandy Bihlmeyer, M.Ed.

Joshua F. Kilbridge

Deborah Paschal, CRNP

Daniela Hiedra

Faculty

Franck Rahaghi, MD, MHS, FCCP

Director of Advanced Lung Disease Clinic
Director, Pulmonary Hypertension Clinic
Head of Alpha-1 Foundation Clinical Resource Center
Chairman, Dept. of Pulmonary and Critical Care
Cleveland Clinic Florida
Weston, FL

Jeanine D'Armiento, MD, PhD

Associate Professor of Medicine in Anesthesiology
Director of the Center for Molecular Pulmonary Disease in
Anesthesiology and
Physiology and Cellular Biophysics - Director, Center for LAM
and Rare Lung Disease
Columbia University
New York, NY

Commercial Support

Conversation in Primary Care: 2020 series of CME activities were supported through educational grants or donations from the following companies:

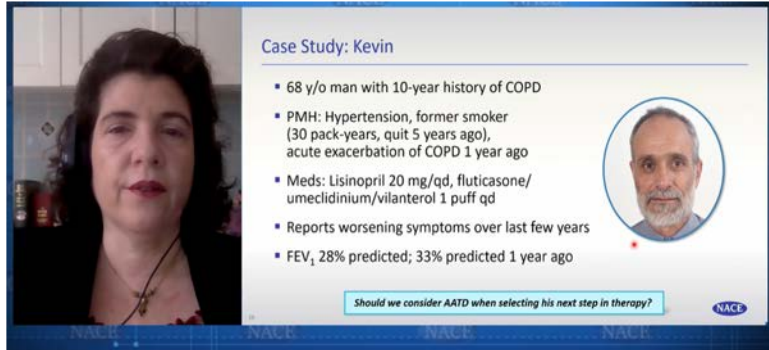
- Astellas PharmaGlobal Development, Inc.
- Esperion Therapeutics, Inc
- Ferring Pharmaceuticals, Inc.
- Grifols
- KanekaPharma America LLC
- Novartis Pharmaceuticals Corporation
- Novo Nordisk, Inc.
- Takeda Pharmaceuticals U.S.A., Inc.

Learning Objectives

- Discuss the pathophysiology of AAT deficiency (AATD) and its impact on chronic obstructive pulmonary disease (COPD) risk
- Interpret the clinical significance of laboratory test results for AATD
- Discuss treatment options for AATD incorporating the latest guideline recommendations
- Discuss strategies to enhance detection and treatment of AATD in clinical practice

Curriculum Overview

2 Accredited Live Virtual Symposia with
2 Rebroadcasts: March – April 2020



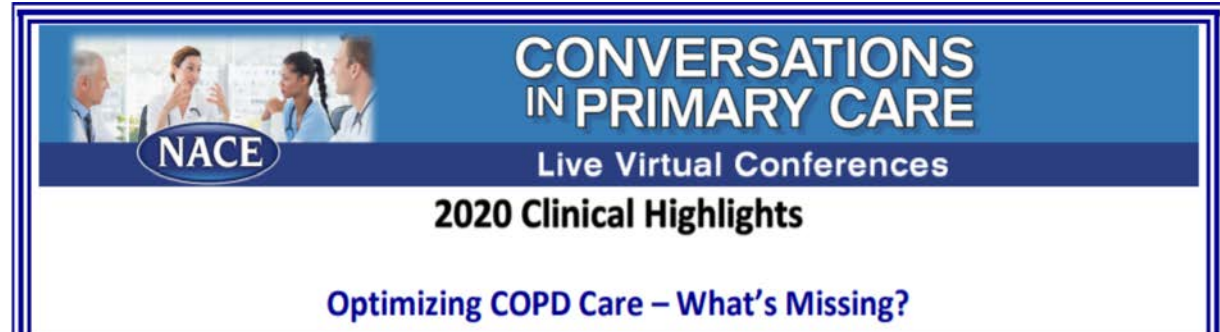
Case Study: Kevin

- 68 y/o man with 10-year history of COPD
- PMH: Hypertension, former smoker (30 pack-years, quit 5 years ago), acute exacerbation of COPD 1 year ago
- Meds: Lisinopril 20 mg/qd, fluticasone/umeclidinium/vilanterol 1 puff qd
- Reports worsening symptoms over last few years
- FEV₁ 28% predicted; 33% predicted 1 year ago

Should we consider AATD when selecting his next step in therapy?

Clinical Highlights eMonograph

eMonograph, containing key teaching points from the CME activity, was distributed 1 week after the meeting to all attendees.



CONVERSATIONS
IN PRIMARY CARE
Live Virtual Conferences
2020 Clinical Highlights
Optimizing COPD Care – What's Missing?

Enduring CME Symposium Webcast

Available at:

<https://www.naceonline.com/courses/optimizing-copd-care-whats-missing>

Optimizing COPD Care – What's Missing?



COURSE SUMMARY

Cost: Free

Start Date: 05/30/2020

Expiration Date: 05/29/2021

Target Audience: Primary Care Providers

Format: Webcast

Estimated Time To Complete CME Activity: 1.0 hour

Credit(s):

1.0 AMA PRA Category 1 Credit(s)TM

1.0 AANP Contact hour which includes

0.5 pharmacology hours

Hardware/Software Requirements: Any web browser

Speaker



Jeanine D'Armiento, MD, PhD

Associate Professor of Medicine in Anesthesiology

Director of the Center for Molecular Pulmonary

Disease in Anesthesiology and Physiology and Cellular Biophysics

Director, Center for LAM and Rare Lung Disease Columbia University

New York, NY

Outcomes Methodology

Learning outcomes were measured using matched Pre-Test and Post-Test scores for Knowledge, Performance, Confidence, and practice strategy and across all of the curriculum's Learning Objectives.

Outcomes Metric	Definition	Application
Percentage change	This is how the score changes resulting from the education are measured. The change is analyzed as a relative percentage difference by taking into account the magnitude of the Pre-Test average.	Differences between Pre-Test, Post-Test, and PCA score averages
P value (p)	This is the measure of the statistical significance of a difference in scores. It is calculated using dependent or independent samples t-tests to assess the difference between scores, taking into account sample size and score dispersion. Differences are considered significant for when $p \leq .05$.	Significance of differences between Pre-Test, Post-Test, and PCA scores and among cohorts
Effect size (d)	This is a measure of the strength/magnitude of the change in scores (irrespective of sample size). It is calculated using Cohen's d formula, with the most common ranges of d from 0-1: $d < .2$ is a small effect, $d = .2-.8$ is a medium effect, and $d > .8$ is a large effect.	Differences between Pre-Test and Post-Test score averages
Power	This is the probability (from 0 to 1) that the "null hypothesis" (no change) will be appropriately rejected. It is the probability of detecting a difference (not seeing a false negative) when there is an effect that is dependent on the significance (p), effect size (d), and sample size (N).	Differences between Pre-Test and Post-Test score averages
Percentage non-overlap	This is the percentage of data points at the end of an intervention that surpass the highest scores prior to the intervention. In this report, it will reflect the percentage of learners at Post-Test who exceed the highest Pre-Test scores.	Differences between Pre-Test and Post-Test score averages

Participation

2020 Session	Date	Attendees
Conversations in Primary Care, Episode 2	3/14/20	1,821
Conversations Episode 2, Rebroadcast	3/21/20	905
Conversations in Primary Care, Episode 3	4/4/20	3,169
Conversations Episode 3, Rebroadcast	4/11/20	1,358
Total		7,253



Participation



7,253*
Total Attendees



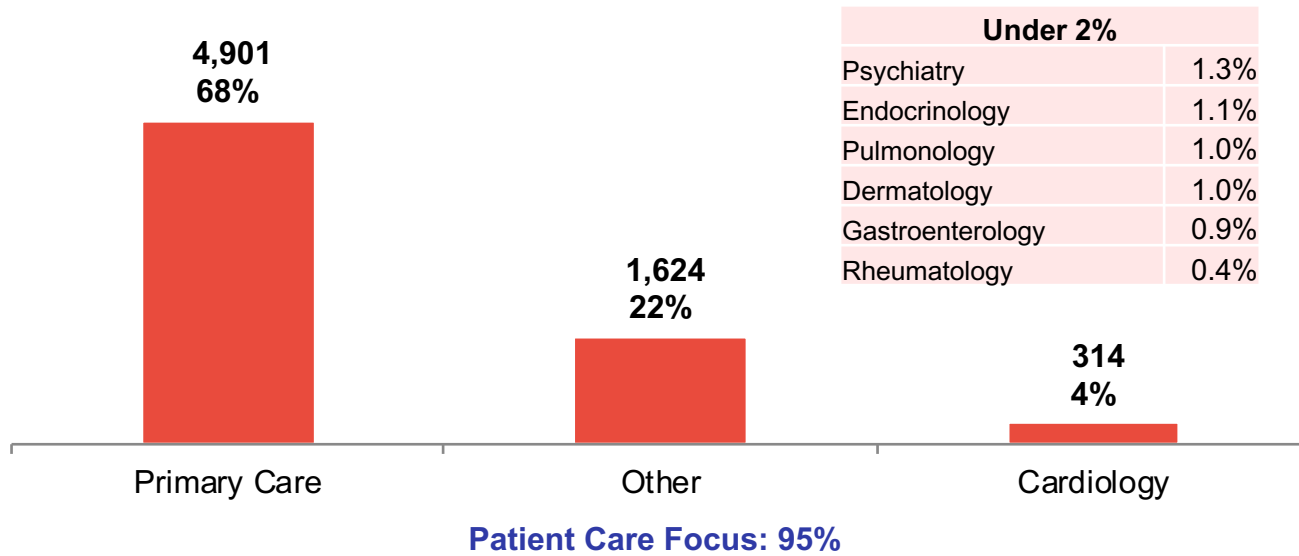
4 Virtual Sessions

1,722 Follow-up Participants
24% Rate of follow-up engagement

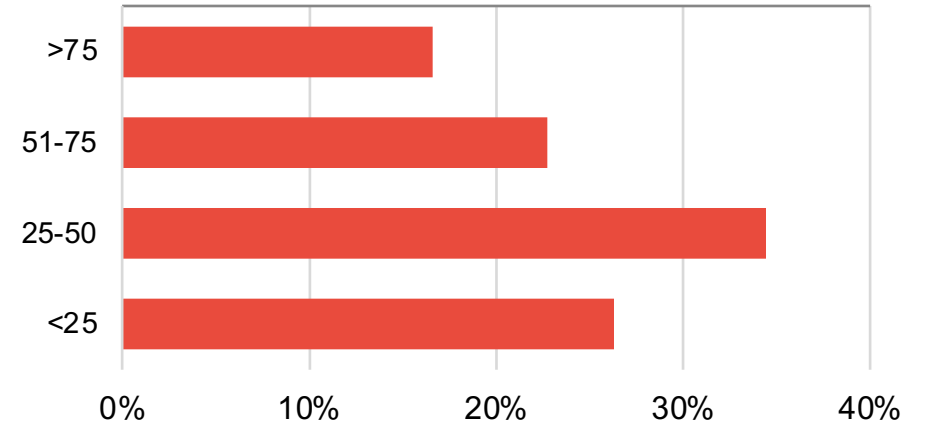
*These numbers represent the total number of attendees, irrespective of assessment participation

Level 1: Demographics and Patient Reach

Specialty

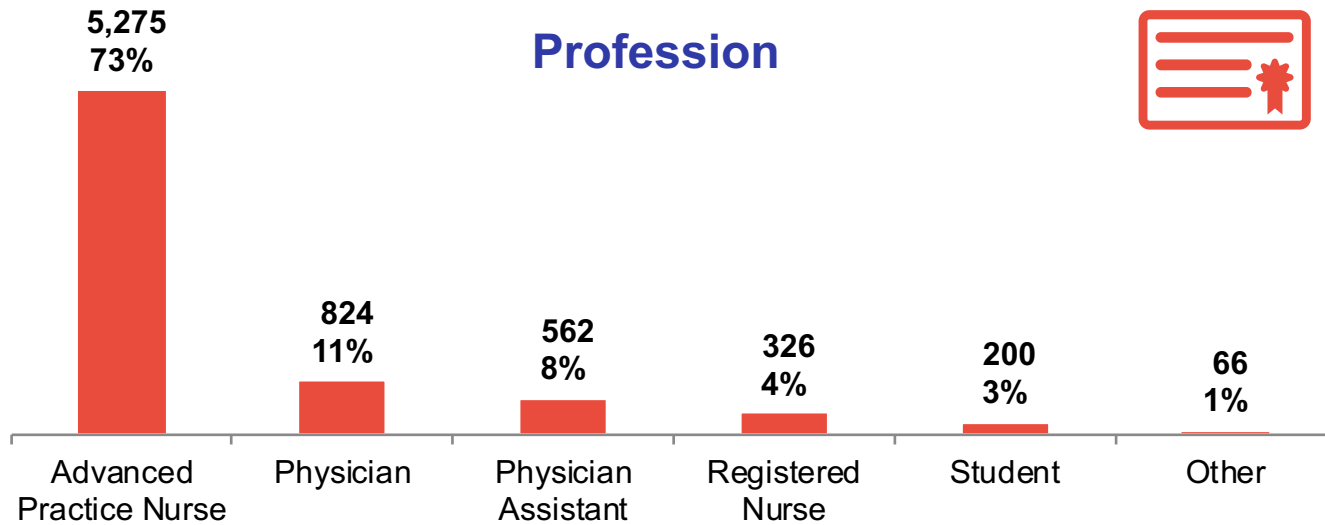


Patients seen each week, in any clinical setting:

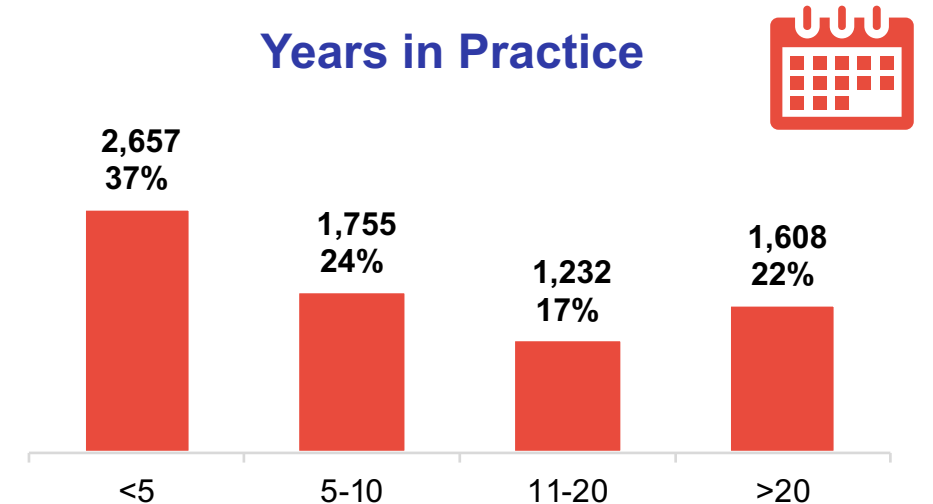


Average number of patients seen each week per clinician: 44

Profession



Years in Practice

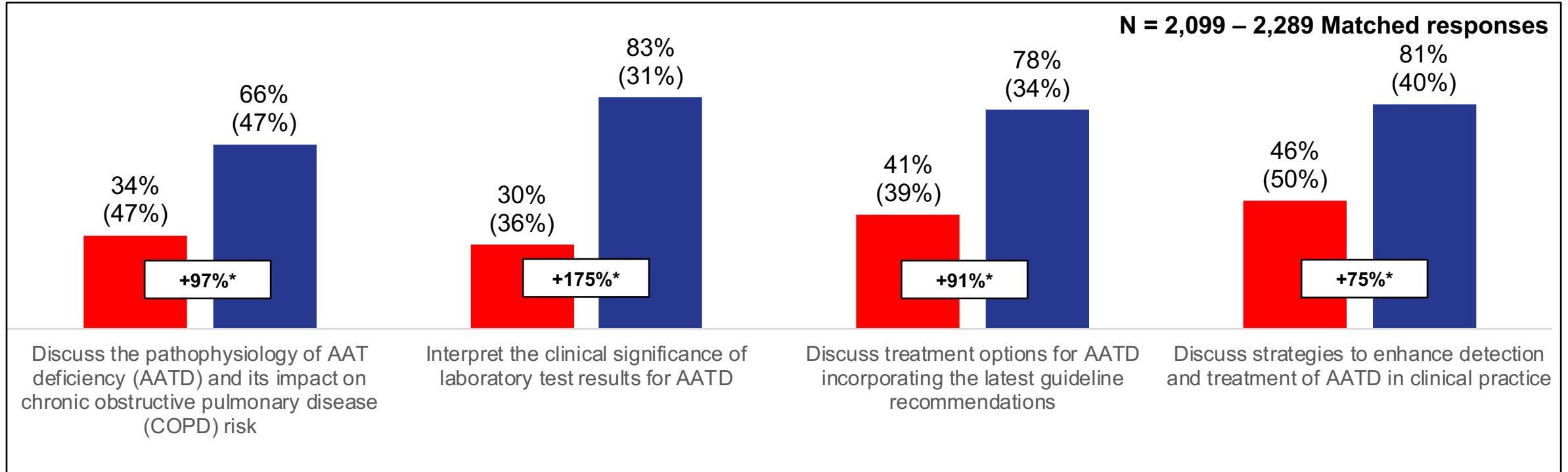




**Level 2-5:
Outcomes Metrics**

Learning Objective Analysis

Pre-Test
Post-Test



- Across all four curriculum Learning Objectives, substantial and significant improvements were measured from low scores at Pre-Test (< 47%)
- The strongest gains, from lowest Pre-Test to highest Post-Test scores, were measured on interpreting the clinical significance of laboratory test results for AATD
- Lowest Post-Test scores were measured on the pathophysiology of AATD and its impact on COPD risk
 - These low scores were due to a Knowledge item on the role of unbalanced neutrophil elastase activity in lung tissues in the pathophysiology of AATD

Learning Objective Analysis

Cohort comparison by profession

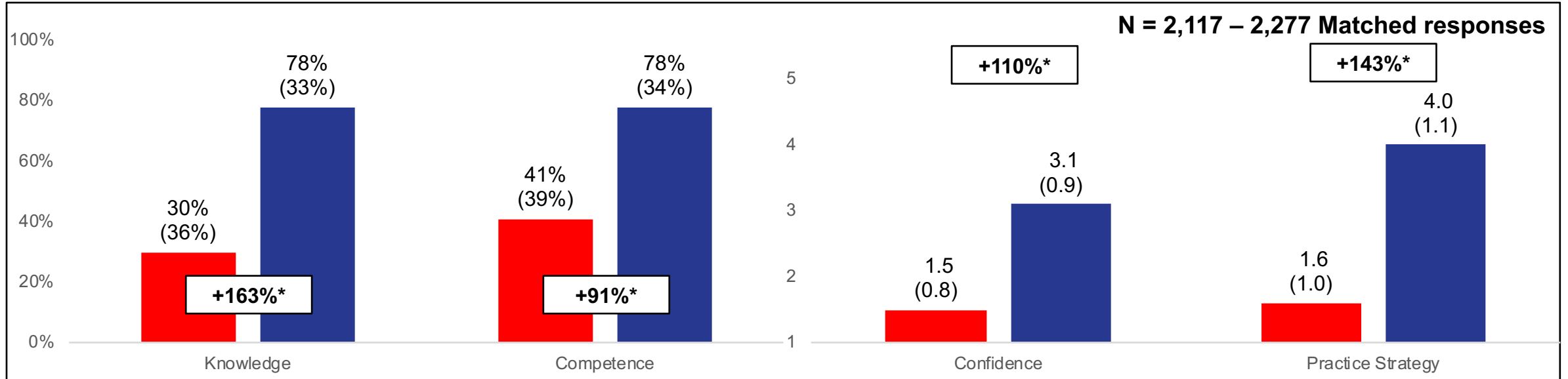
Matched data, * indicates significance, $p < 0.05$

Learning Objective	Advanced Practice Nurses				Physicians			
	N	Pre-Test	Post-Test	% Change	N	Pre-Test	Post-Test	% Change
Discuss the pathophysiology of AAT deficiency (AATD) and its impact on chronic obstructive pulmonary disease (COPD) risk	1,109	30% (46%)	65% (48%)	+117%*	167	51% (50%)	81% (39%)	+58%*
Interpret the clinical significance of laboratory test results for AATD	1,181	27% (35%)	84% (29%)	+211%*	185	45% (38%)	88% (27%)	+95%*
Discuss treatment options for AATD incorporating the latest guideline recommendations	1,177	39% (38%)	80% (33%)	+104%*	181	45% (41%)	80% (33%)	+77%*
Discuss strategies to enhance detection and treatment of AATD in clinical practice	1,107	45% (50%)	84% (37%)	+84%*	164	49% (50%)	80% (40%)	+62%*

- For both advanced practice nurses and physicians, substantial and significant gains were measured from Pre- to Post-Test on each of the four curriculum Learning Objectives
- On the pathophysiology of AATD and its impact on COPD risk, and interpretation of the clinical significance of laboratory test results for AATD, higher Pre- and Post-Test scores were measured for physicians compared to advanced practice nurses
 - On all Objectives, advanced practice nurses had stronger improvements from Pre- to Post-Test compared to physicians

Learning Domain Analysis

Pre-Test
Post-Test



- In each of the four curriculum learning domains, substantial and significant gains were achieved from Pre- to Post-Test
- The strongest improvement, from a low Pre-Test average, was seen in Knowledge
 - This improvement was driven by an item on genotypes predisposed for the development of emphysema
- In Confidence and practice strategy, strong improvements (>100%) from very low Pre-Test average ratings were observed
 - High Post-Test ratings in practice strategy were seen (4.0), on intent to order one-time AAT testing for patients with COPD

Learning Domain Analysis

Cohort comparison by profession

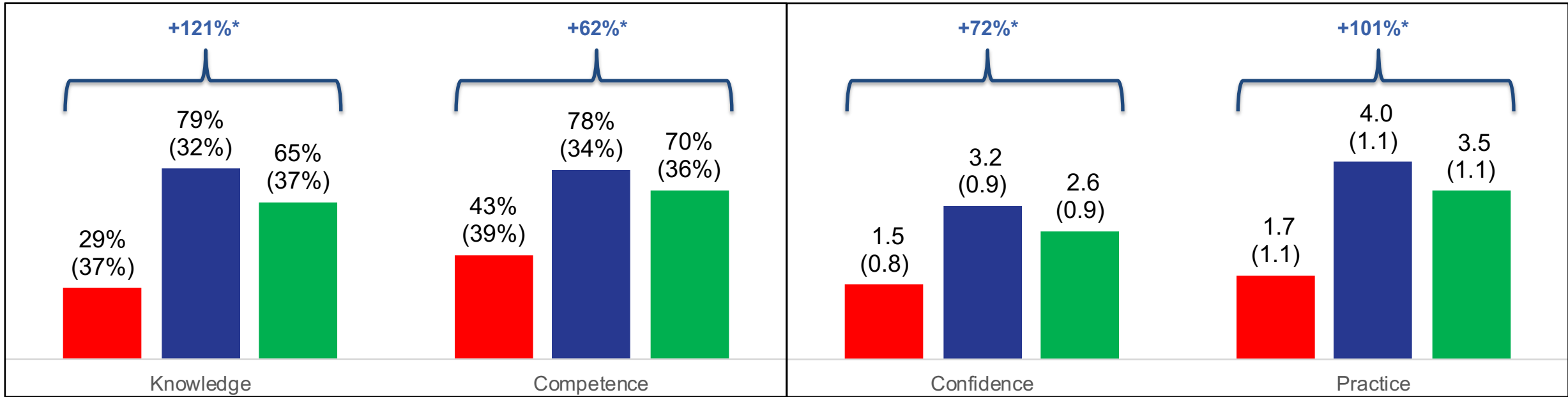
Matched data, * indicates significance, $p < 0.05$

Learning Domain	Advanced practice nurses				Physicians			
	N	Pre-Test	Post-Test	% Change	N	Pre-Test	Post-Test	% Change
Knowledge	1,177	26% (34%)	78% (32%)	+196%*	181	49% (41%)	89% (24%)	+82%*
Competence	1,177	39% (38%)	80% (33%)	+104%*	181	45% (41%)	80% (33%)	+77%*
Confidence	1,119	1.4 (0.7)	3.0 (0.9)	+119%*	169	1.6 (0.8)	3.5 (1.0)	+120%*
Practice	1,149	1.5 (0.9)	4.0 (1.1)	+169%*	177	1.7 (0.9)	4.0 (1.2)	+135%*

- When comparing the scores of advanced practice nurses and physicians by learning domain, both groups achieved substantial and significant gains from Pre- to Post-Test, across all four curriculum domains
- On all four domains, physicians had similar or higher Pre- and Post-Test scores compared to advanced practice nurses, while advanced practice nurses had stronger relative improvements from Pre- to Post-Test

4-Week Retention Analysis

N = 804 – 872 Matched responses



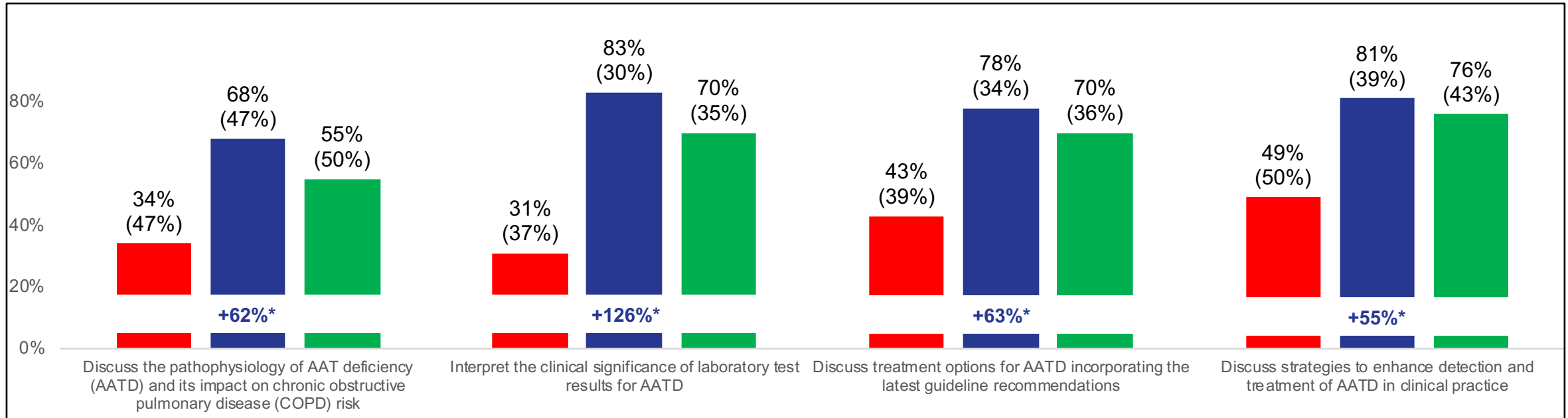
- Four to six weeks following their engagement in one of the curriculum sessions, learners were prompted to complete a brief Post Curriculum Assessment (PCA), which repeated items from each of the four curriculum learning domains
- In each of the four domains, substantial and significant net gains were achieved from Pre-Test to PCA measurements
 - Despite these gains, some score slippage was seen from Post-Test to PCA in all domains

4-Week Retention Analysis

By Learning Objective

Pre-Test Post-Test PCA

N = 813 – 868 Matched responses

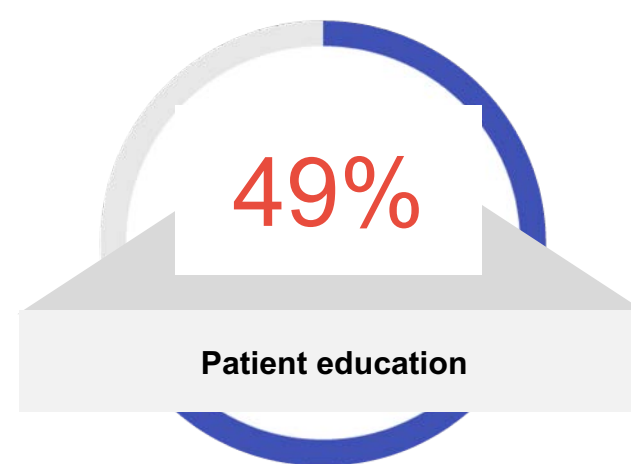
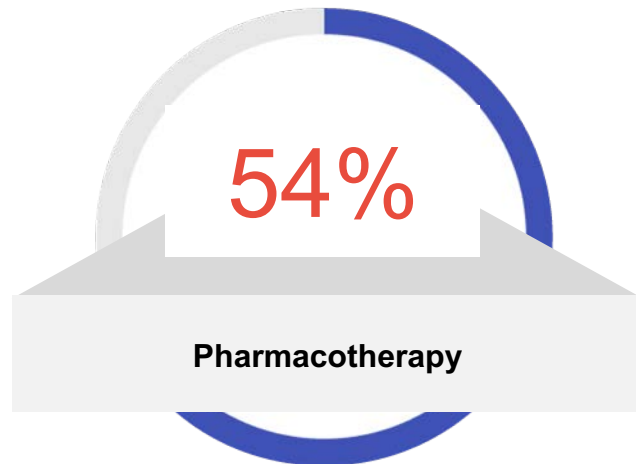
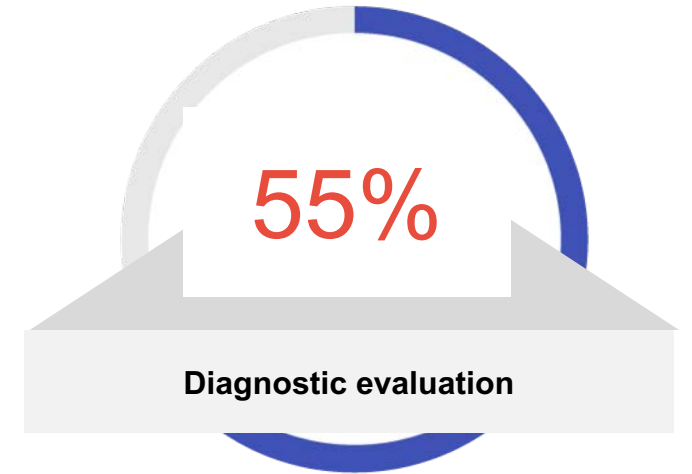
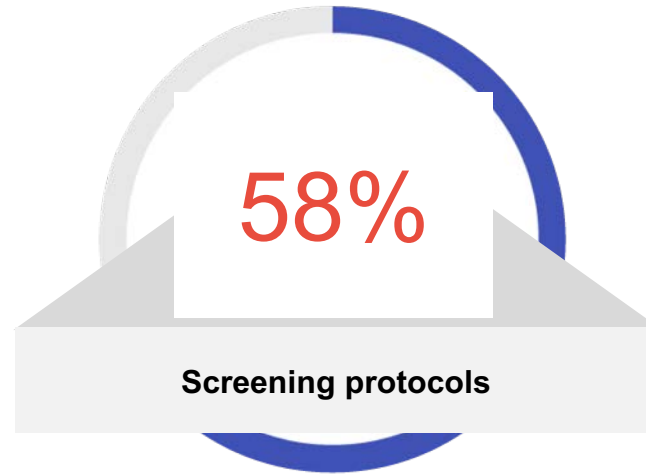
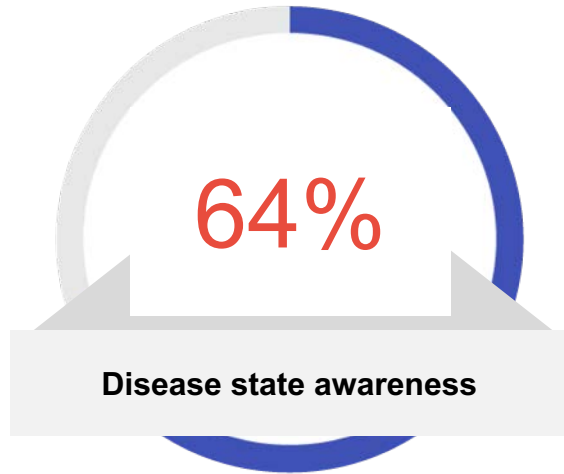


- When examining results by Learning Objective, substantial and significant net gains were achieved from Pre-Test to PCA measurements on each of the four Objectives, with some score slippage from Post-Test to follow-up
- The strongest gains, from the lowest Pre-Test scores, were measured on interpretation of the clinical significance of laboratory test results for AATD
- Lowest scores at follow-up (55%) on discussing the pathophysiology of AATD and its impact on COPD risk represent a need for further reinforcement in this area

(4-week Post Assessment)

Please select the specific areas of *skills, or practice behaviors*, you have improved regarding the treatment of patients with COPD since this CME activity. (Select all that apply.)

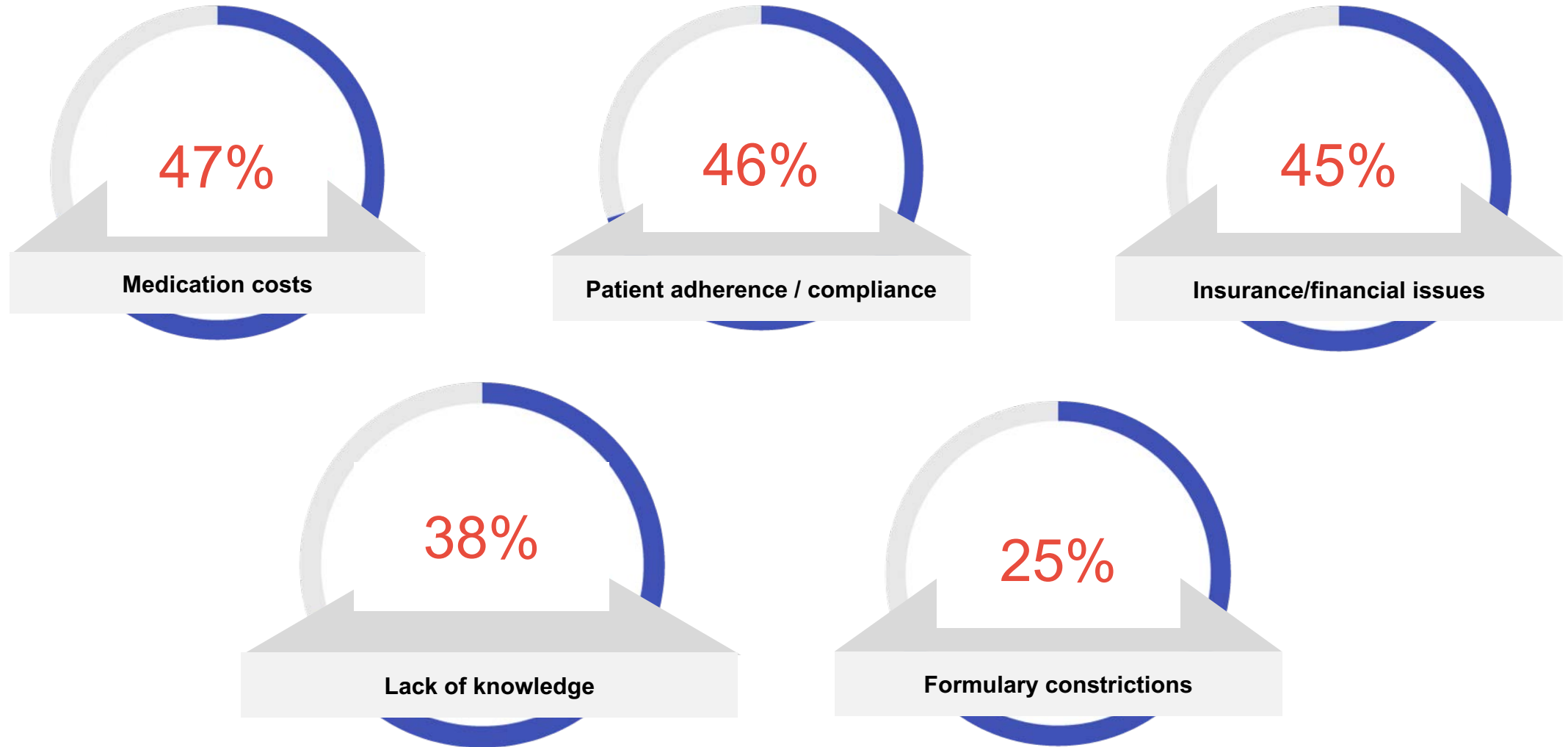
N = 1,649



(4-week Post Assessment)

What specific *barriers* have you encountered that may have prevented you from successfully implementing strategies for patients with COPD since this CME activity? (Select all that apply.)

N = 1,649



Identified Learning Gap

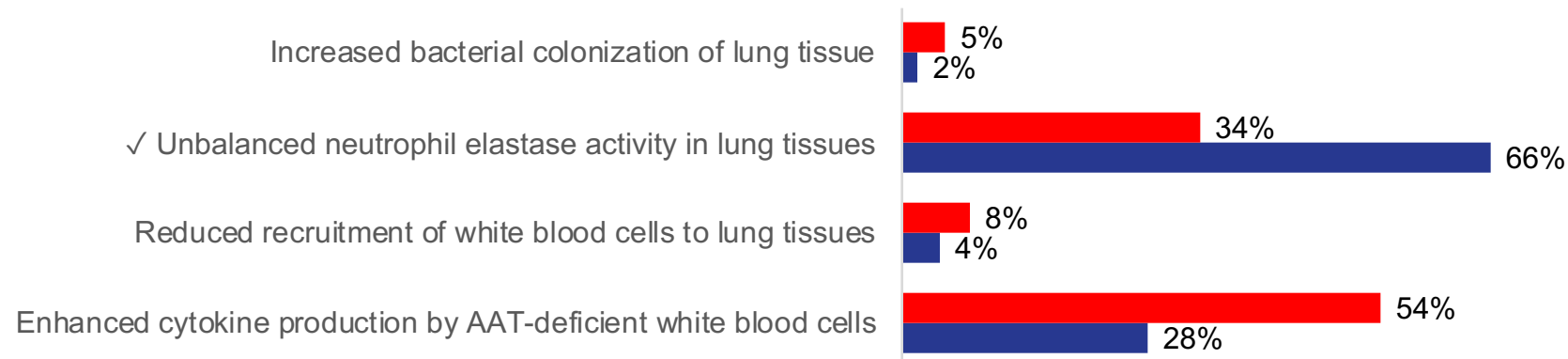
Pathophysiology of AATD

Though improvements were made from Pre- to Post-Test, low Post-Test scores were measured on an item discussing the role of unbalanced neutrophil elastase activity in lung tissues as the basis for AATD pathology

In patients with Alpha-1 antitrypsin deficiency (AATD), which of the following mechanism is the basis for AATD pathology?

Results:

- At Post-Test, 66% of learners correctly answered: “Unbalanced neutrophil elastase activity in lung tissues”



Overall Educational Impact

- Substantial, significant improvements from 91% to 163% were seen in Knowledge, Competence, Confidence, and practice strategy
 - These improvements were generally stronger for advanced practice nurses compared to physicians
- Improvement was seen from very low Pre-Test confidence to integrate the assessment and management of AATD into the care of patients with COPD to moderate Post-Test ratings
- Practice strategy ratings, on intent to order one-time AAT testing for patients with COPD, were high at Pre- and Post-Test, following a very low Pre-Test average
- Highest scores at Post-Test were measured on genotypes with a predisposition for the development of emphysema
- Net gains were measured across all learning domains from Pre-Test to a follow-up Post Curriculum Assessment, though some slippage was seen in all areas
- Significant baseline knowledge and competence gaps were noted including: genotype risk for development of emphysema, appropriate AAT testing, and when to initiate AAT augmentation therapy.
- Despite strong gains across the curriculum, analysis of the Knowledge and Competence domains identified an **opportunity for further education related to pathophysiology of AATD** driven by an item discussing the role of unbalanced neutrophil elastase activity in lung tissues in AATD pathology

Appendix

**Slides 21 – 23: Pre-Test to Post-Test
matched item responses**

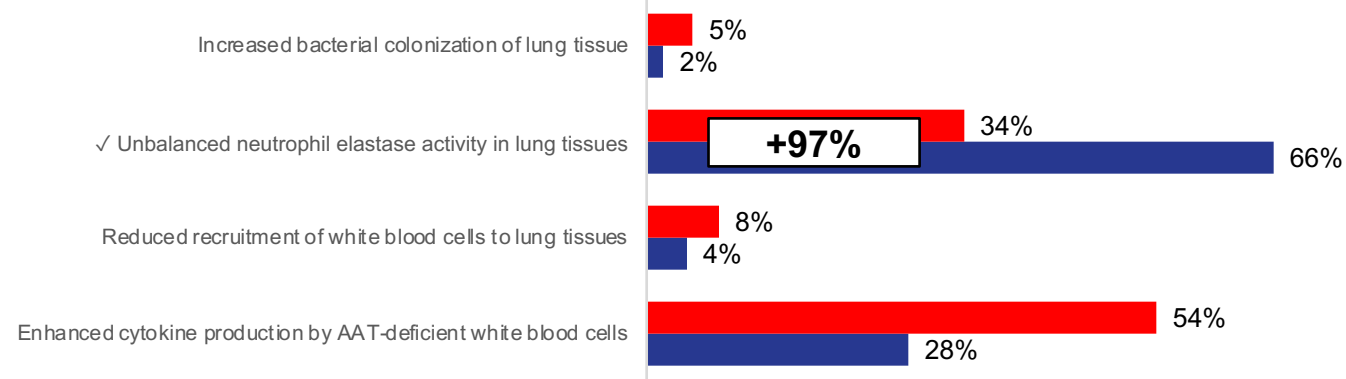
**Slides 24 – 26: Pre-Test, Post-Test, and
PCA matched item responses***

Knowledge Items

Pre-Test
Post-Test

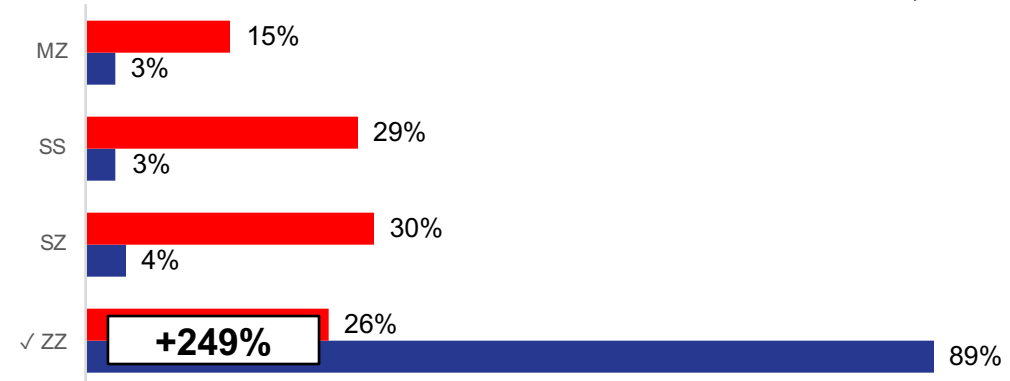
In patients with Alpha-1 antitrypsin deficiency (AATD), which of the following mechanism is the basis for AATD pathology?

N = 2,099 Matched responses



On genetic testing for AATD, which of the following genotypes has the strongest predisposition for the development of emphysema?

N = 2,120 Matched responses

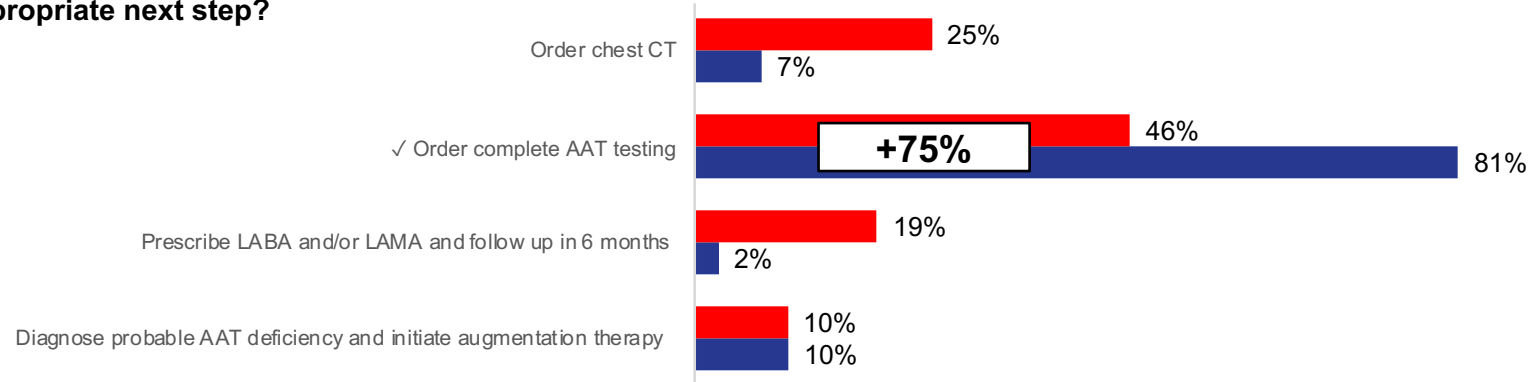


Competence Items

Pre-Test
Post-Test

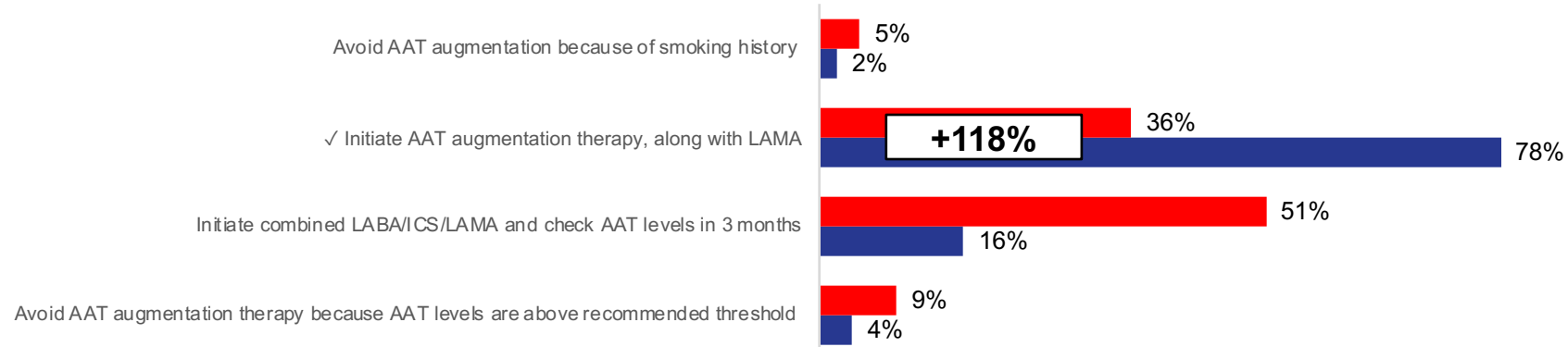
A 62-y/o woman presents with progressive dyspnea and productive cough. She has no smoking history. Workup identifies FEV1/FVC 0.50 and FEV1 40% predicted. Chest X-ray shows mild emphysema with basilar predominance. Other findings are WNL. Based on this information, what might be an appropriate next step?

N = 2,106 Matched responses



A 51-y/o man who presents with progressive dyspnea is diagnosed with COPD on workup. He had one exacerbation and no hospitalizations. FEV1/FVC is 0.60 and FEV1 is 45% predicted. Testing for AAT deficiency identifies ZZ genotype and serum AAT levels 7µM. He is a former smoker (10 pack-years, quit 20 years ago). Based on this information, what might be an appropriate next step?

N = 2,045 Matched responses

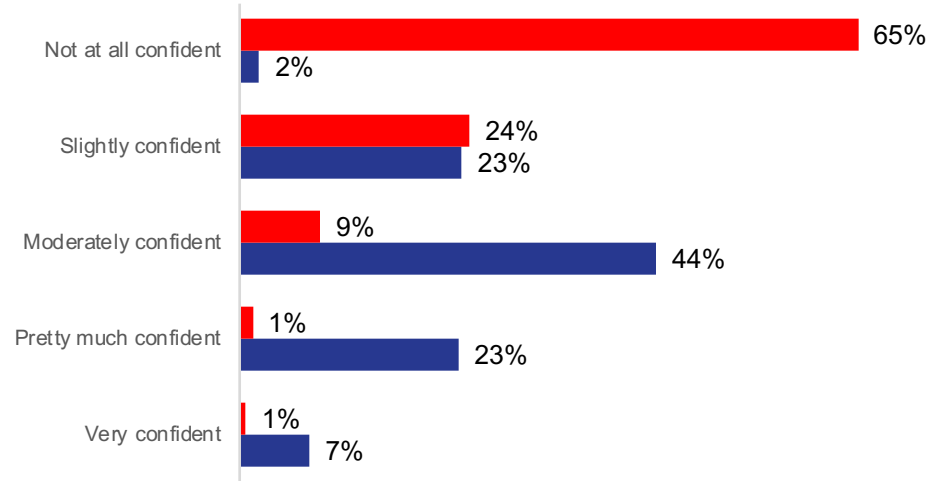


Confidence and Practice Strategy Items

Pre-Test
Post-Test

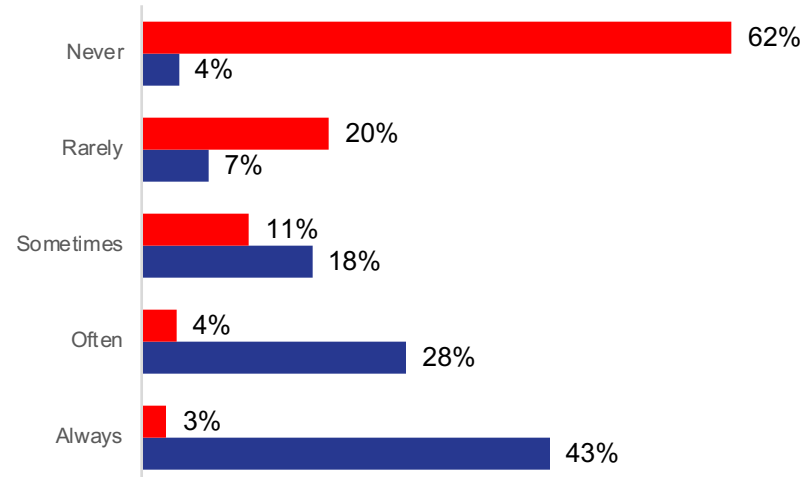
How confident are you in your ability to integrate the assessment and management of AATD into the care of patients with COPD?

N = 2,117 Matched responses



How often do you order one-time AAT testing for your patients with COPD?

N = 2,267 Matched responses



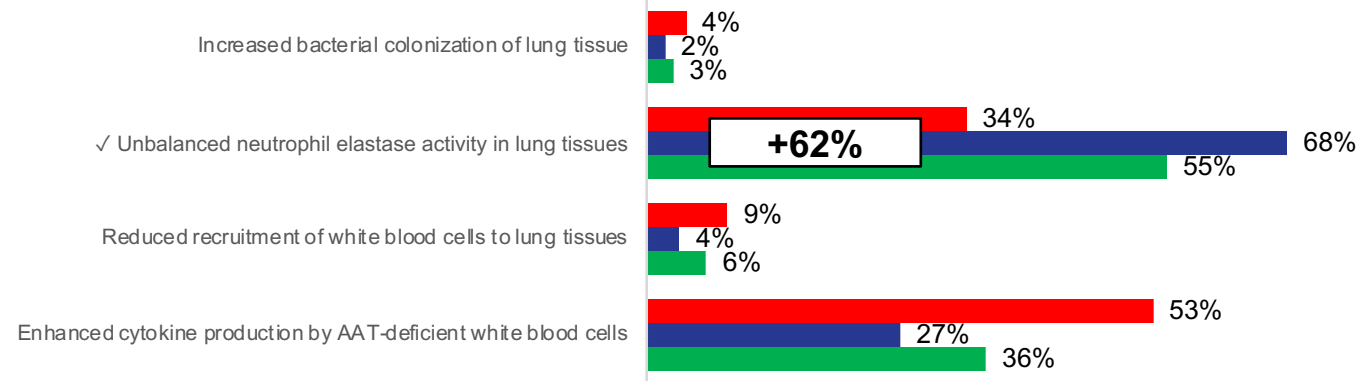
Post Curriculum Assessment

Knowledge Items

Pre-Test
Post-Test
PCA

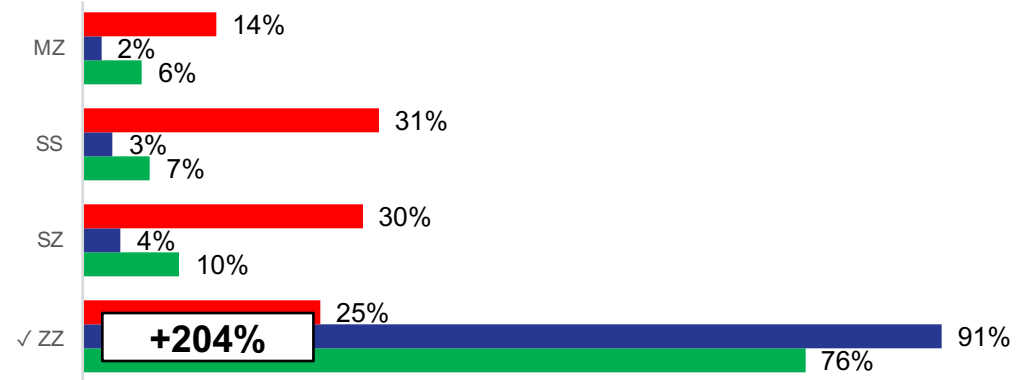
In patients with Alpha-1 antitrypsin deficiency (AATD), which of the following mechanism is the basis for AATD pathology?

N = 817 Matched responses



On genetic testing for AATD, which of the following genotypes has the strongest predisposition for the development of emphysema?

N = 809 Matched responses



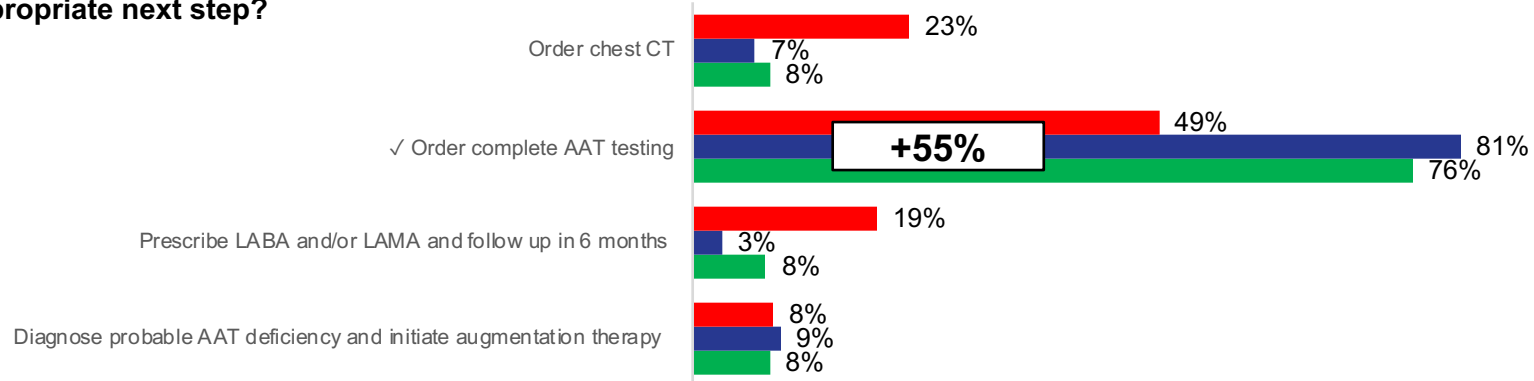
Post Curriculum Assessment

Competence Items

Pre-Test
Post-Test
PCA

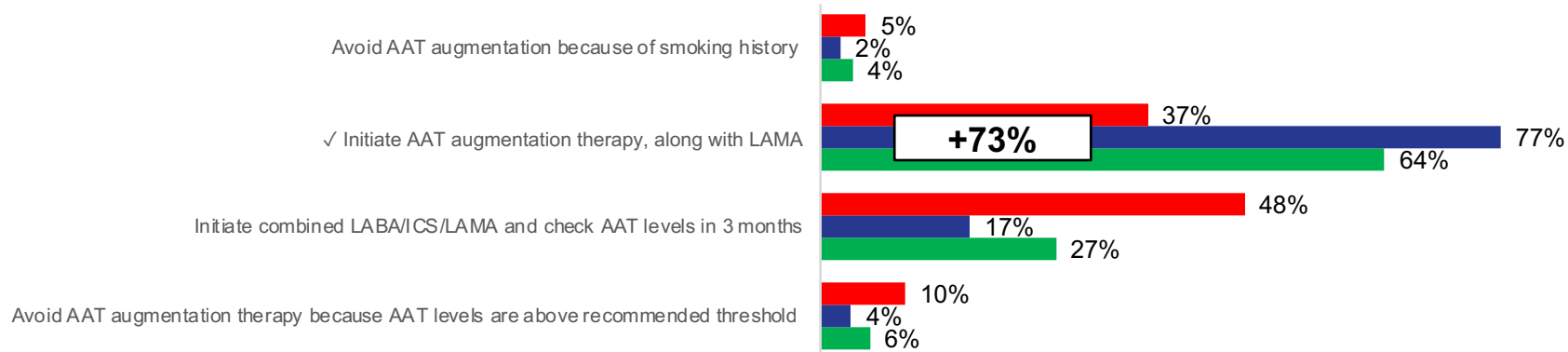
A 62-y/o woman presents with progressive dyspnea and productive cough. She has no smoking history. Workup identifies FEV1/FVC 0.50 and FEV1 40% predicted. Chest X-ray shows mild emphysema with basilar predominance. Other findings are WNL. Based on this information, what might be an appropriate next step?

N = 813 Matched responses



A 51-y/o man who presents with progressive dyspnea is diagnosed with COPD on workup. He had one exacerbation and no hospitalizations. FEV1/FVC is 0.60 and FEV1 is 45% predicted. Testing for AAT deficiency identifies ZZ genotype and serum AAT levels 7µM. He is a former smoker (10 pack-years, quit 20 years ago). Based on this information, what might be an appropriate next step?

N = 790 Matched responses



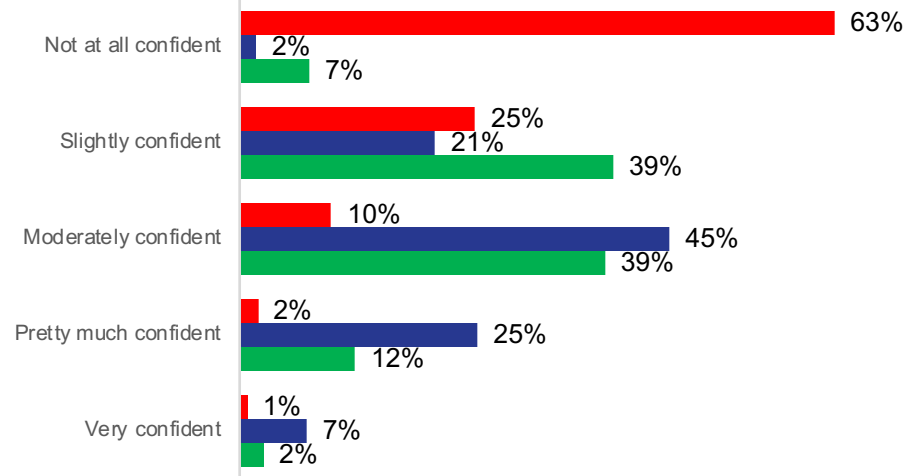
Post Curriculum Assessment

Confidence and practice strategy Items

Pre-Test
Post-Test
PCA

How confident are you in your ability to integrate the assessment and management of AATD into the care of patients with COPD?

N = 804 Matched responses



How often do you order one-time AAT testing for your patients with COPD?

N = 872 Matched responses

