

Where Are the New Targets in Severe Asthma?

Looking Upstream in the Inflammatory Cascade

Final Outcomes Summary:
Live Broadcasts and Online Enduring
(Online Data from 11/9/21 – 11/29/22)
Grant ID: 66540617



Table of Contents

Final Outcomes Summary – Live Broadcasts and Online Enduring



- Executive Summary (Slide 3)
- Program Features (Slide 4)
- Audience Generation (Slide 5)
- Overall Program Impact (Slide 6)
- Online Enduring Outcomes (Slide 7)
 - Educational Impact Summary (Slides 8-9)
 - Level 1 – Participation (Slides 10-11)
 - Level 2 – Satisfaction (Slide 12)
 - Level 3&4 – Knowledge and Competence (Slides 13-17)
 - Level 4 – Competence (Slides 18-19)
 - Evaluation Survey Results (Slides 20-21)
- Live Broadcasts (Slide 22)
 - Educational Impact Summary (Slides 23-24)
 - Level 1 – Participation (Slides 25-28)
 - Level 2 – Satisfaction (Slide 29)
 - Level 3&4 – Knowledge and Competence (Slides 30-33)
 - Level 4 – Competence (Slides 34-35)
 - Evaluation Survey Results (Slides 36-37)
- Accreditation (Slide 38)

Executive Summary

Final Outcomes Summary – Live Broadcasts and Online Enduring



Program Overview

This program was delivered as a pre-recorded, video-based activity with live Q&A, held as an adjunct symposium to the American College of Chest Physicians Annual Meeting (CHEST 2021), and as a second broadcast on the ReachMD platform. The activity was then endured on the CHEST Annual Meeting platform, and on the ReachMD and myCME platforms. This multimedia activity includes 2D/3D animations and patient case scenarios to illustrate a new paradigm of severe asthma pathophysiology and potential treatment targets that may impact patients with non-allergic and non-eosinophilic as well as eosinophilic severe asthma.

Live Broadcast Dates:

October 17, 2021 (CHEST)
November 2, 2021 (ReachMD)

Online Enduring Dates:

Nov 9, 2021 – Nov 9, 2022 (ReachMD)
Nov 29, 2021 – Nov 29, 2022 (myCME)

Program Faculty



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Director of The Cohen Family Asthma Institute and Professor of Medicine
Division of Pulmonary, Critical Care, & Sleep Medicine
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Department of Medicine
National Jewish Health
Denver, Colorado

Learning Objectives

- Define the epithelial alarmins and their pivotal role in inflammation in asthma.
- Describe how the epithelial alarmins impact both T2 and non-T2 downstream inflammation in asthma.
- Explain how therapies, such as anti-TSLP, would be expected to modulate airway inflammation in patients with either a T2-high or T2-low phenotype.
- Evaluate the results of clinical trials of novel therapies that target the epithelial alarmins.

Target Audience & Accreditation

Target Audience: Pulmonologists, Allergists, and Nurse Practitioners and Physician Assistants in those specialties who treat severe asthma.

National Jewish Health designates the live activities and online enduring activity for a maximum of 1.0 *AMA PRA Category 1 Credit*[™].

Program Features

Final Outcomes Summary – Live Broadcasts and Online Enduring



Whiteboard Animations

Emerging therapies include:
Tezepelumab: a monoclonal antibody targeting TSLP

Case 2

CASE DETAILS:

- 44 year old male with daily asthma symptoms
- History of eosinophilic asthma
- No history of allergies
- 4 exacerbations/year
- FEV1 66% predicted

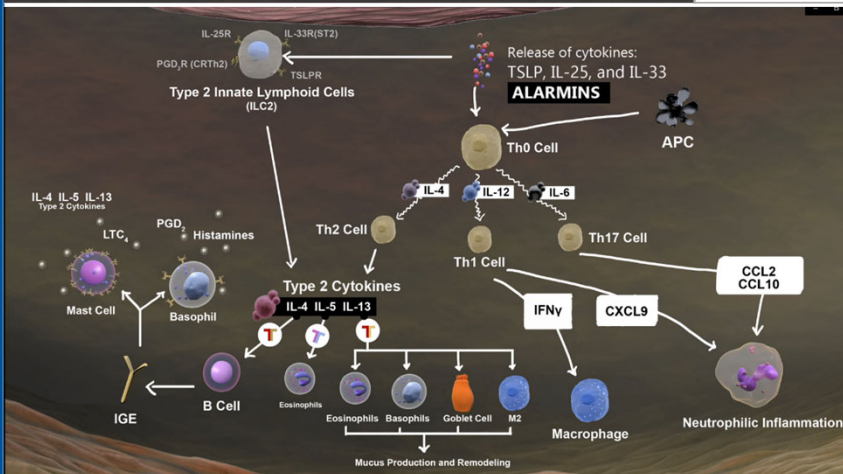
MEDICATIONS:

- High dose ICS/LABA
- Started on Mepolizumab → improved but still with 2 exacerbations /year and symptoms 3-4 days/week

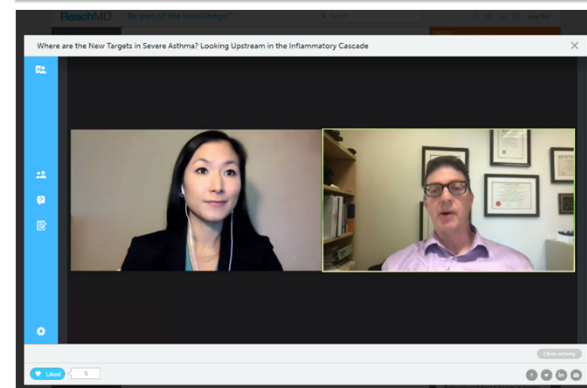
TESTING:

- Total IgE 55
- Absolute Eosinophil Count 80
- Exhaled Nitric Oxide 36 ppb
- ACT score 16

Patient Case Scenarios with Interactive Polling and Faculty Discussion



Live Q&A with Faculty



Audience Generation

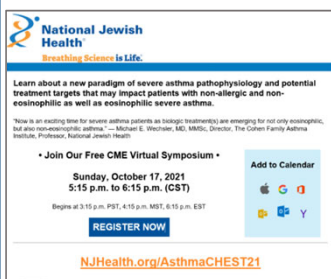
Final Outcomes Summary – Live Broadcasts and Online Enduring



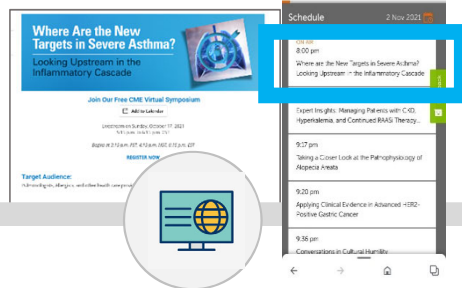
Personalized targeting tools across numerous tactics reach HCPs by leveraging demographic data (such as location, profession, specialty) and behavioral data (such as learner participation history, areas of interest).

Personalized emails and e-newsletters: CHEST registrants & members, ReachMD, myCME & NJH databases

Social media ads and posts



Preferences in ReachMD and myCME user online profiles



Dedicated landing page on NJH website & ReachMD and myCME platforms



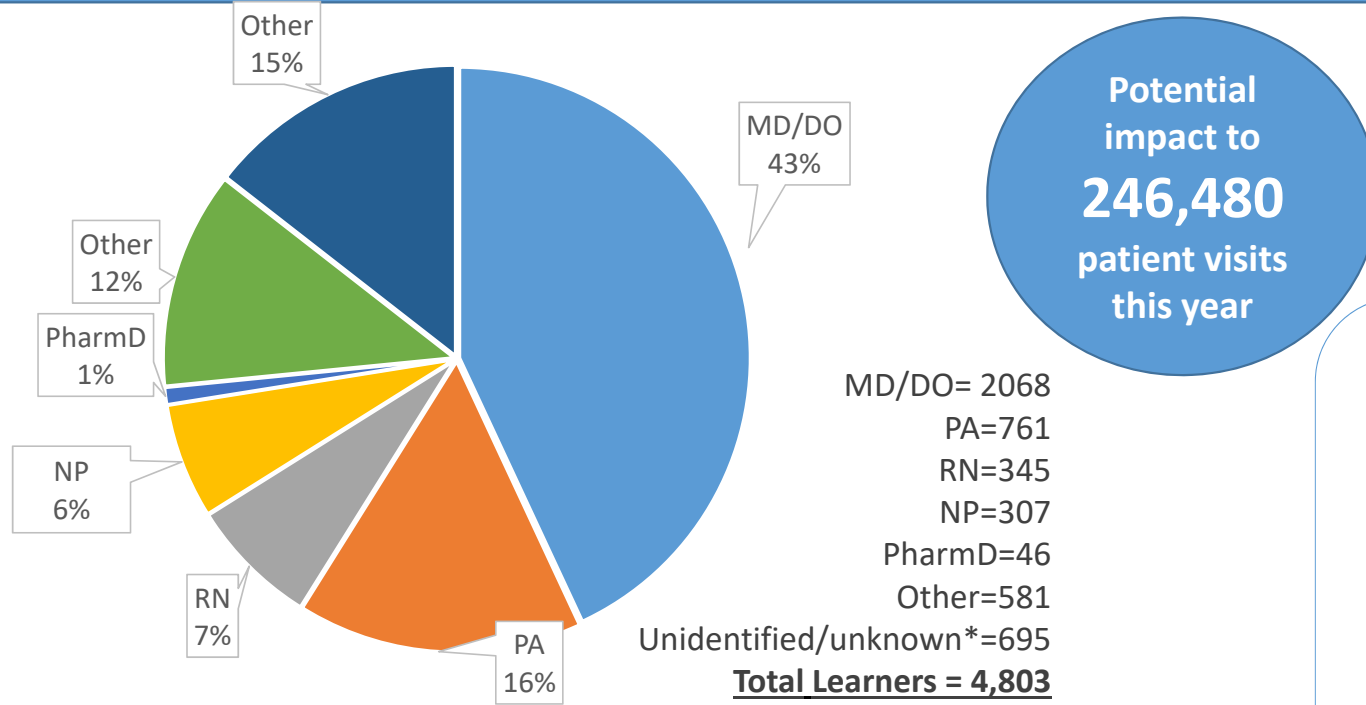
Search engine optimization on ReachMD and myCME platforms



Featured Industry Event Listing – CHESTDailyNews.org

Overall Program Impact

Final Outcomes Summary – Live Broadcasts and Online Enduring



“The presentation provided a concise review of the various cascades leading to inflammation and the various pharmacological therapies targeting each pathway.”

- Online enduring learner

4,803 total learners across entire program:

360 learners/completers in live broadcasts

4,443 learners in online enduring

Exceeded total guaranteed learners by 1,243!

Online Enduring Program

Final Outcomes Summary – Online Enduring Outcomes

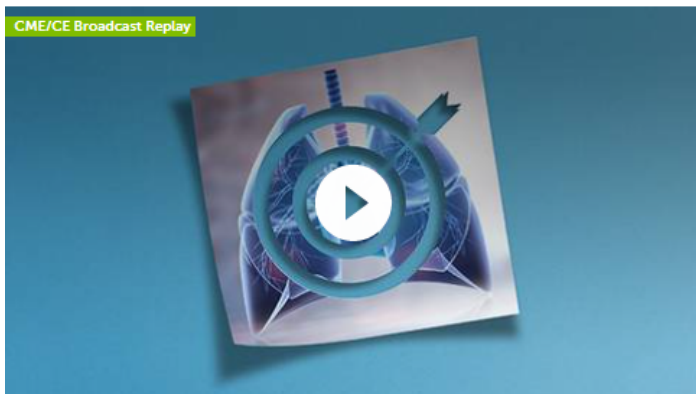


ReachMD

Launched 11/9/2021

Where are the New Targets in Severe Asthma? Looking Upstream in the Inflammatory Cascade

1.00 credits 1 hour Like Share Save



GET YOUR FREE CREDITS

Media formats available: Video Audio Podcast Transcript Transcript PDF

<https://reachmd.com/programs/cme/where-are-new-targets-severe-asthma-looking-upstream-inflammatory-cascade/12973/>

myCME

Launched 11/29/2021

Where are the New Targets in Severe Asthma? Looking Upstream in the Inflammatory Cascade

CME 1.00 Credit



Description Educational Objectives CME/CE Information Faculty and Disclosures Instructions

Webcast

Time to Complete: 60 minutes

Released: November 29, 2021

Expires: November 29, 2022

Maximum Credits:
1.00 / AMA PRA Category 1 Credit™

Start Activity

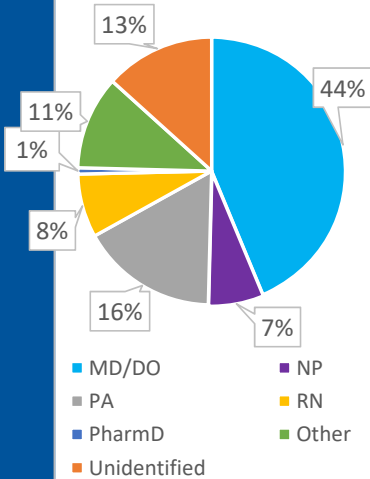
<https://www.mycme.com/courses/new-treatment-targets-in-severe-asthma-7964>

Educational Impact Summary

Final Outcomes Summary – Online Enduring Outcomes



Participation



MD/DO=1,943
 NP=296
 PA=735
 RN=342
 PharmD=34
 Other=502
 Unidentified*=591
Total Learners=4,443

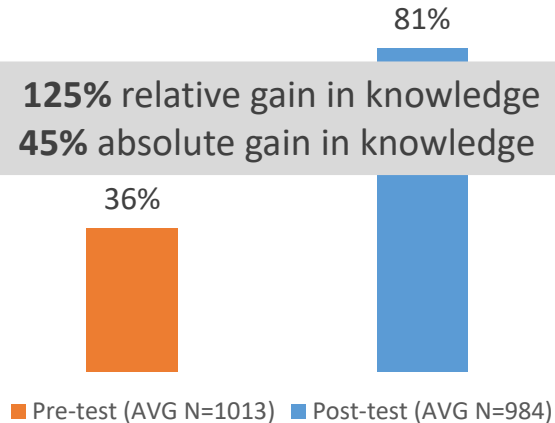
*Unidentified = viewed at least 2 pages of the activity on myCME but did not proceed further for the platform to collect demographic information.

Learner Guarantee	Learner Actuals
3,350	4,443

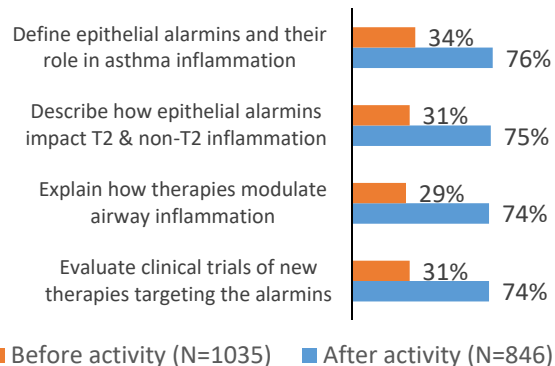
Exceeded learner guarantee by over 1,000 learners!

Potential Impact To 241,644 Patient Visits This Year

125% relative gain in knowledge
45% absolute gain in knowledge



Confidence Gain by Objective



Evaluation

N=846

Met their educational needs **(94%)**



Reinforced or improved current skills **(92%)**



Improved ability to treat patients **(92%)**

84%

N=820

Evaluation respondents intend to make changes to practice as a result of the activity

Educational Impact Summary

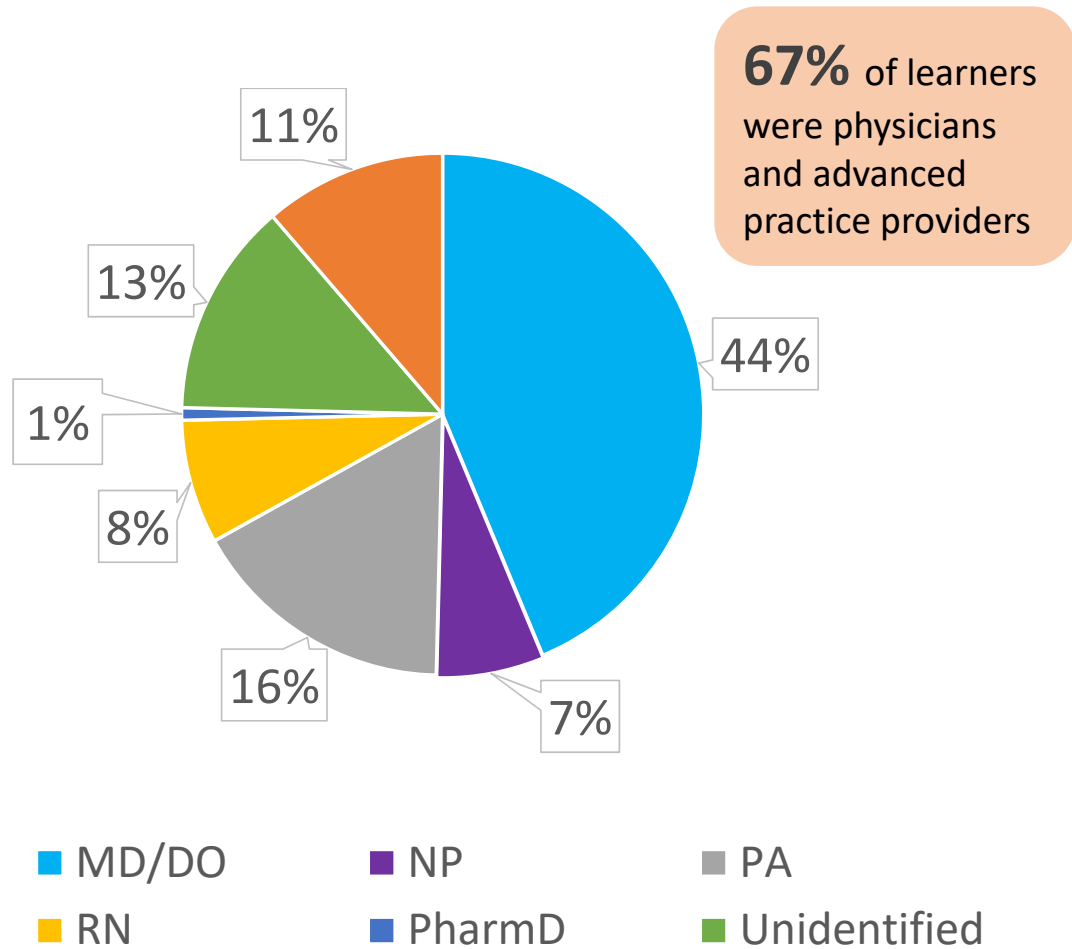
Final Outcomes Summary – Online Enduring Outcomes



Patient Impact	Educational Impact	Practice Change
<p>842 evaluation respondents</p>	<p>132% relative knowledge gain seen from learners in defining the epithelial alarmins and their pivotal role in asthma inflammation (N=990)</p>	<p>Top intended practice changes:</p> <ul style="list-style-type: none">• Improve patient evaluation and consider inflammation type• Use new knowledge and awareness to improve patient care• Incorporate novel therapies
<p>Who see 4,647 severe asthma patients weekly</p>	<p>181% relative knowledge gain in describing how the epithelial alarmins impact T2 and non-T2 downstream inflammation in asthma (N=984)</p>	<p>71% indicated the activity addressed strategies for overcoming barriers to optimal patient care (N=842)</p>
<p>Which translates to 241,644 potential patient visits annually</p>	<p>133% relative knowledge gain seen from learners in explaining how therapies, such as anti-TSLP, would be expected to modulate airway inflammation in patients with either a T2-high or T2-low phenotype (N=982)</p>	<p>142% relative gain in confidence across learning objectives (N=846)</p>

Level (1) Outcomes: Participation (Degree)

Final Outcomes Summary – Online Enduring Outcomes

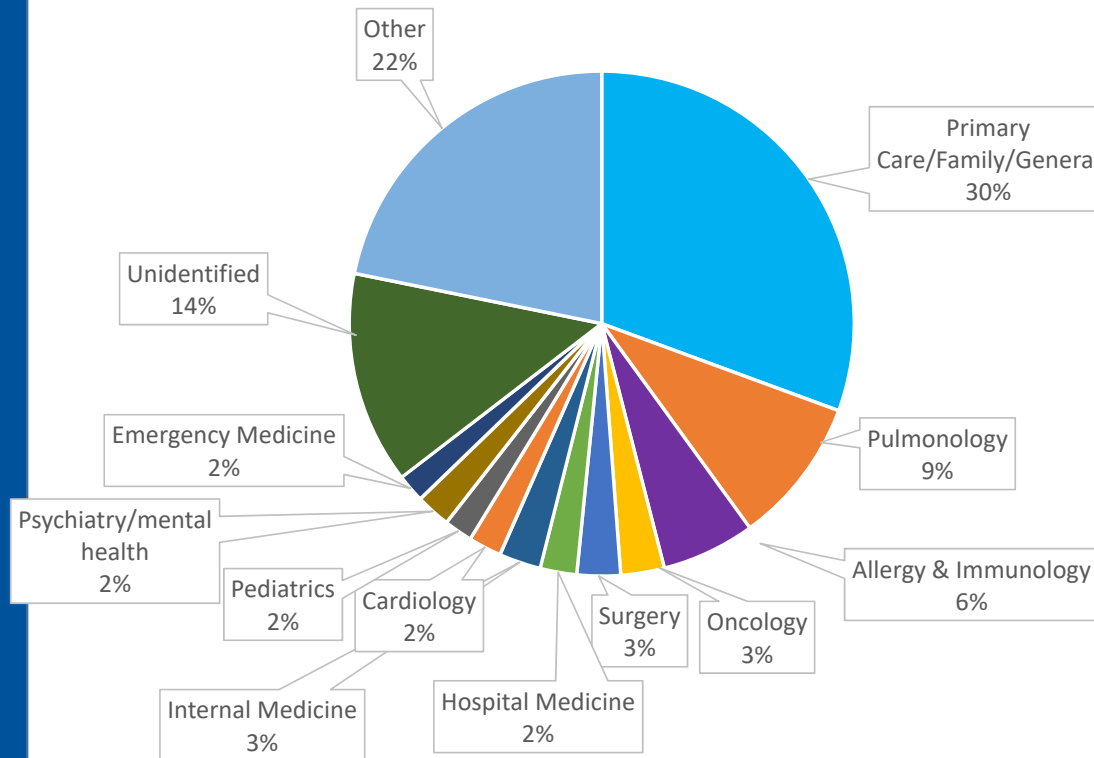


Degree	Total
MD/DO	1,943
NP	296
PA	735
RN	342
PharmD	34
Other (student, dentist, consumer/patient)	502
Unidentified*	591
TOTAL LEARNERS	4,443

*Unidentified learners are clinicians who view at least two pages of the enduring activity on myCME but do not proceed further for the platform to collect their demographic information.

Level (1) Outcomes: Participation (Specialty)

Final Outcomes Summary – Online Enduring Outcomes



**Unidentified learners are clinicians who view at least two pages of the enduring activity on myCME but do not proceed further for the platform to collect their demographic information.*

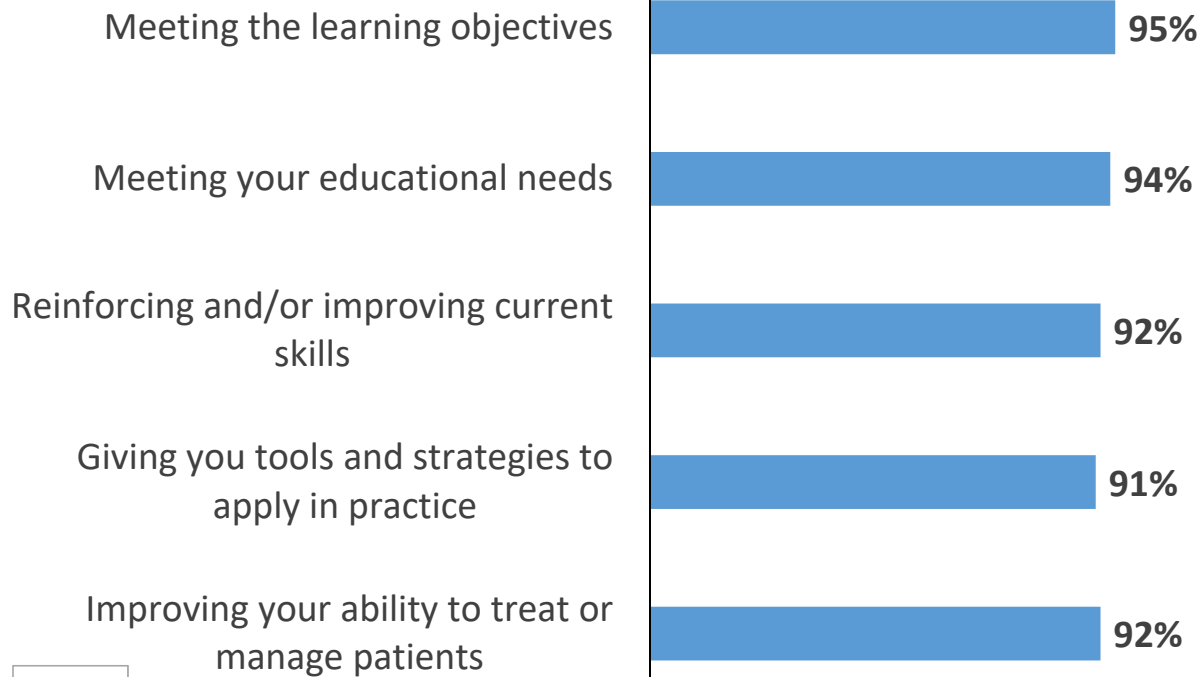
Specialty	Total
Primary Care/Family/ General	1,360
Pulmonology	418
Allergy & Immunology	266
Oncology	124
Surgery	124
Hospital Medicine	104
Internal Medicine	119
Psychiatry/mental health	99
Cardiology	94
Pediatrics	81
Emergency Medicine	80
Unidentified*	605
Other (Radiology, critical care, infectious disease, otolaryngology, and specialty not reported)	969
TOTAL LEARNERS	4,443

Level (2) Outcomes: Satisfaction

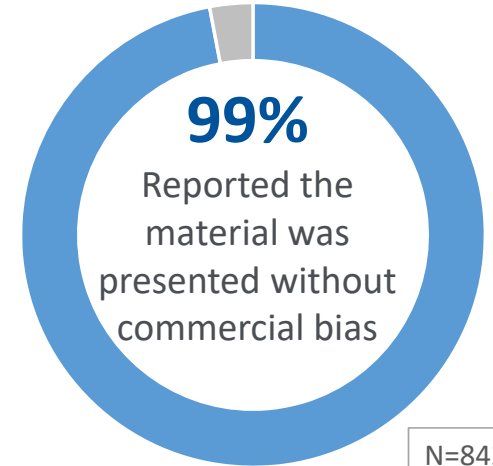
Final Outcomes Summary – Online Enduring Outcomes



Evaluation respondents report the activity was “Excellent” to “Good” at:



N=846



N=842



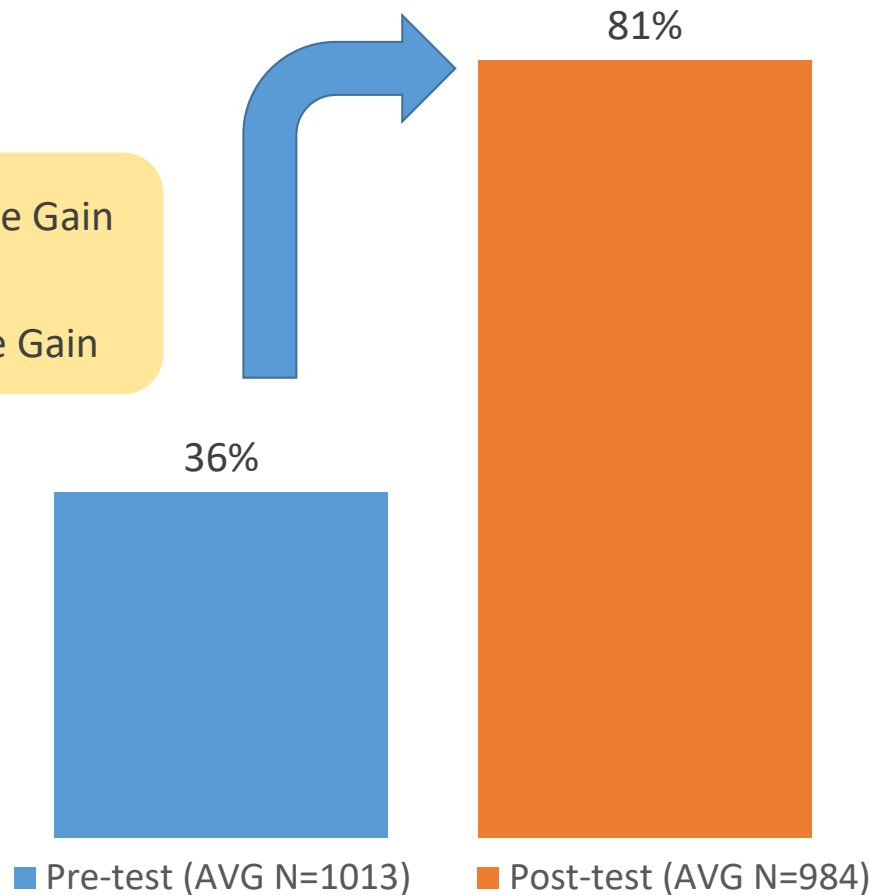
Level (3 & 4) Outcomes: Knowledge & Competence

Final Outcomes Summary – Online Enduring Outcomes



Overall Knowledge Gain across Learning Objectives

125% Relative Knowledge Gain
45% Absolute Knowledge Gain

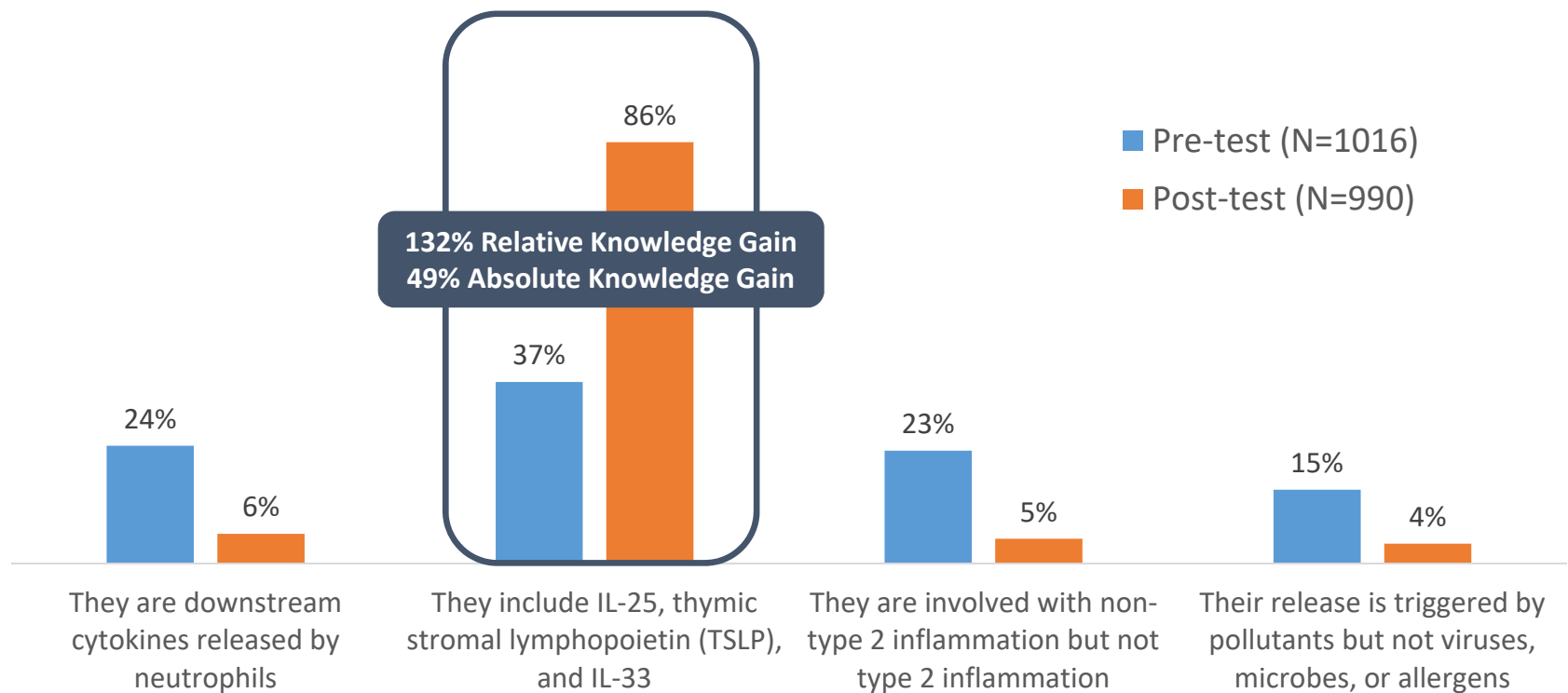


Level (3 & 4) Outcomes: Knowledge & Competence

Final Outcomes Summary – Online Enduring Outcomes

Learning Objective: Define the epithelial alarmins and their pivotal role in inflammation in asthma

Question 1: Which one of these statements is true of epithelial alarmins?

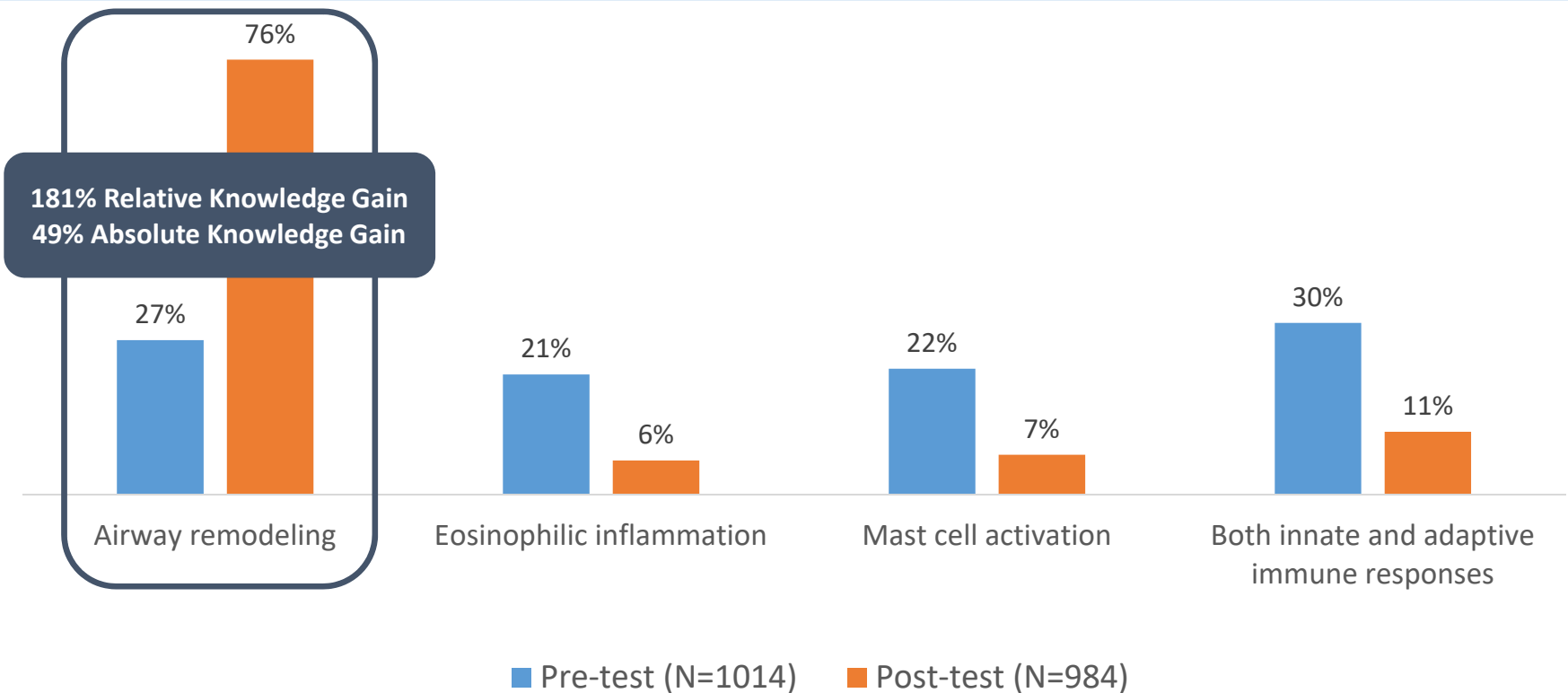


Level (3 & 4) Outcomes: Knowledge & Competence

Final Outcomes Summary – Online Enduring Outcomes

Learning Objective: *Describe how the epithelial alarmins impact both T2 and non-T2 downstream inflammation in asthma*

Question 2: Alarmins have been shown to mediate all of the following except:



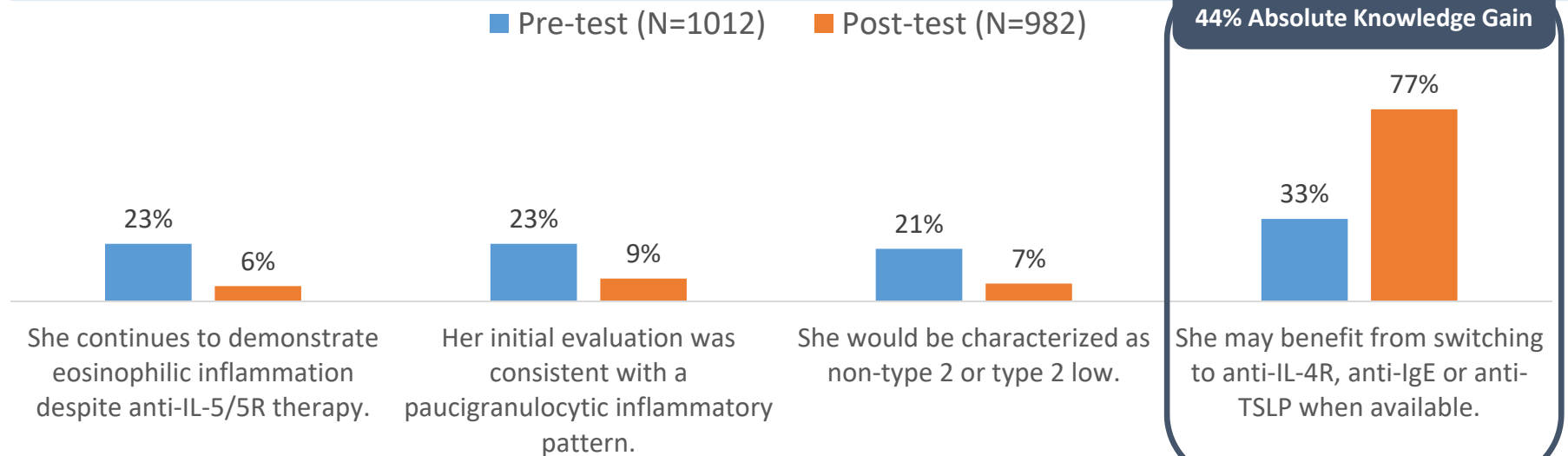
Level (3 & 4) Outcomes: Knowledge & Competence



Final Outcomes Summary – Online Enduring Outcomes

Learning Objective: *Explain how therapies, such as anti-TSLP, would be expected to modulate airway inflammation in patients with either a T2-high or T2-low phenotype*

Question 3: Ms. P is a 58 year old woman with a history of severe uncontrolled asthma. She has had 5 exacerbations in the last year requiring OCS bursts. She notes triggers of environmental allergens, upper respiratory infections, and cigarette smoke. Her evaluation reveals elevated FeNO of 51 ppb, elevated absolute eosinophil count of 400 cells/mcL, and BAL with high neutrophils (60%) and eosinophils (7%). She is started on an anti-IL-5/5R biologic and repeat evaluation reveals FeNO 48 ppb, absolute eosinophil count of 0, and sputum cell count with 50% neutrophils and 1% eosinophils. She has clinically improved but is still having 3 exacerbations per year requiring OCS bursts. Which of these apply to Ms. P?

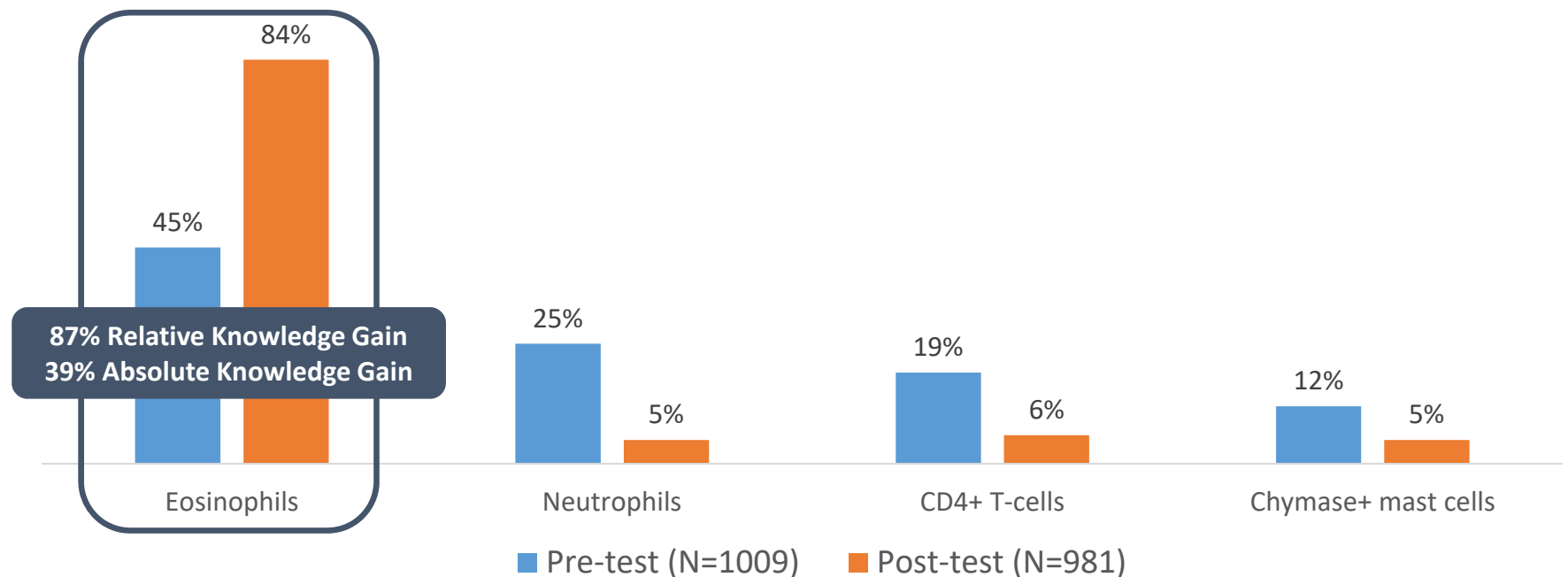


Level (3 & 4) Outcomes: Knowledge & Competence

Final Outcomes Summary – Online Enduring Outcomes

Learning Objective: *Evaluate the results of clinical trials of novel therapies that target the epithelial alarmins*

Question 4: Which of the following airway submucosal inflammatory cells have been shown to be reduced in bronchoscopic biopsies following anti-TSLP therapy?

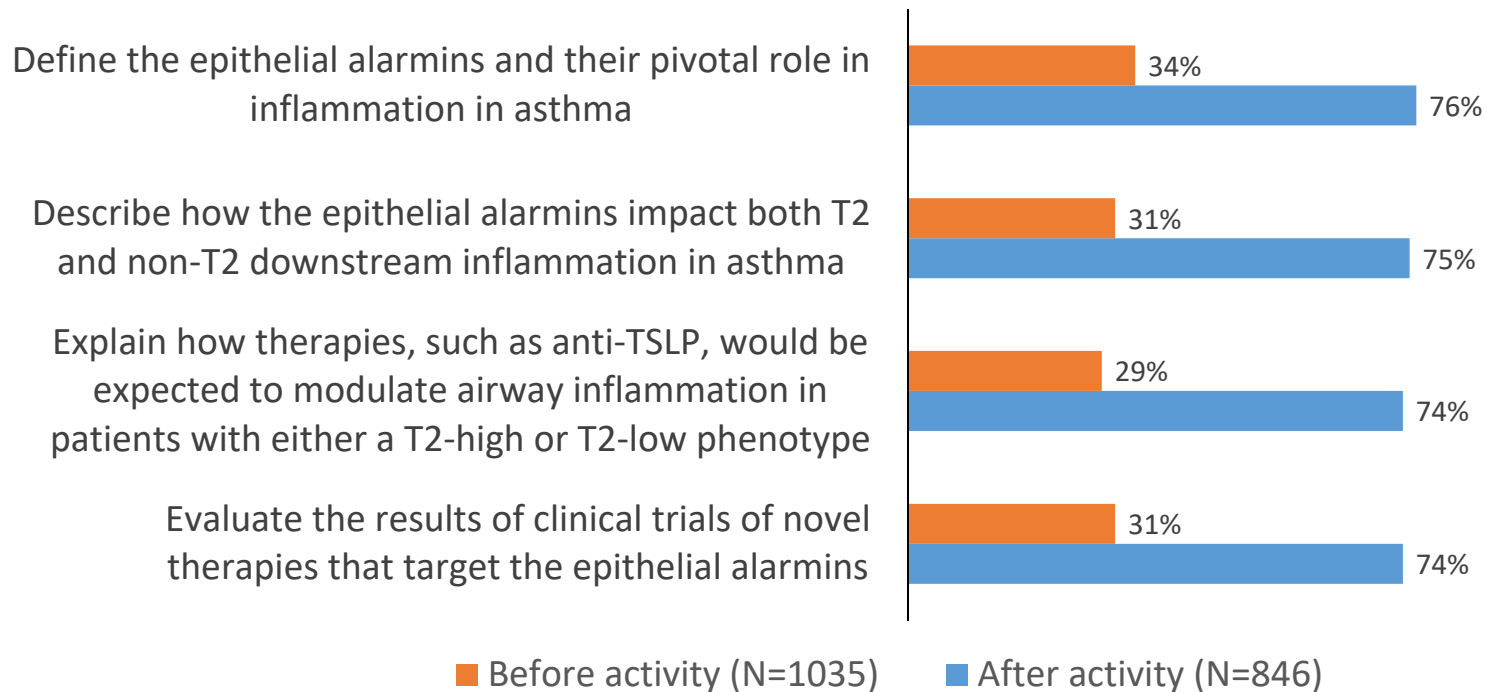


Level (4) Outcomes: Competence

Final Outcomes Summary – Online Enduring Outcomes

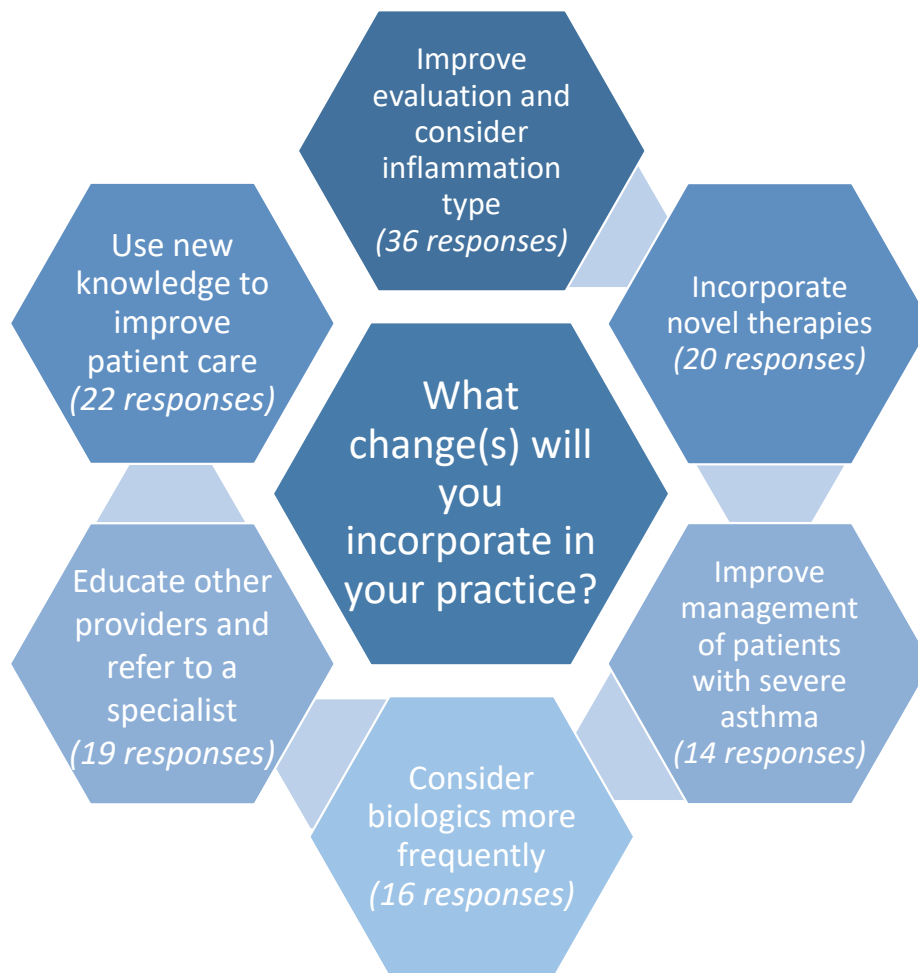


Evaluation respondents reported their confidence as it relates to the learning objectives before and after the activity
(Very confident – confident)



Level (4) Outcomes: Competence

Final Outcomes Summary – Online Enduring Outcomes



N=127

84%

N=820

Evaluation respondents intend to make changes in practice as a result of the activity

Evaluation Survey Results

Final Outcomes Summary – Online Enduring Outcomes



What barriers will the education provided help to address?

- Access to care
- Accurate diagnosis
- Understanding use of newer therapies
- Complexity of asthma therapy
- Considering different strategies
- Patient education and communication

What barriers to optimal patient care are you facing that were not addressed in this activity?

- Cost of biologics
- Insurance coverage
- Availability of medication
- Patient compliance

71%

N=842

Evaluation respondents indicated the activity addressed strategies for overcoming barriers to optimal patient care



Evaluation Survey Results

Final Outcomes Summary – Online Enduring Outcomes



Key Takeaways

- Advances in treatment of severe asthma
- The inflammatory cascade of asthma and the role of epithelial alarmins
- Epithelial alarmins impact both T2 and non-T2 downstream inflammation in asthma
- Pathophysiology of asthma
- Better classification of asthma type to guide therapy
- Better evaluation of non-T2 asthma
- Complexity of asthma treatment
- Targets for asthma treatment
- Strategies for improved management of severe asthma
- Importance of thorough evaluation
- Importance of biologics in the treatment of asthma
- New options for poorly controlled asthma



Future Topics

- Dosage of biologics
- Asthma phenotypes
- Emerging treatment options
- Asthma in pregnancy
- Treatment of acute exacerbations
- Disparities in asthma
- Biologics in the pipeline
- More patient cases

“Excellent presentation. The graphics made the different pathways much easier to understand.”

– Online enduring learner

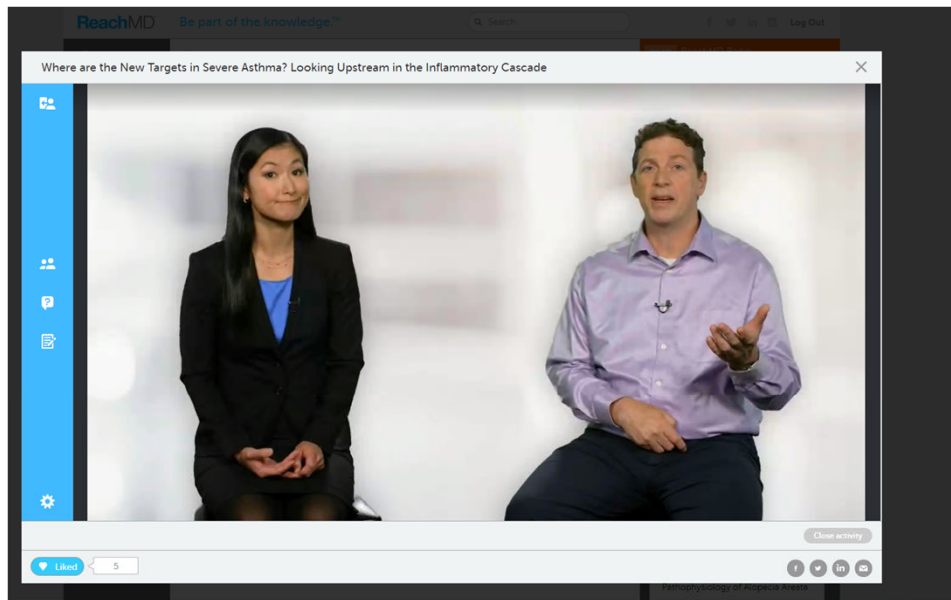
Live Broadcasts

Final Outcomes Summary – Live Broadcasts



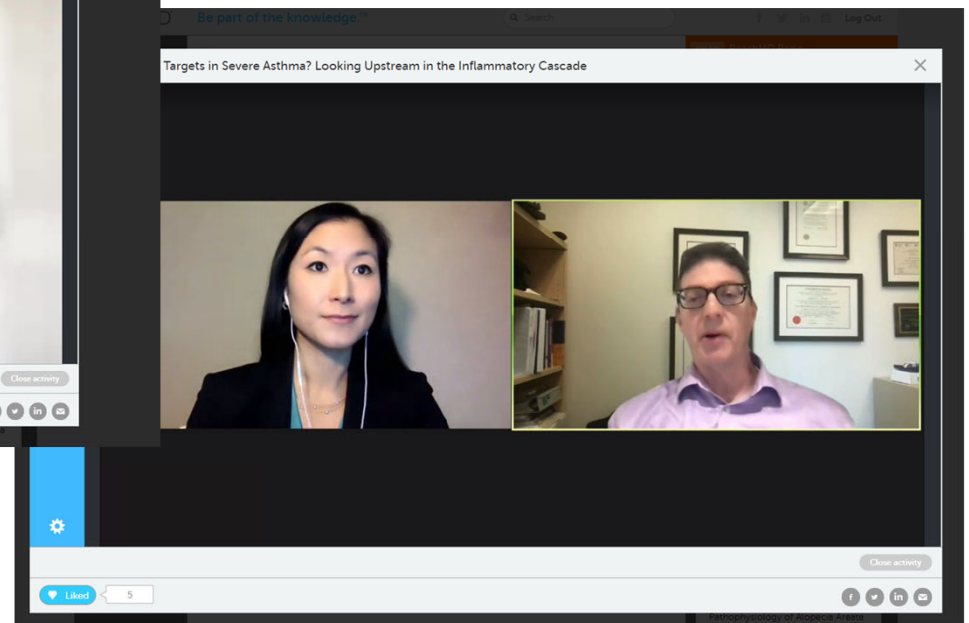
CHEST 2021 Broadcast

October 17, 2021



ReachMD Broadcast

November 2, 2021

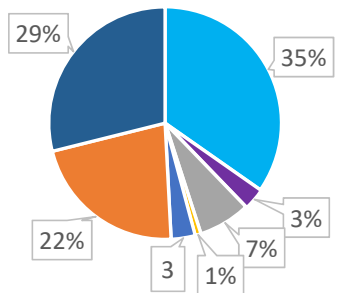


Educational Impact Summary

Final Outcomes Summary – Live Broadcasts



Participation

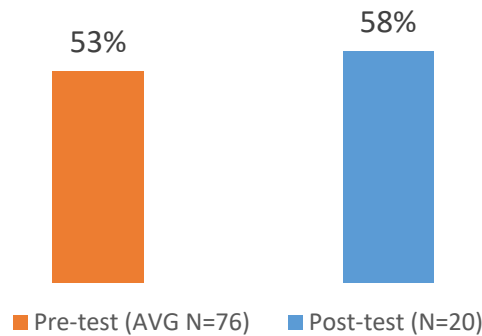


MD/DO=125
 NP=11
 PA=26
 RN=3
 PharmD=12
 Other=79
 Unknown*=104
Total Learners=360

*Unknown = attended ReachMD broadcast via Facebook. Learner data not collected.

■ MD/DO ■ NP ■ PA
 ■ RN ■ PharmD ■ Other

9% relative gain in knowledge
 5% absolute gain in knowledge



Evaluation

Met their educational needs **(96%)**



Reinforced or improved current skills **(100%)**

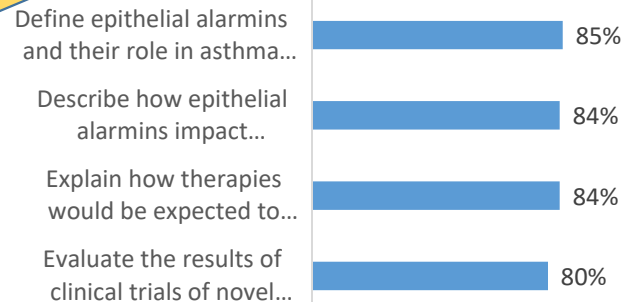


Improved ability to treat patients **(91%)**

Live Broadcast	Learner Guarantee	Learner Actuals
CHEST 2021	60	89
ReachMD	150	271

Exceeded learner guarantees by 150!

Learner Confidence Post-Activity



N=23

Potential Impact To **4,836** Patient Visits This Year

93%

N=16

Evaluation respondents intend to make changes to practice as a result of the activity

Educational Impact Summary

Final Outcomes Summary – Live Broadcasts



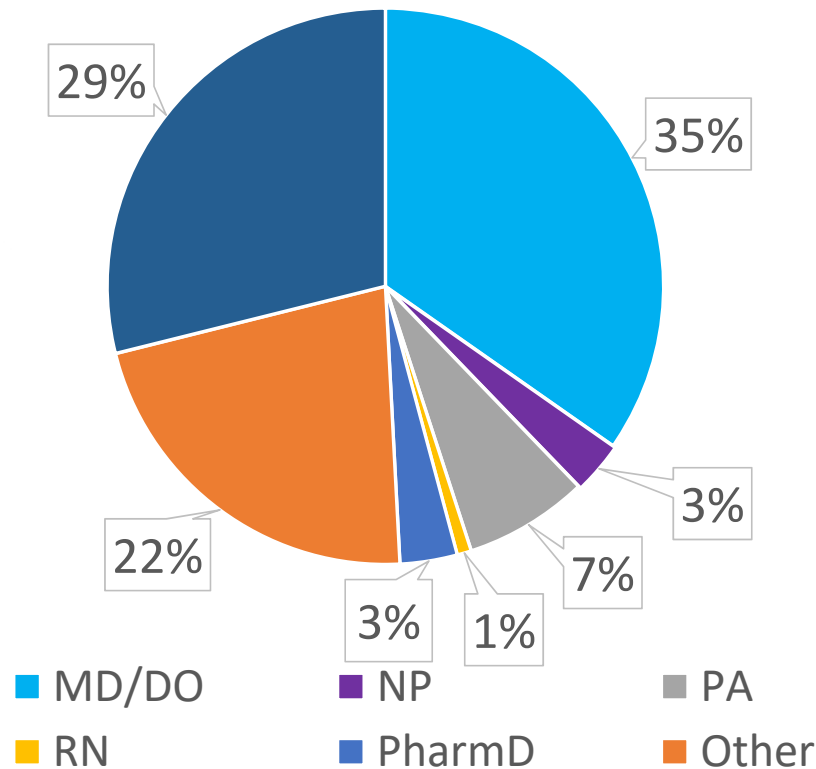
Patient Impact	Educational Impact	Practice Change
<p>23 evaluation respondents</p>	<p>50% relative knowledge gain seen from learners in defining the epithelial alarmins and their pivotal role in asthma inflammation (N=20)</p>	<p>93% intend to make changes in practice as a result of what they learned (N=16)</p>
<p>Who see 93 severe asthma patients weekly</p>	<p>30% relative knowledge gain seen from learners in explaining how therapies, such as anti-TSLP, would be expected to modulate airway inflammation in patients with either a T2-high or T2-low phenotype (N=20)</p>	<p>95% indicated the activity gave tools and strategies to apply in practice (N=23)</p>
<p>Which translates to 4,836 potential patient visits annually</p>	<p>83% of evaluation respondents demonstrated confidence with regard to the learning objectives post-activity (N=20)</p>	<p>65% indicated the activity addressed barriers to optimal patient care (N=23)</p>

Level (1) Outcomes: Participation (Degree)

Final Outcomes Summary – Live Broadcasts



CHEST 2021 and ReachMD Broadcasts



Degree	Total
MD/DO	125
NP	11
PA	26
RN	3
PharmD	12
Other	79
Unknown*	104
TOTAL	360

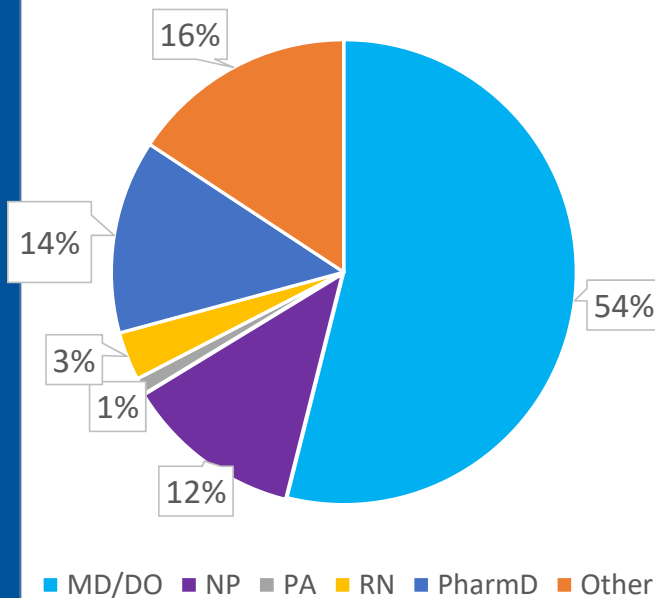
*Unknown = attended ReachMD broadcast via Facebook. Learner data not collected.

Level (1) Outcomes: Participation by Broadcast (Degree)

Final Outcomes Summary – Live Broadcasts



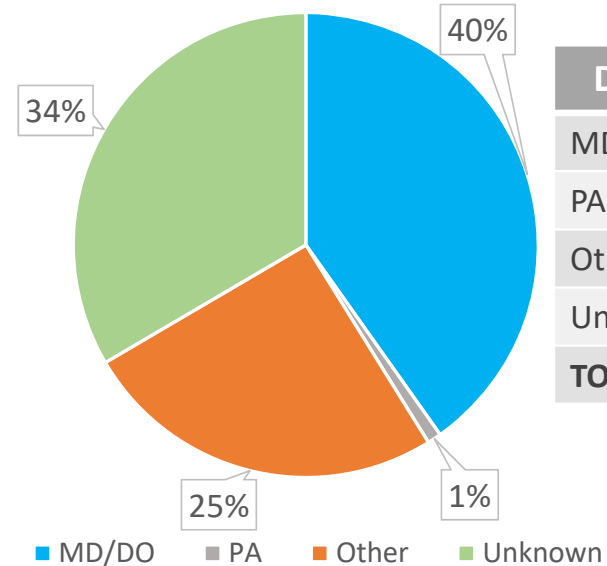
CHEST 2021 Broadcast



67% of learners at the CHEST 2021 Broadcast were physicians and advanced practice providers

Degree	Total
MD/DO	48
NP	11
PA	1
RN	3
PharmD	12
Other	14
TOTAL	89

ReachMD Broadcast



Degree	Total
MD/DO	77
PA	25
Other	65
Unknown*	104
TOTAL	271

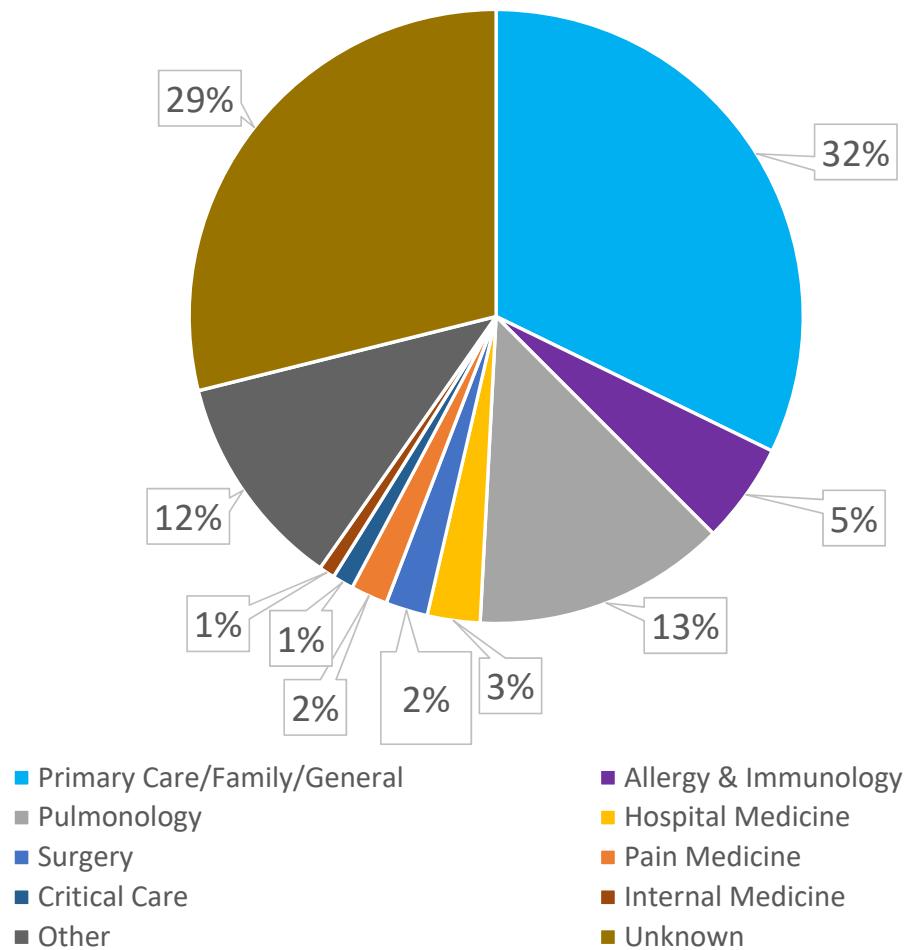
*Unknown = attended ReachMD broadcast via Facebook. Learner data not collected.

Level (1) Outcomes: Participation (Specialty)

Final Outcomes Summary – Live Broadcasts



CHEST 2021 and ReachMD Broadcasts



Specialty	Total
Primary Care/Family/ General	116
Pulmonology	48
Allergy & Immunology	19
Hospital Medicine	10
Surgery	8
Pain Medicine	7
Critical Care	4
Internal Medicine	3
Other (Pediatrics, radiology, infectious disease, emergency)	41
Unknown*	104
TOTAL	360

*Unknown = attended ReachMD broadcast via Facebook. Learner data not collected.

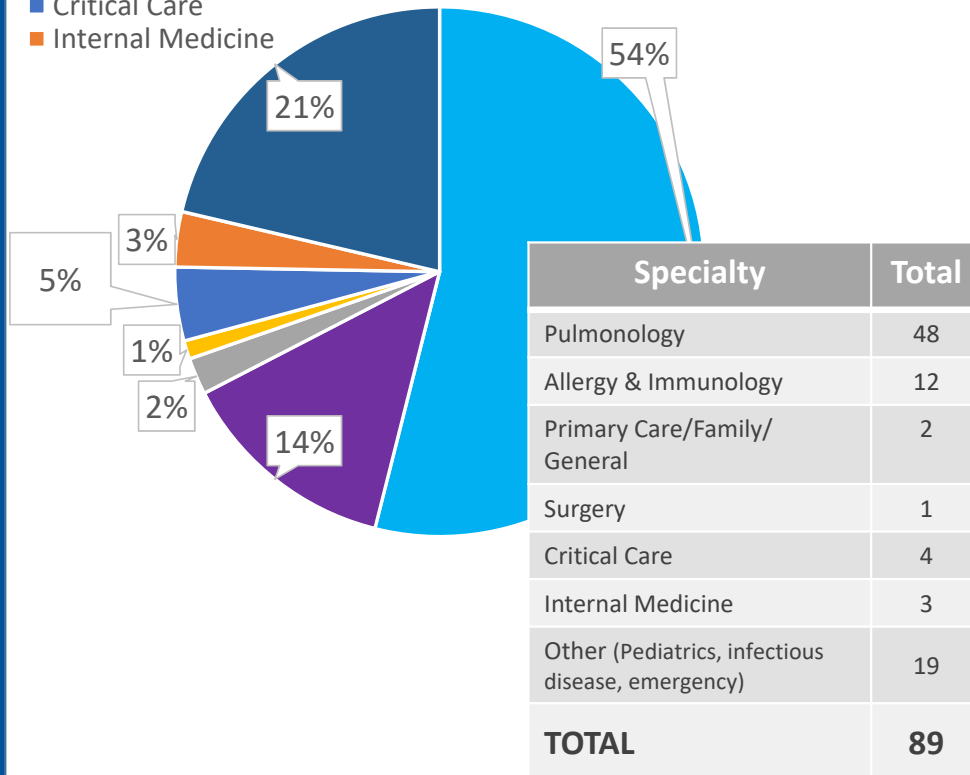
Level (1) Outcomes: Participation by Broadcast (Specialty)

Final Outcomes Summary – Live Broadcasts

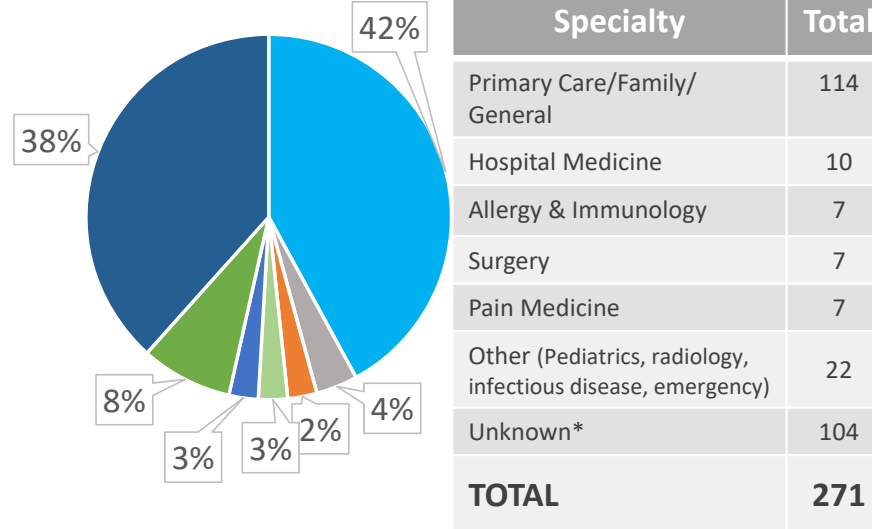


CHEST 2021 Broadcast

- Pulmonology
- Allergy & Immunology
- Primary Care
- Surgery
- Critical Care
- Internal Medicine



ReachMD Broadcast



- Primary Care
- Allergy & Immunology
- Pain Medicine
- Hospital Medicine
- Surgery
- Other

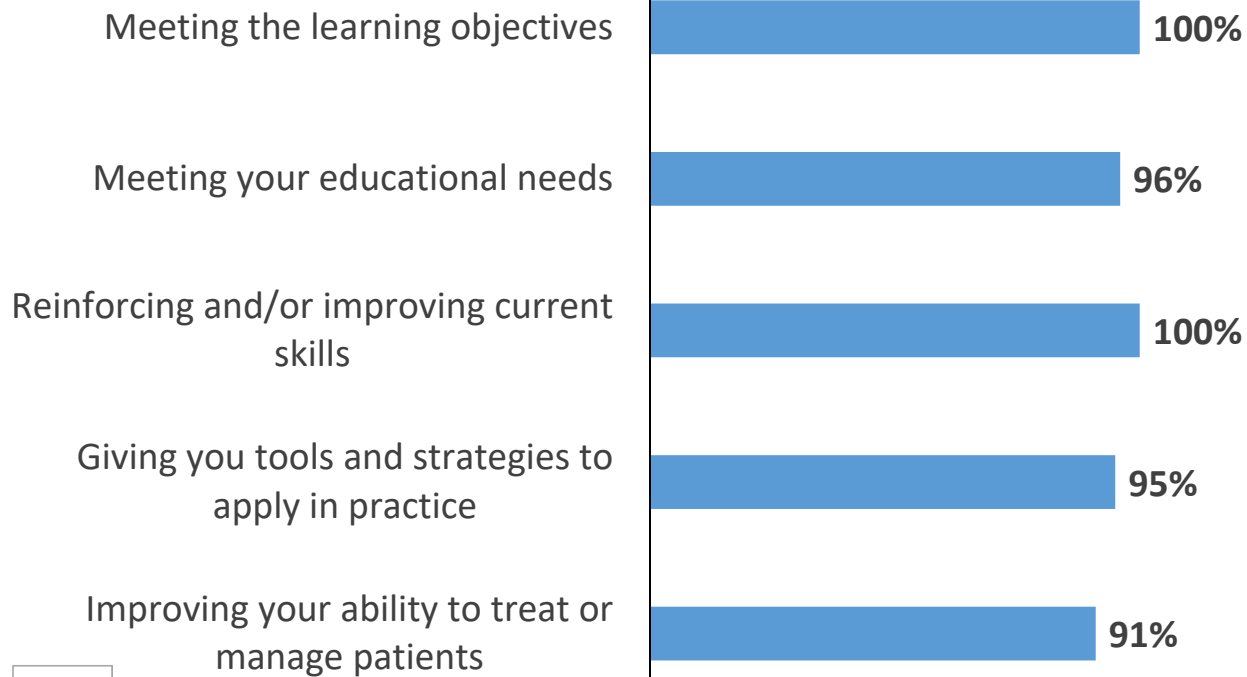
*Unknown = attended ReachMD broadcast via Facebook. Learner data not collected.

Level (2) Outcomes: Satisfaction

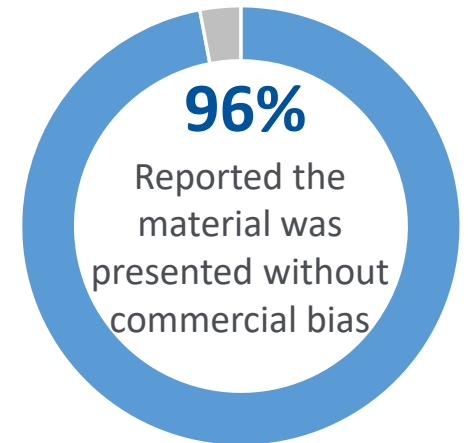
Final Outcomes Summary – Live Broadcasts



Participants report the activity was “Excellent” to “Good” at:



N=23

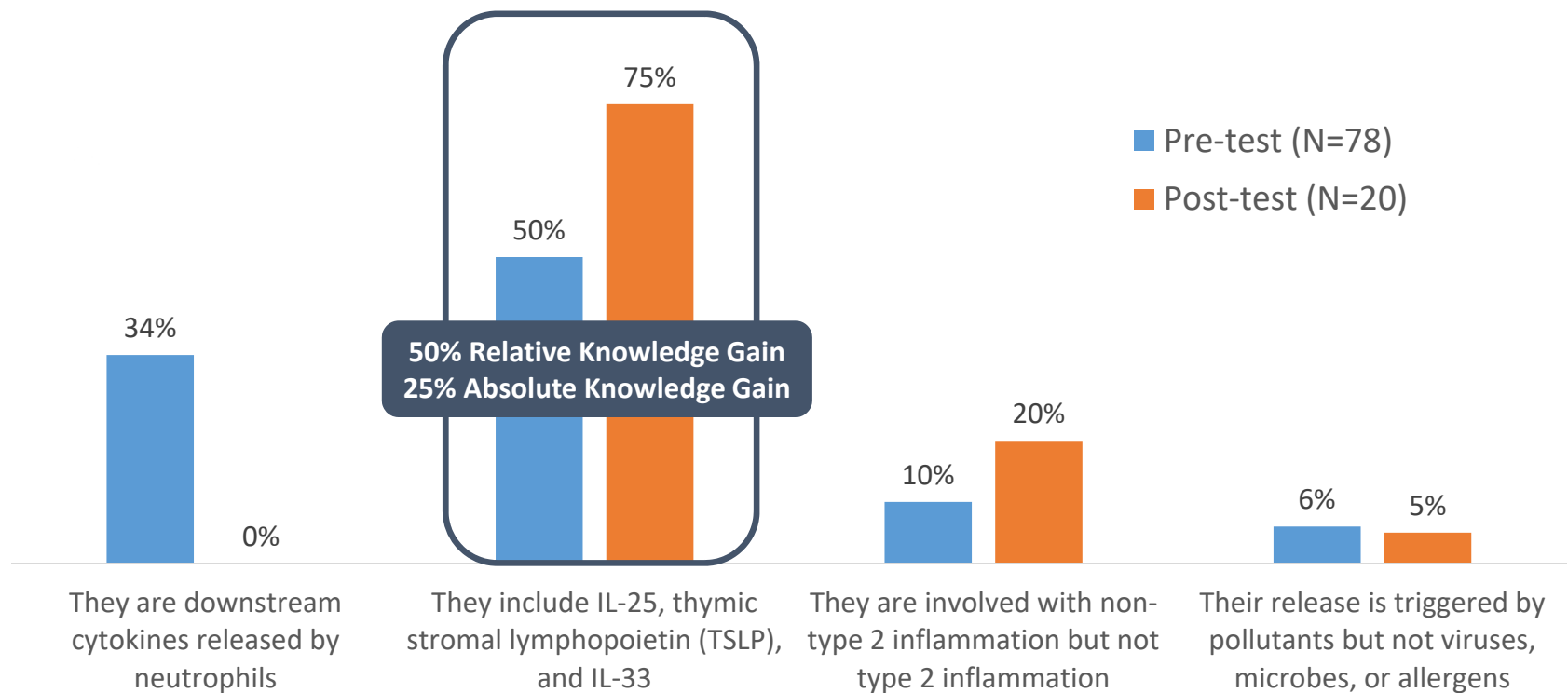


Level (3 & 4) Outcomes: Knowledge & Competence

Final Outcomes Summary – Live Broadcasts

Learning Objective: *Define the epithelial alarmins and their pivotal role in inflammation in asthma*

Question 1: Which one of these statements is true of epithelial alarmins?

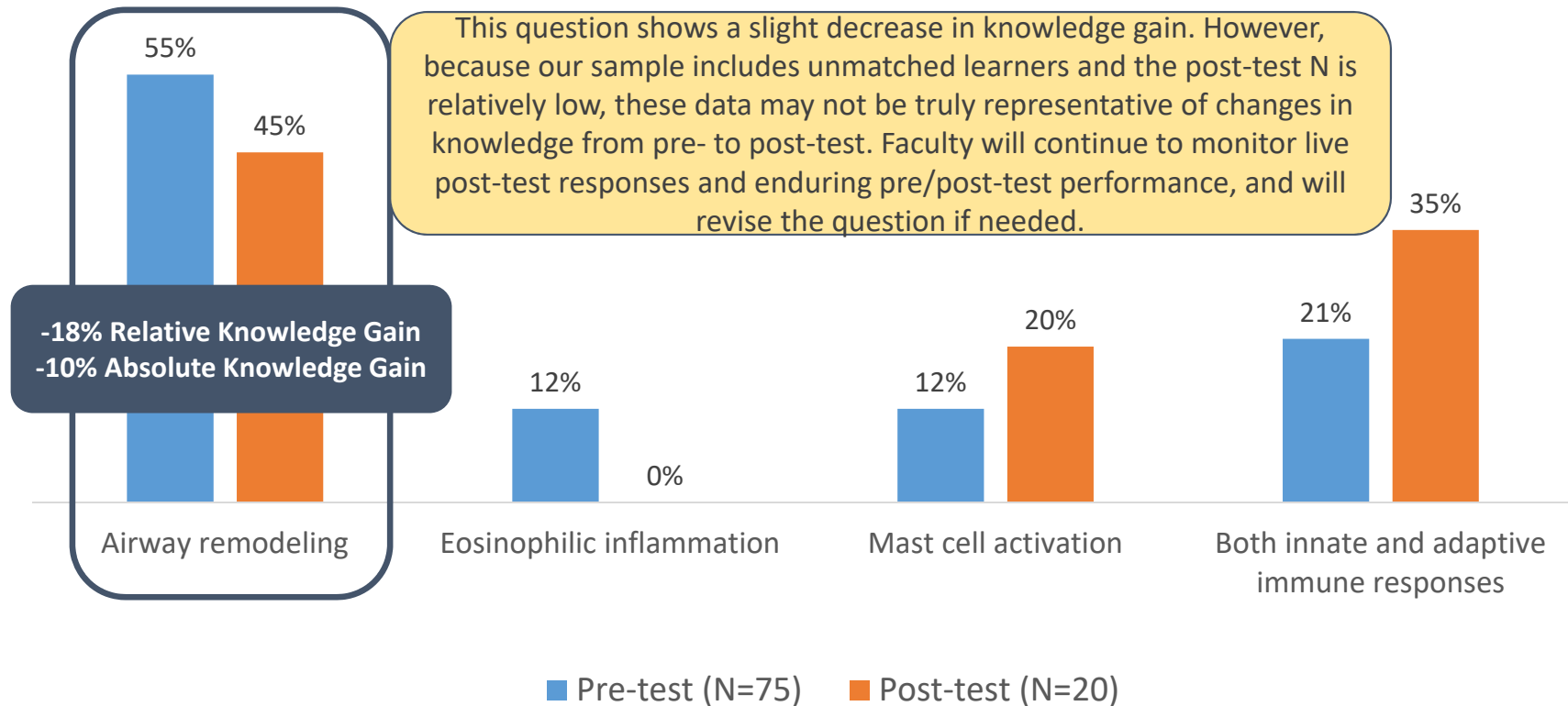


Level (3 & 4) Outcomes: Knowledge & Competence

Final Outcomes Summary – Live Broadcasts

Learning Objective: *Describe how the epithelial alarmins impact both T2 and non-T2 downstream inflammation in asthma*

Question 2: Alarmins have been shown to mediate all of the following except:



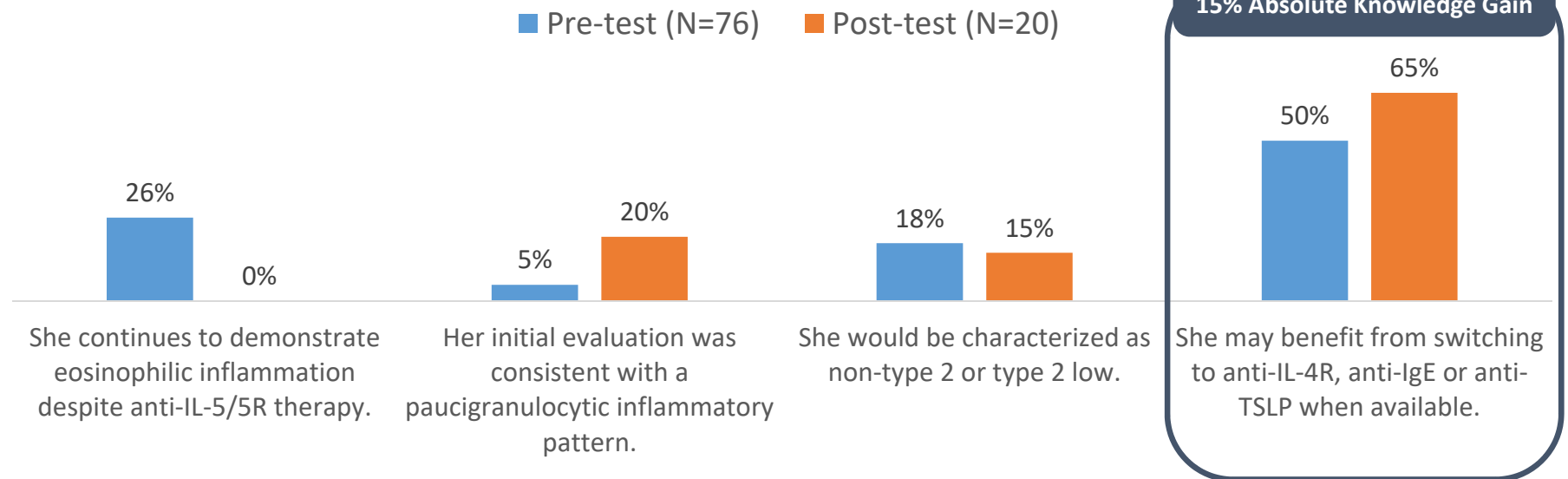
Level (3 & 4) Outcomes: Knowledge & Competence



Final Outcomes Summary – Live Broadcasts

Learning Objective: *Explain how therapies, such as anti-TSLP, would be expected to modulate airway inflammation in patients with either a T2-high or T2-low phenotype*

Question 3: Ms. P is a 58 year old woman with a history of severe uncontrolled asthma. She has had 5 exacerbations in the last year requiring OCS bursts. She notes triggers of environmental allergens, upper respiratory infections, and cigarette smoke. Her evaluation reveals elevated FeNO of 51 ppb, elevated absolute eosinophil count of 400 cells/mcL, and BAL with high neutrophils (60%) and eosinophils (7%). She is started on an anti-IL-5/5R biologic and repeat evaluation reveals FeNO 48 ppb, absolute eosinophil count of 0, and sputum cell count with 50% neutrophils and 1% eosinophils. She has clinically improved but is still having 3 exacerbations per year requiring OCS bursts. Which of these apply to Ms. P?

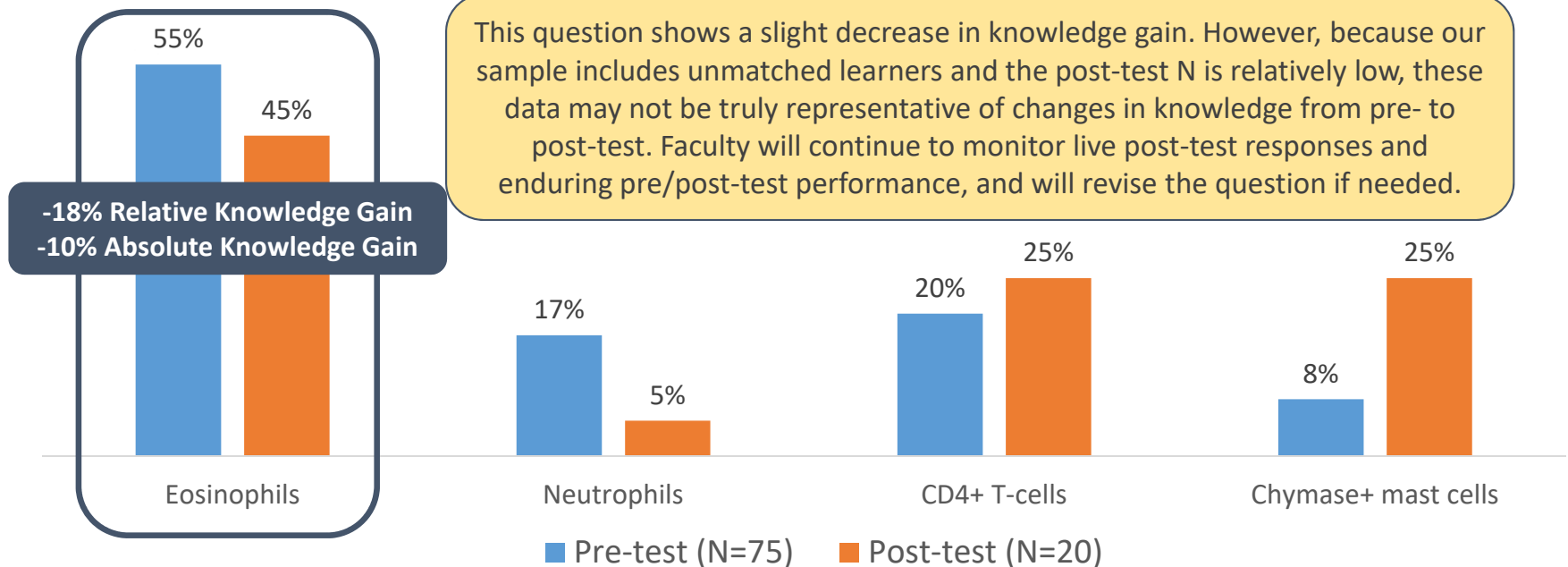


Level (3 & 4) Outcomes: Knowledge & Competence

Final Outcomes Summary – Live Broadcasts

Learning Objective: *Evaluate the results of clinical trials of novel therapies that target the epithelial alarmins*

Question 4: Which of the following airway submucosal inflammatory cells have been shown to be reduced in bronchoscopic biopsies following anti-TSLP therapy?



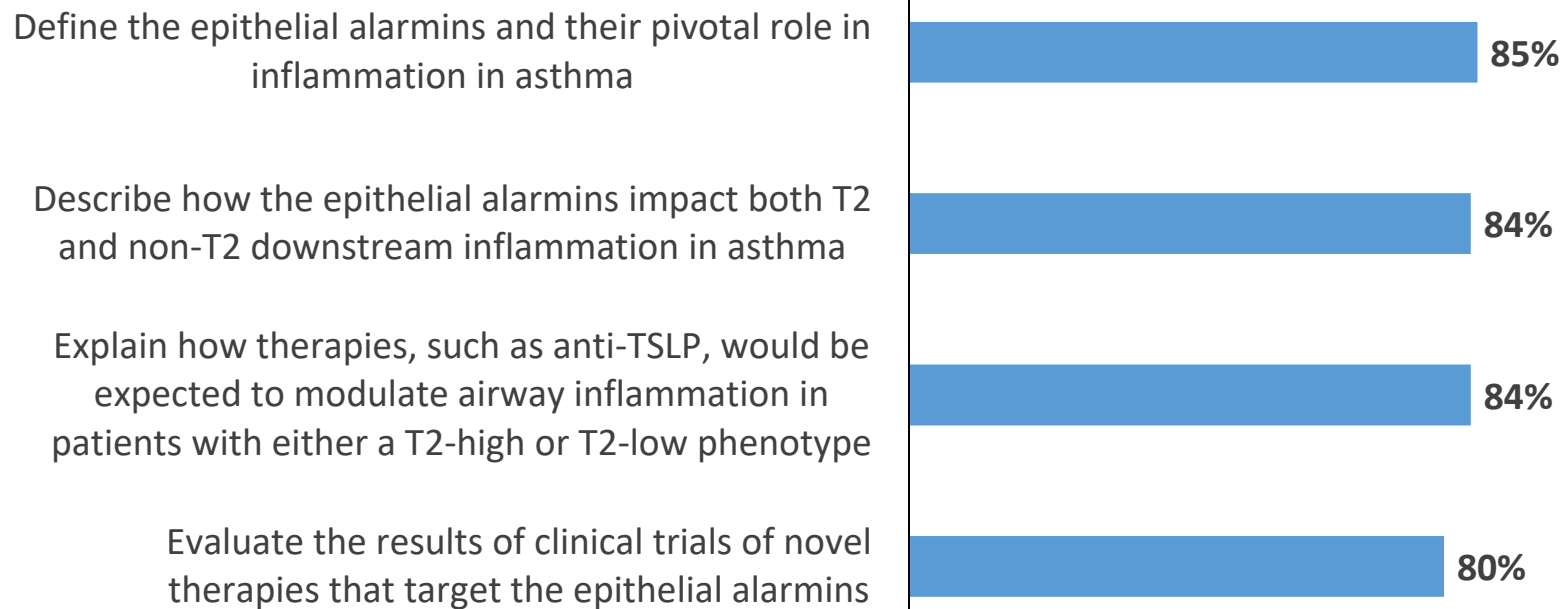
Level (4) Outcomes: Competence

Final Outcomes Summary – Live Broadcasts



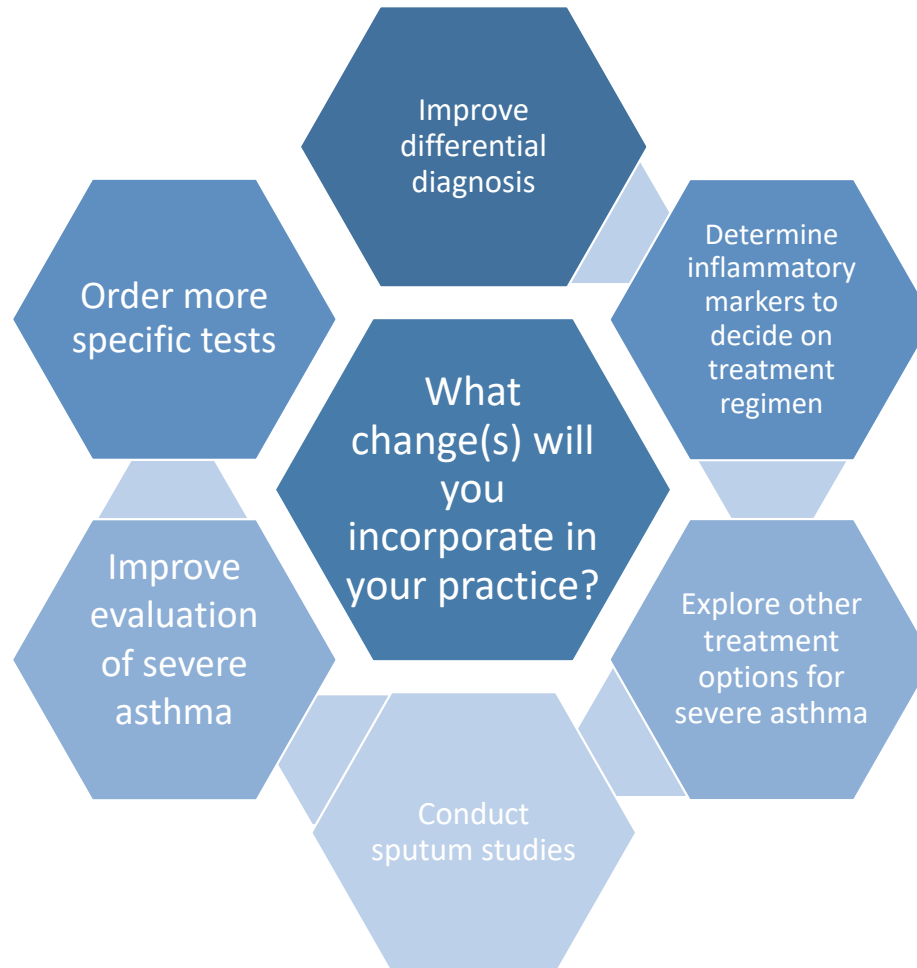
N=23

**Learners reported their confidence as it relates to the learning objectives after the activity
(Very confident – confident)**



Level (4) Outcomes: Competence

Final Outcomes Summary – Live Broadcasts



93%

N=16

Evaluation respondents intend to make changes in practice as a result of the activity

Evaluation Survey Results

Final Outcomes Summary – Live Broadcasts



What barriers will the education provided help to address?

- Knowledge deficit
- Lab tests and procedures
- Current evaluation and treatment

What barriers to optimal patient care are you facing that were not addressed in this activity?

- Affordability of new treatment options
- Availability of testing
- Insurance coverage for medication and testing
- Access to pulmonary specialists

65%

N=23

Evaluation respondents indicated the activity addressed strategies for overcoming barriers to optimal patient care



Evaluation Survey Results

Final Outcomes Summary – Live Broadcasts



Key Takeaways

- The importance of phenotyping patients with severe asthma
- Biologics are changing the face of asthma
- TSLP is a highly relevant player in the inflammatory cascade
- Extensive testing may be necessary to formulate appropriate treatment plans
- Newer therapies targeting epithelial alarmins are available for severe asthma



Future Topics

- Treatment of elderly patients with lifelong asthma
- How to change asthma therapy
- Information about biologics
- Differences between biologics

Accreditation Details

Final Outcomes Summary – Live Broadcasts and Online Enduring

National Jewish Health is accredited with Commendation by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. The NJH Office of Professional Education produced and accredited this program and adhered to the updated ACCME guidelines.

NJH designates each live activity for a maximum of 1.0 *AMA PRA Category 1 Credit™*.

NJH designates the enduring material for a maximum of 1.0 *AMA PRA Category 1 Credit™*.

