Differential Diagnosis and Treatment selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Final Live and Online Activity Outcomes Report

This educational activity was supported by a grant from GlaxoSmithKline

BEST HOSPITALS U.S.News PULMONOLOGY & LUNG SURGERY 2019-20

#1 in Respiratory Care

National Jewish Health®

Breathing Science is Life.®

Differential Diagnosis and Treatment selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Program Overview (Live and Online Activity)

Eosinophilic granulomatosis with polyangiitis (EGPA), formerly known as Churg-Strauss Syndrome (CSS), is a hypereosinophilic syndrome (HES) characterized by eosinophilic vasculitis and one or more of the following: asthma, pulmonary infiltrates, sinusitis, and neuropathy. For patients with EGPA, the risk of permanent tissue and organ damage is significant. Although there are treatments available, patients with EGPA tend to remain dependent on glucocorticoid therapy and are prone to relapse.

Successful diagnosis of EGPA begins with a physician's understanding of the HESs and ability to distinguish EGPA from other causes of eosinophilia and eosinophilic lung disease. This presents a challenge for many physicians because these disorders (aside from asthma) are relatively uncommon in everyday practice, even for pulmonary and allergy subspecialists.

This program included a live CME symposium held in conjunction with American College of Chest Physicians (ACCP) Annual Meeting (CHEST 2019) in New Orleans, and an online enduring activity recorded there. The program includes a patient perspective video to bring the challenges of the patient journey to life and a downloadable clinical diagnosis and treatment infographic along with a panel discussion between specialists who are experts in their fields of asthma, rheumatology and pulmonology who share their own experiences in diagnosing and treating patients with EGPA.

"Heightened awareness of the signs and symptoms of this disease will increase my ability to include it in the differential earlier and therefore potentially provide earlier definitive treatment for those affected by it... **I always thought I did not see these cases, now I wonder and will look harder." - online participant**

Program Overview

National Jewish Health®

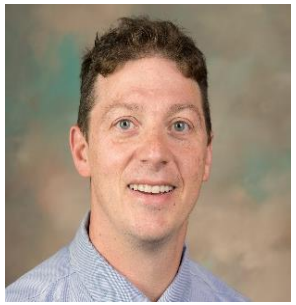
Learning Objectives

- Identify clinical features that distinguish EGPA from other eosinophilic lung diseases
- Review best practices for early evaluation and differential diagnosis of EGPA
- Select appropriate treatments for patients with EGPA

Target Audience

This activity is designed to meet the needs of pulmonologists, allergists and rheumatologists with an interest in better diagnosing and treating patients with EGPA and other eosinophilic diseases.

Program Faculty



Michael E. Wechsler, MD, MMSc
Professor of Medicine
Director, NJH Cohen Family Asthma Institute
Department of Medicine
National Jewish Health
Denver, Colorado

Paneez Khoury, MD, MHSc, FAAAAI
Associate Research Physician
Allergy/Immunology
National Institutes of Health
Bethesda, Maryland

Curry Koening, MD, MS
Director of the Vasculitis Clinic
Associate Professor
Rheumatology
University of Utah and Salt Lake City Veterans Administration
Salt Lake City, Utah

Program Summary Dashboard

Differential Diagnosis & Treatment Selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Program Faculty: Michael E. Wechsler, MD, MMSc, Paneez Khoury, MD, MHSc, FAAAAI, Curry Koening, MD, MS

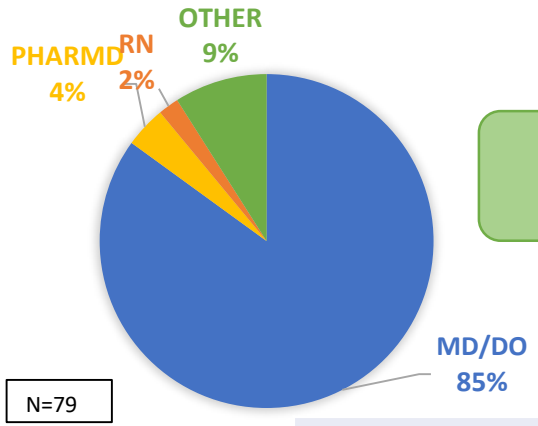
Live: CHEST 2019 Annual Meeting Symposium| New Orleans, LA| October 21, 2019

Online: freeCME – 11/12/2019 – 11/12/2020 | myCME – 4/24/2020 – 11/12/2020

National Jewish Health

Live Program Participation

79 Learners | 79 Certs



85%
Physicians

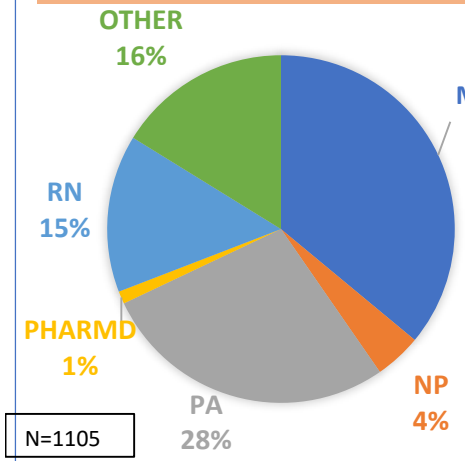
97%
Pulmonology

Specialty	# of Evaluation Respondents
Pulmonology	30
Other	1
Total	**31**

Because the live program was offered as a symposium at the CHEST 2019 Annual Meeting, specialty data was not available for all live attendees. The specialty breakdown above represents evaluation respondents (N=31).

Online Program Participation

1588 Learners |1105 Completers |1091 Certs



68%
Physicians and advanced practice providers

30%
Pulmonology, allergy and immunology, rheumatology, internal medicine and primary care

Specialty	# of Completers
Primary Care	153
Surgery	92
Emergency Medicine	78
Internal Medicine	62
Pulmonology	41
Allergy and Immunology	41
Cardiology	36
Pediatrics	35
Dermatology	35
Radiology	34
Rheumatology	33
Acute Care	31
Anesthesiology	26
Critical Care	18
Neurology	18
Other	372
Total	**1105**

Learning Objectives

1. Identify clinical features that distinguish EGPA from other eosinophilic lung diseases
2. Review best practices for early evaluation and differential diagnosis of EGPA
3. Select appropriate treatments for patients with EGPA

Satisfaction

Evaluation respondents in the live and online activities reported:

The activity was "good" or "excellent" at meeting the learning objectives	
Live – 100%	Online – 93%

The activity was clinically relevant	
Live – 100%	Online – 97%

The activity was free of commercial bias	
Live – 100%	Online – 96%
N=31	N=1101

Program Summary Dashboard

Differential Diagnosis & Treatment Selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

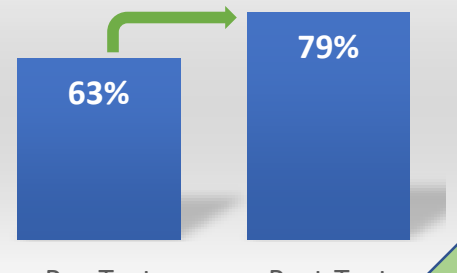
Program Faculty: Michael E. Wechsler, MD, MMSc, Paneez Khoury, MD, MHSc, FAAAAI, Curry Koening, MD, MS

Live: CHEST 2019 Annual Meeting Symposium| New Orleans, LA| October 21, 2019
Online: freeCME – 11/12/2019 – 11/12/2020 | myCME – 4/24/2020 – 11/12/2020

National Jewish Health

Knowledge

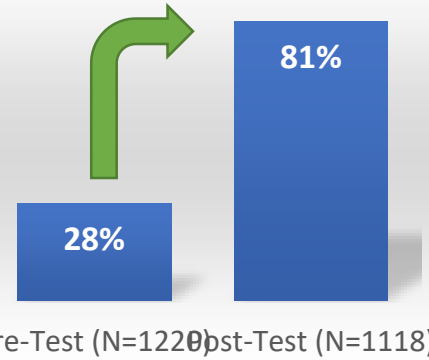
Live Program



25% relative gain in knowledge from pre- to post-activity

74% average relative gain in knowledge for program overall

Online Program

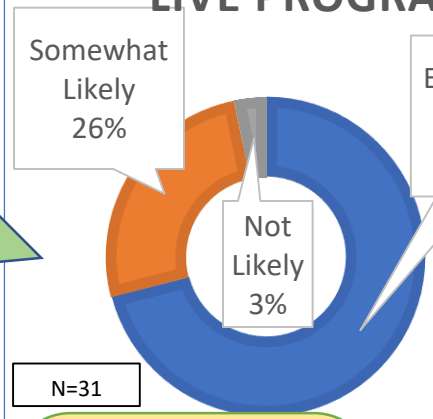


189% relative gain in knowledge from pre- to post-activity

Competence

Evaluation respondents in the live and online activities were asked how likely they are to make changes in their practice as a result of what they learned in the activity:

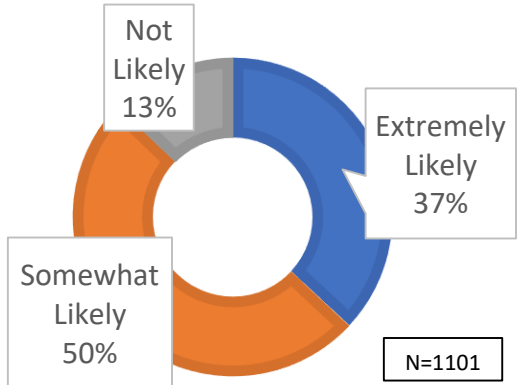
LIVE PROGRAM



92% average proportion of evaluation respondents who intend to make practice changes post-activity

100% of live and **94%** of online evaluation respondents reported the activity reinforced and/or improved their skills

ONLINE PROGRAM



Performance

80% of follow-up survey respondents (N=5) made changes to practice as a result of what they learned in the activity:

- ✓ Changed screening/prevention practices
- ✓ Incorporated different diagnostic strategies into patient evaluation
- ✓ Used alternative communication techniques with patients and families
- ✓ Modified treatment plans

20% of follow-up survey respondents still remained committed to making changes to practice

Performance change data was collected from live program learners only

Program Summary Dashboard

Differential Diagnosis & Treatment Selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Program Faculty: Michael E. Wechsler, MD, MMSc, Paneez Khoury, MD, MHSc, FAAAAI, Curry Koening, MD, MS

Live: CHEST 2019 Annual Meeting Symposium| New Orleans, LA| October 21, 2019
Online: freeCME – 11/12/2019 – 11/12/2020 | myCME – 4/24/2020 – 11/12/2020

National Jewish Health

Top 3 Practice Changes

Evaluation respondents in the live and online activities reported specific intended practice changes as a result of what they learned:

1. Improve workup and evaluation to diagnose EGPA
2. Initiate new medications and treatment strategies
3. Collaborate with other specialists to provide multidisciplinary patient care

Patient Impact

1,136 evaluation respondents in the live and online activities

Who treat **5,734 patients** with eosinophilic lung diseases weekly

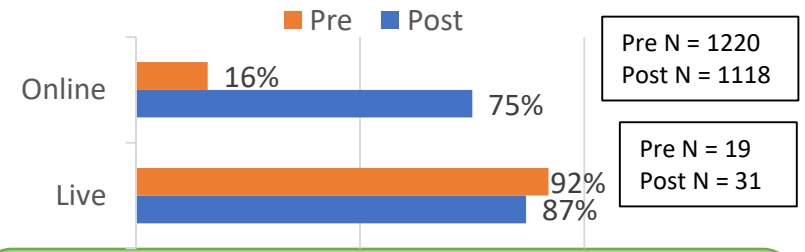
Based on self-reported number of patients seen on a weekly basis with condition discussed in activity (multiplied by 52 for annual estimate).

Potential to impact **298,168 patient visits** annually

Persistent Gaps and Needs

✓ A gap persists related to **selecting treatments for patients with EGPA.**

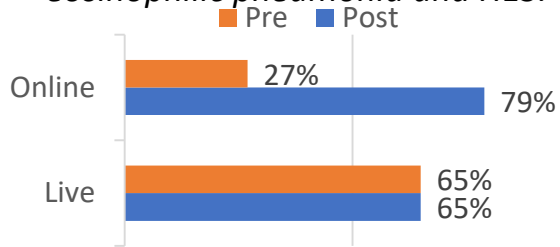
Learners were asked to identify a clinical scenario in which cyclophosphamide should be considered:



The live activity (97% pulmonologists) saw a knowledge decrease from pre to post. In the online activity, 25% still remained unable to identify the correct clinical scenario at post-test.

✓ A gap persists in **distinguishing EGPA from other eosinophilic lung diseases.**

Learners were asked to identify which clinical finding is most helpful in distinguishing EGPA from chronic eosinophilic pneumonia and HES:



In the live activity (97% pulmonologists), there was **no knowledge change from pre to post**

35% remained unable to recognize that ANCA is most helpful in distinguishing EGPA from these other conditions

Program Insights

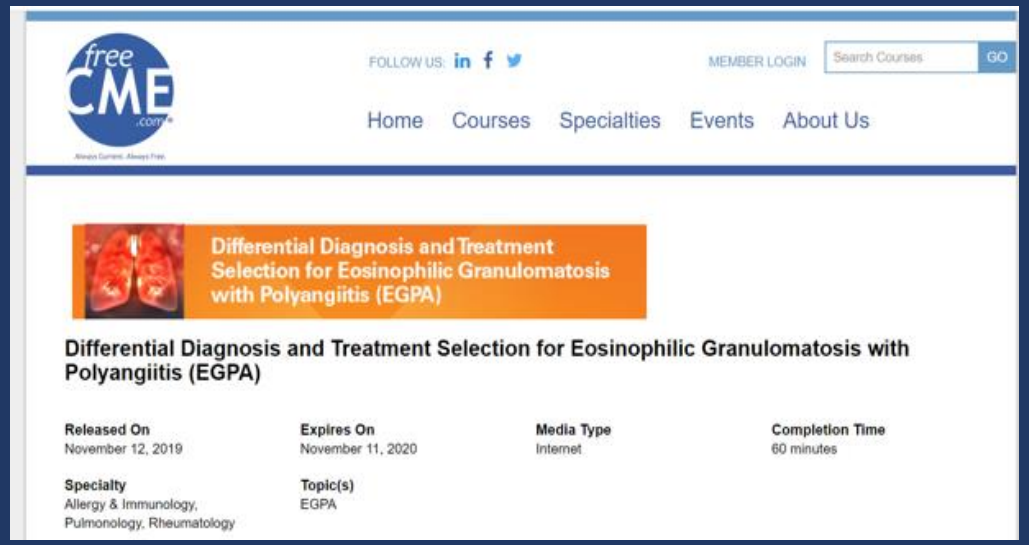
- Further education is needed on the clinical presentation of EGPA to support providers in differential diagnosis.
- Specific diagnostic strategies were the top cited takeaway and the top intended practice change among learners. The reference aid and clinical cases used to illustrate differential diagnosis were effective tools for supporting learner change.
- Providers would benefit from further education on treatment selection for patients at various stages of disease progression.

Differential Diagnosis and Treatment selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Online Enduring Activity Outcomes

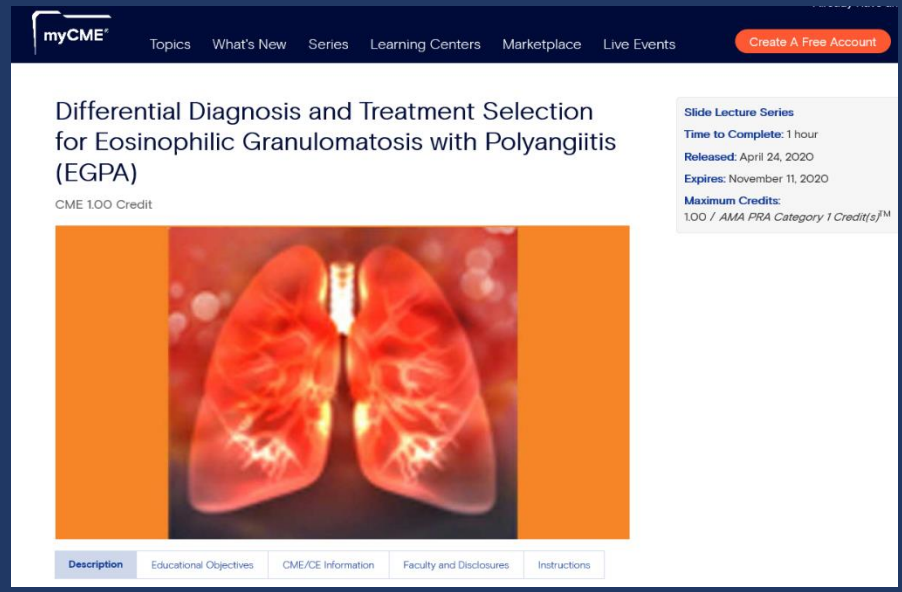
In an effort to exceed projected reach, National Jewish Health posted the enduring activity on two distribution providers' platforms.

Online Enduring Activity on freeCME
11/12/2019 – 11/12/2020



https://learning.freecme.com/a/33470P34sZcA

Online Enduring Activity on myCME
4/24/2020 – 11/12/2020



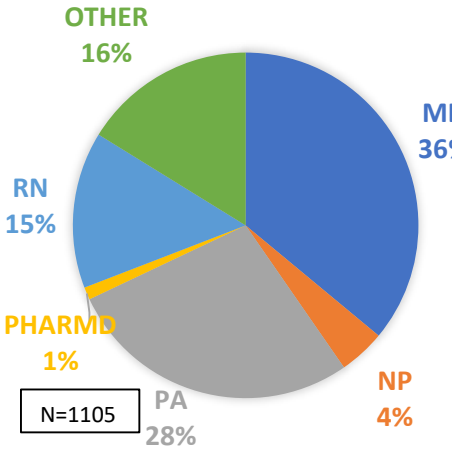
https://www.mycme.com/courses/differential-diagnosis-and-treatment-selection-for-eosinophilic-granulomatosis-with-polyangiitis-egpa-7051

Educational Impact: Online Dashboard

National Jewish Health®

Participation

1588 Learners **1105 Completers**



Target Specialties:
153 Primary Care
62 Internal Medicine
41 Pulmonology
41 Allergy & Immunology
33 Rheumatology

68% Physicians and advanced practice providers

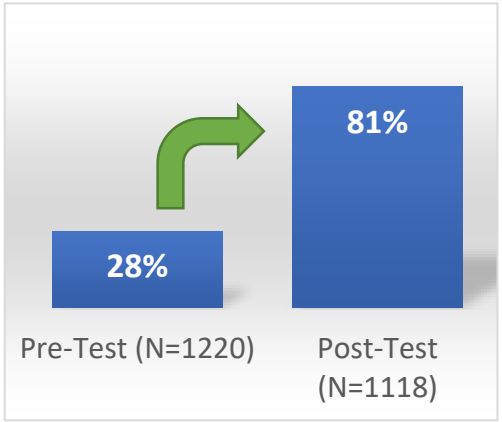
Satisfaction

✓**96%** of evaluation respondents report the activity was free of commercial bias (N=1101)

✓**97%** of evaluation respondents report the activity was clinically relevant (N=1101)

✓**94%** of evaluation respondents report the learning objectives were met (N=1101)

Learner Impact



189% overall relative gain in knowledge from pre-activity to post-activity

NARROWING THE GAPS BY OBJECTIVE

Distinguish EGPA from other eosinophilic lung diseases — **148%** increase in knowledge from pre to post test

Best practices for early evaluation and differential diagnosis of EGPA — **169%** increase in knowledge from pre to post test

Select appropriate treatments for patients with EGPA — **271%** increase in knowledge from pre to post test

Performance

✓**93%** of learners report that the activity improved their ability to treat or manage patients

✓ **87%** of learners report that they intend to make changes in their practice based on what they learned

1105 completers who treat **5622** patients with eosinophilic lung diseases weekly

Potential to impact **292,370** patient visits annually

Learning Needs

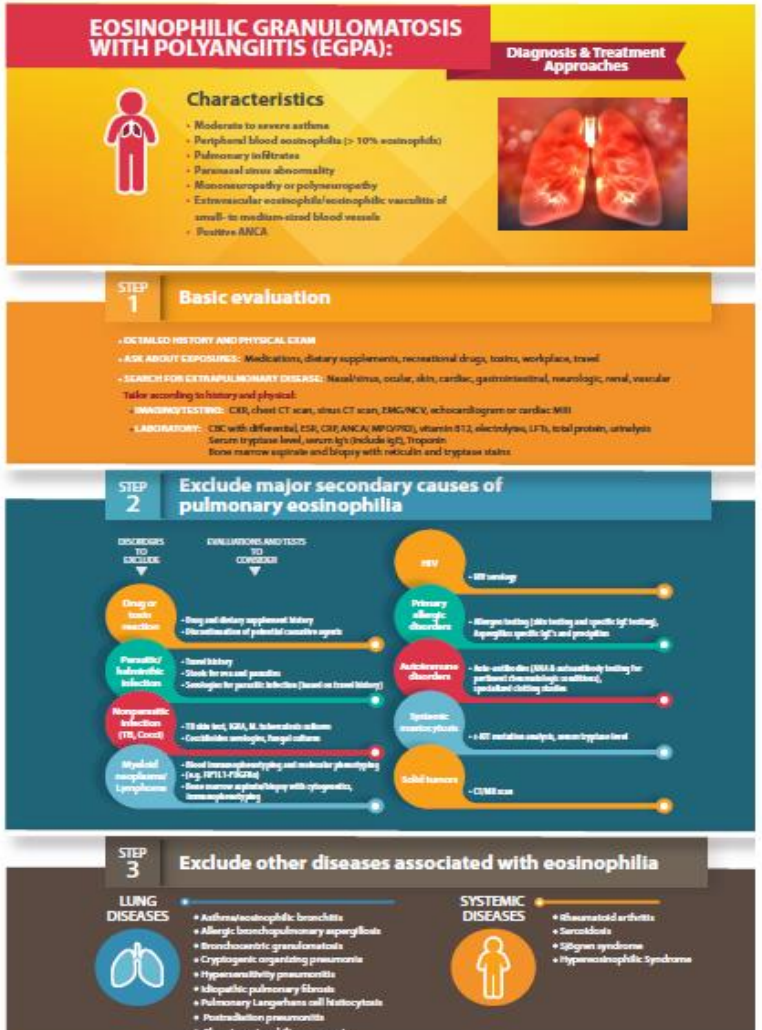
Diagnostic strategies were the top takeaway cited by completers

- Asthma
- COPD
- Sarcoidosis
- Pulmonary fibrosis
- Pulmonary hypertension
- Dermatology

Clinical Reference Aid

National Jewish Health®

Learner Evaluation – Clinical Reference Aid

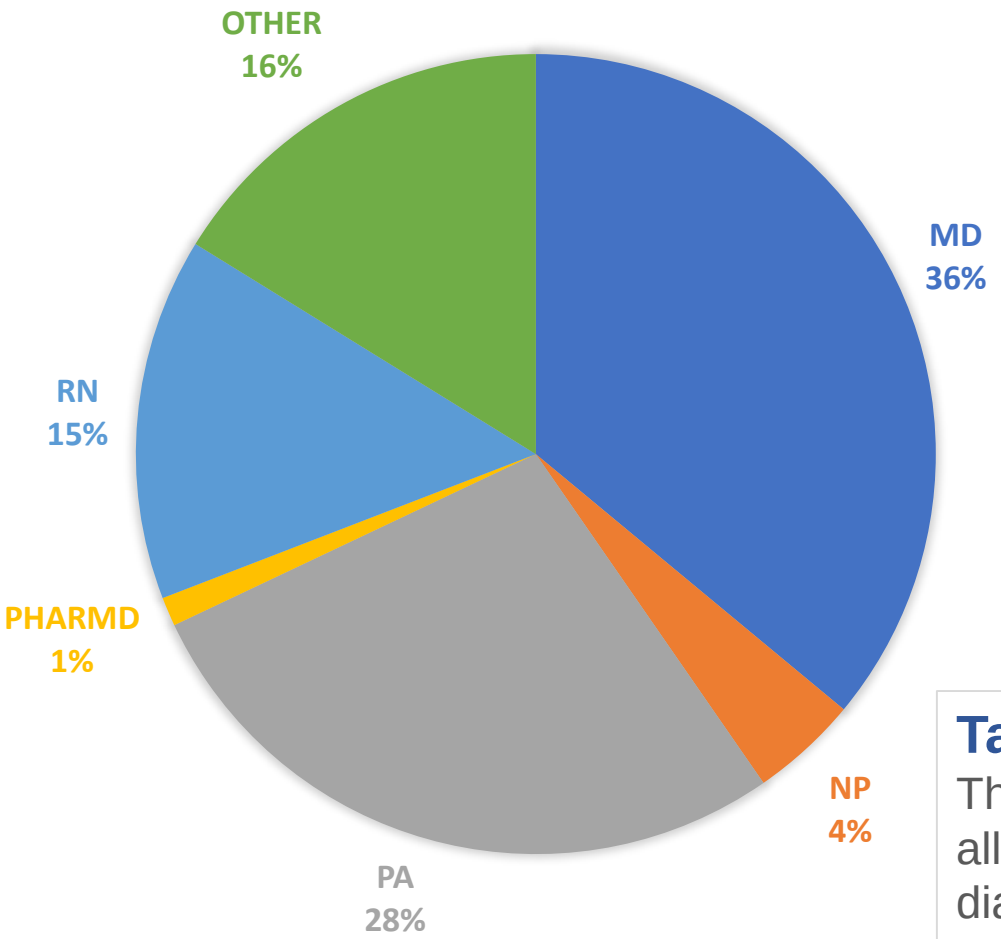


89% of evaluation respondents report that they are somewhat to extremely likely to use the clinical reference aid infographic in practice

N = 1101

Differential Diagnosis and Treatment selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Level 1 Outcome: Participation (Online Enduring Completers)



Designation	# of Completers
MD/DO	398
NP	48
PA	305
PHARMD	13
RN	162
OTHER	179
Total	**1105**

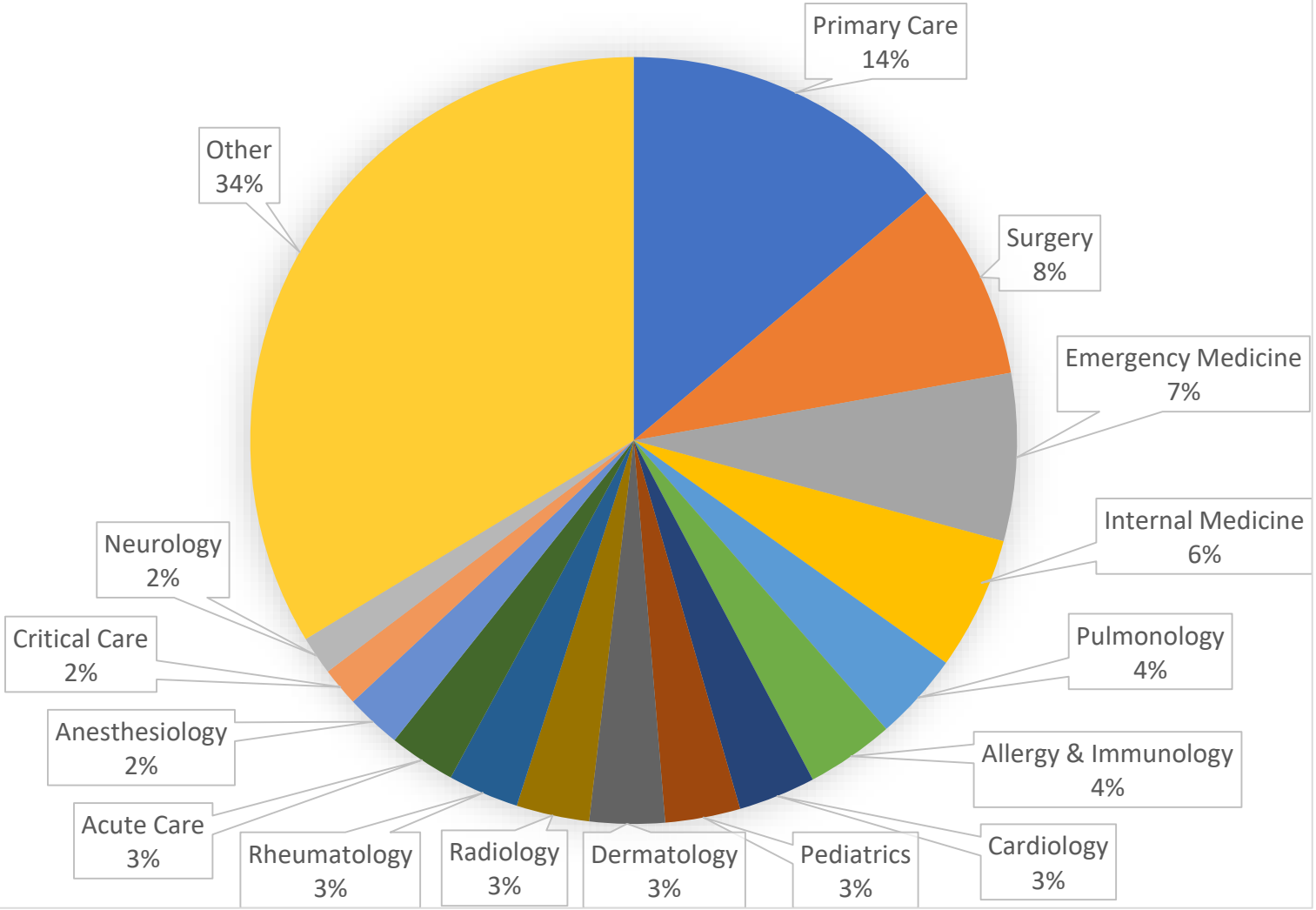
68% Physicians and Advanced Practice Providers

Target Audience

This activity is designed to meet the needs of pulmonologists, allergists and rheumatologists with an interest in better diagnosing and treating patients with EGPA and other eosinophilic diseases.

Differential Diagnosis and Treatment selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Level 1 Outcome: Participation (Online Enduring Completers)



Specialty	# of Completers
Primary Care	153
Surgery	92
Emergency Medicine	78
Internal Medicine	62
Pulmonology	41
Allergy and Immunology	41
Cardiology	36
Pediatrics	35
Dermatology	35
Radiology	34
Rheumatology	33
Acute Care	31
Anesthesiology	26
Critical Care	18
Neurology	18
Other*	372
Total	**1105**

*Top specialties represented in “other” include orthopedics, physical medicine/rehabilitation, nephrology, oncology, endocrinology, gastroenterology, psychiatry, pain medicine, pharmacy

Level 2 Outcome: Satisfaction
Online Enduring

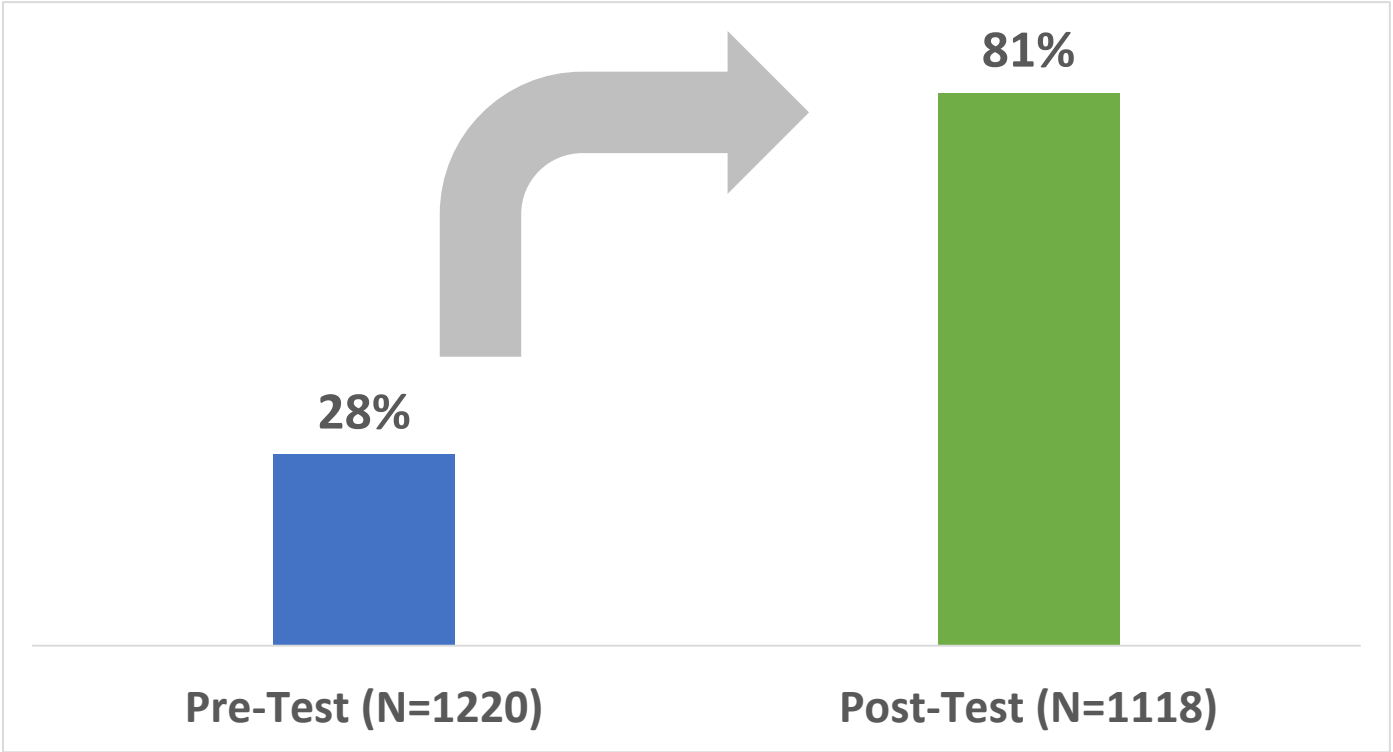
National Jewish Health

Analysis of participants' responses related to educational needs

When asked how well the activity met the following needs, an average of 94% of participants reported the activity was "Excellent" to "Good" at:

Level 3&4 Outcomes: Knowledge/Competence
Online Enduring

National Jewish Health®



Level 3 and 4 outcomes were measured by comparing pre- and post-test answers. Attendees' responses to these questions demonstrated that **participants gained knowledge and competence as a result of the activity.**

189%

Overall relative knowledge gain from pre to post-test

92% **of evaluation respondents say the activity addressed strategies for overcoming barriers to optimal patient care**

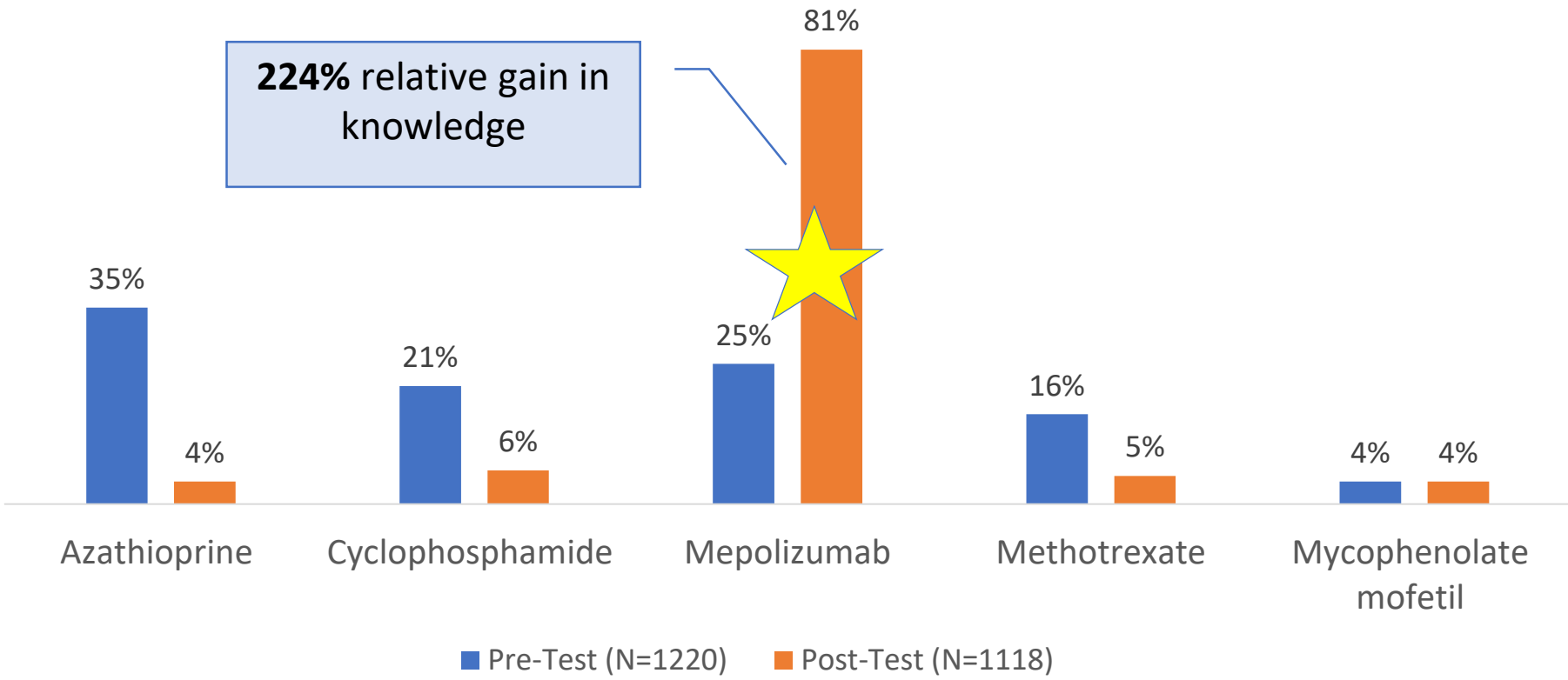
N = 1101

Assessment: Pre-Test/Post-Test
Online Enduring

National Jewish Health®

Learning Objective:
Select appropriate treatments for patients with EGPA

Q1: Which of the following treatments for EGPA has been shown to demonstrate improvements in remission, oral corticosteroid dose reductions and/or remaining free of EGPA relapse?

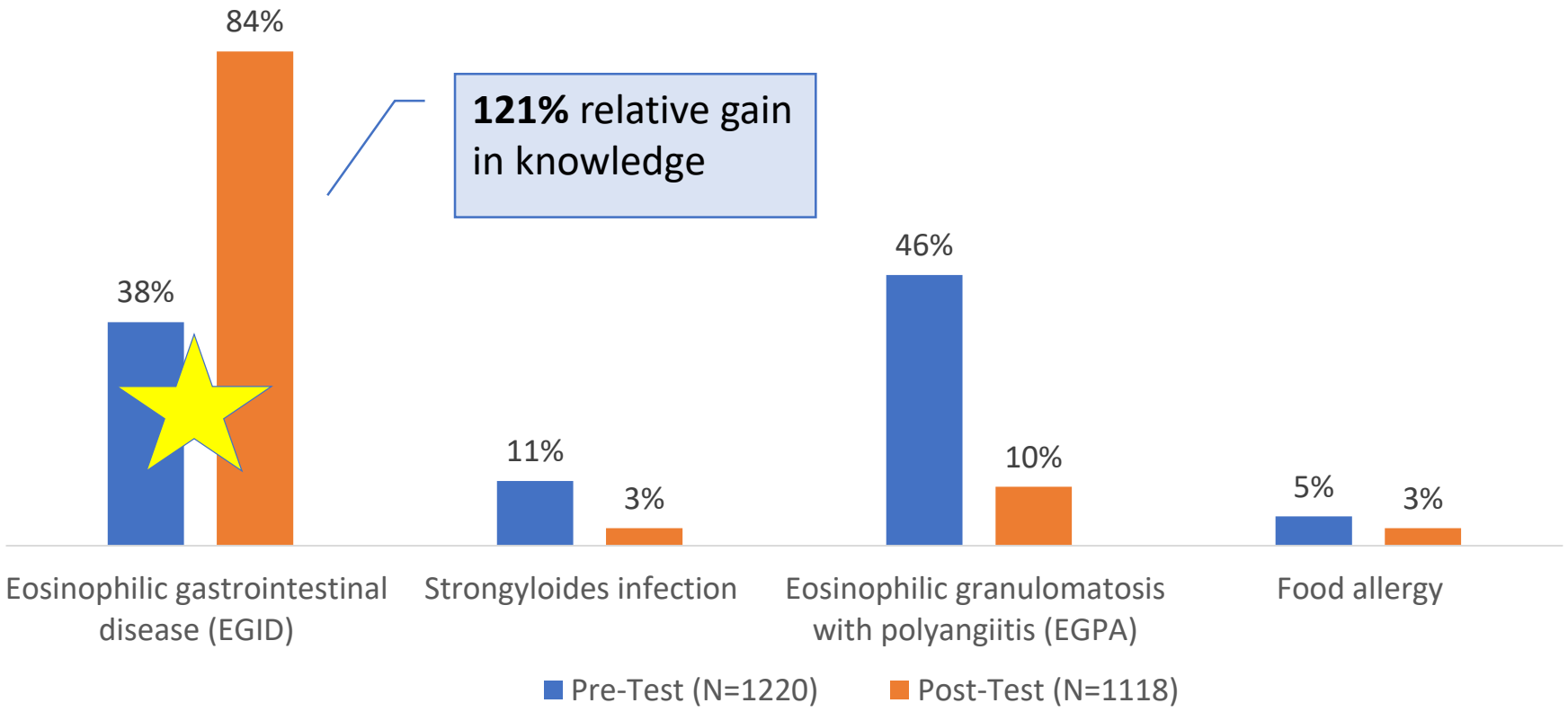


Assessment: Pre-Test/Post-Test
Online Enduring

National Jewish Health®

Learning Objective:
Identify clinical features that distinguish EGPA from other eosinophilic lung diseases

Q2: A patient presents with atopy, eczema, sinusitis, asthma, and eosinophilic gastroenteritis with duodenal eosinophilia. The most likely diagnosis is:



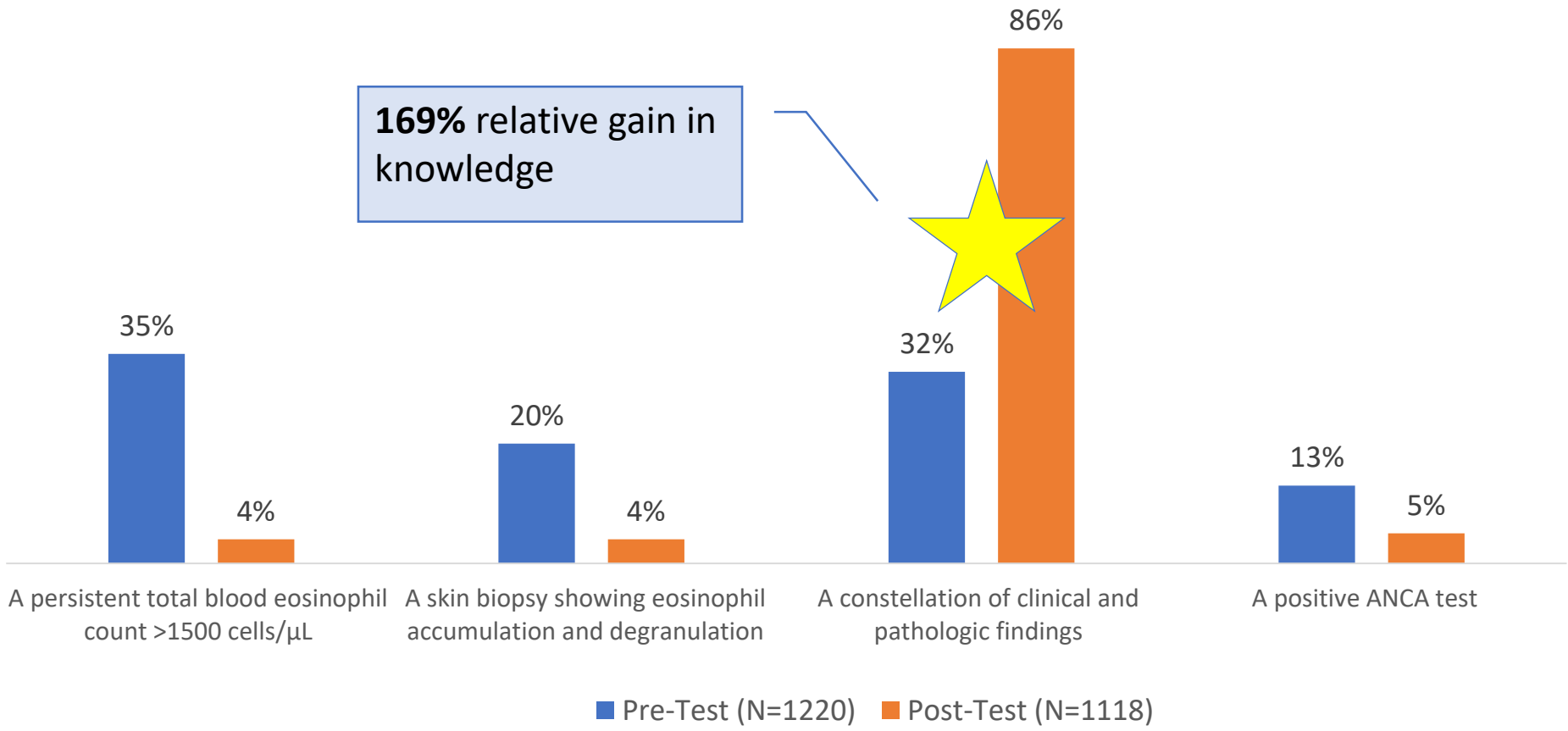
Assessment: Pre-Test/Post-Test
Online Enduring

National Jewish Health®

Learning Objective:

Review best practices for early evaluation and differential diagnosis of EGPA

Q3: Which of the following features is most important for making a diagnosis of EGPA?

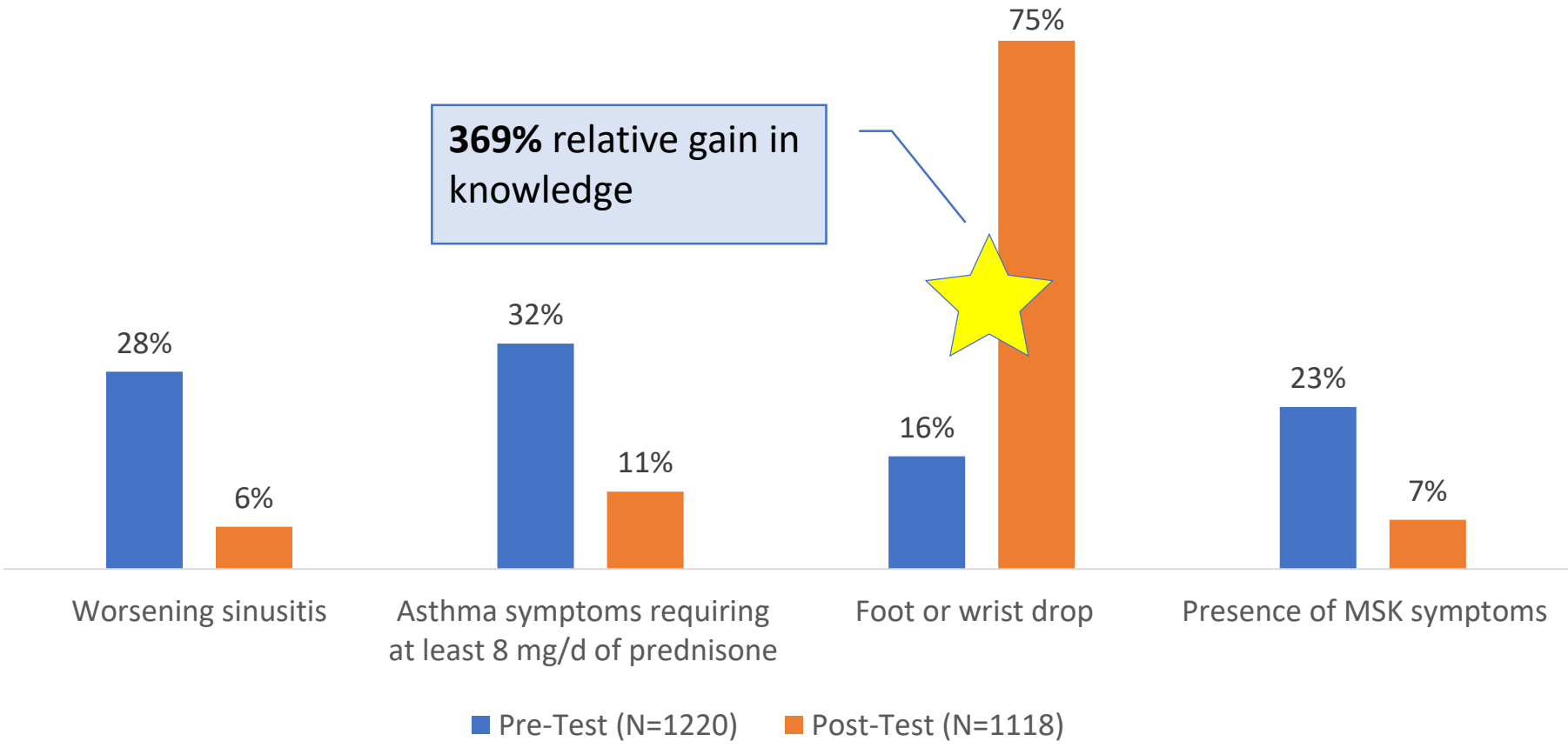


Assessment: Pre-Test/Post-Test
Online Enduring

National Jewish Health®

Learning Objective:
Select appropriate treatments for patients with EGPA

Q4: In which clinical scenario should cyclophosphamide be considered?



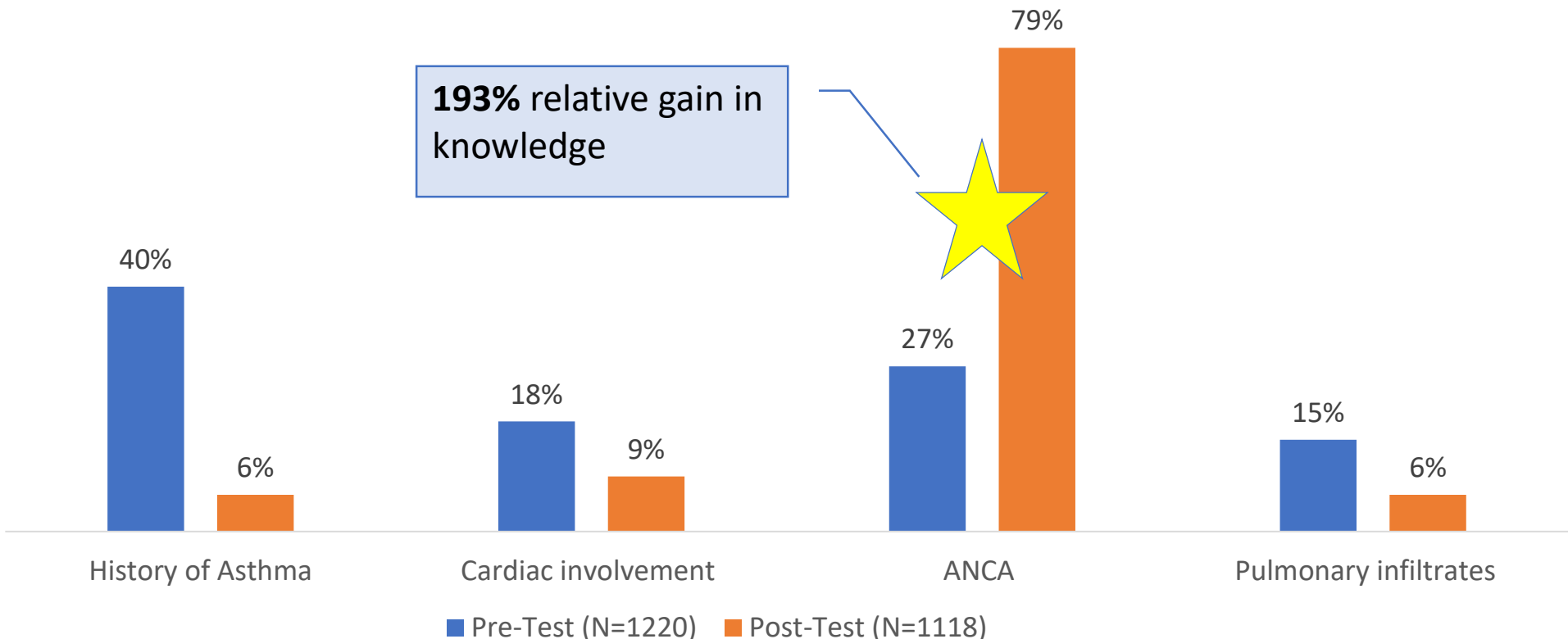
Assessment: Pre-Test/Post-Test
Online Enduring

National Jewish Health®

Learning Objective:

Identify clinical features that distinguish EGPA from other eosinophilic lung diseases

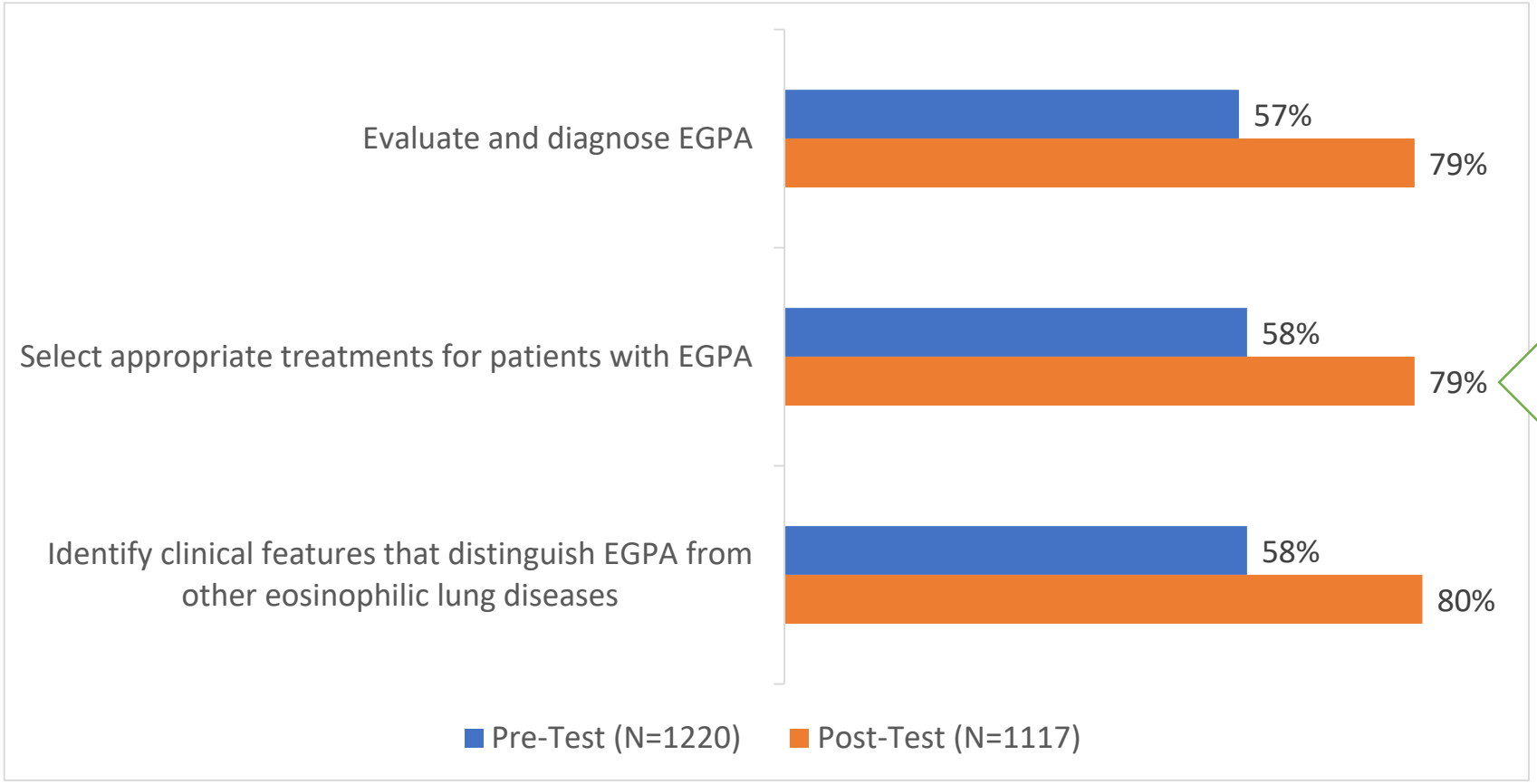
Q5: Which of the following is most helpful in distinguishing EGPA from chronic eosinophilic pneumonia and hypereosinophilic syndrome?



Audience Confidence Questions
Online Enduring

We asked online learners to rate their confidence in their ability to perform the key tasks as outlined in the learning objectives, and compared their confidence before and after participating in the activity.

Learners reported they were **Somewhat Confident** to **Very Confident** in their ability to:

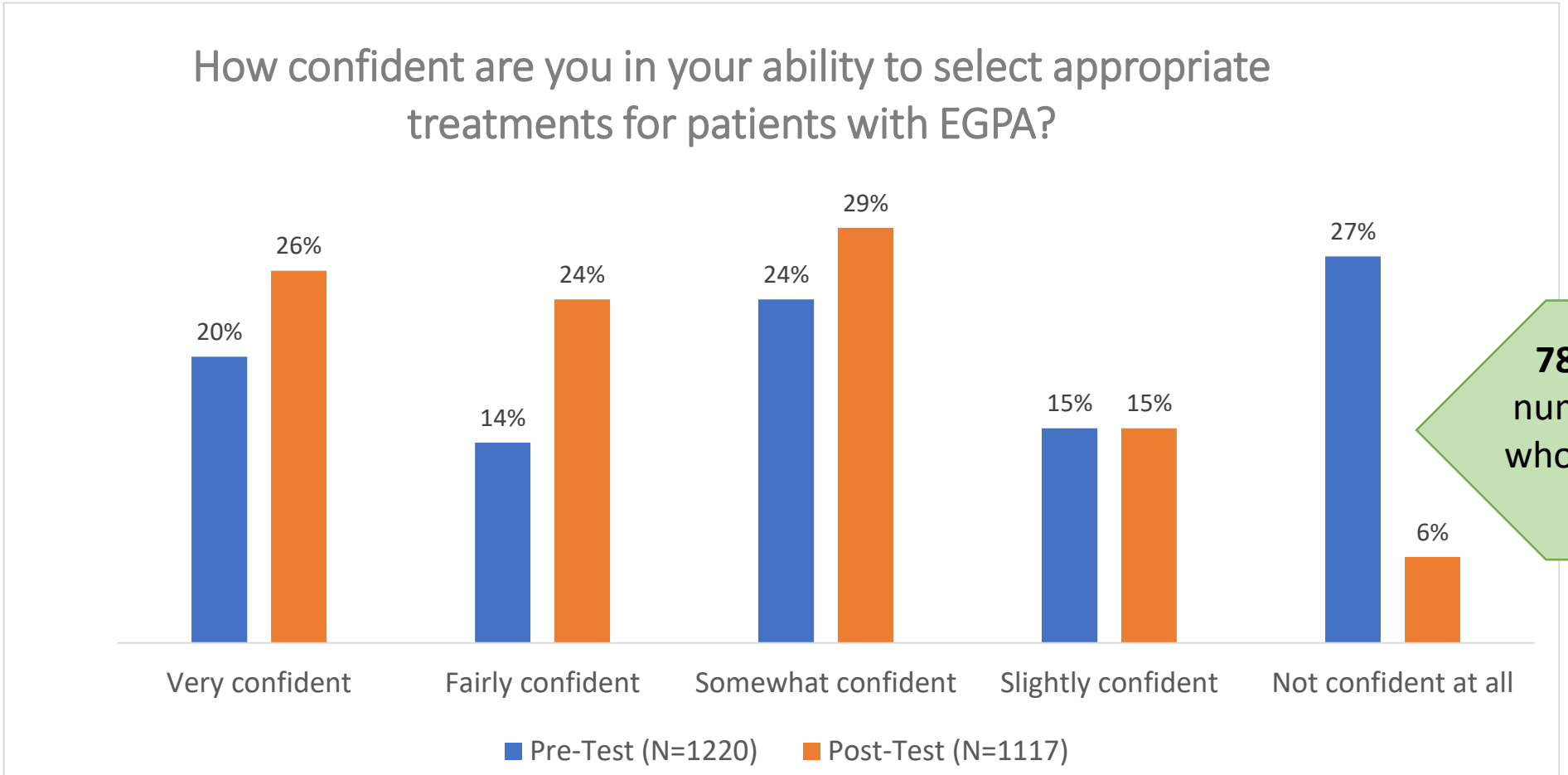


36% relative gain in confidence across all learning objectives from pre to post activity.

Audience Confidence Questions: Highlights
Online Enduring

National Jewish Health®

We asked online learners to rate their confidence in their ability to perform the key tasks as outlined in the learning objectives, and compared their confidence before and after participating in the activity.



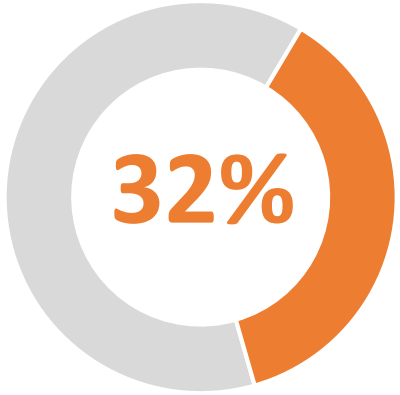
78% decrease in the number of participants who were not confident at all.

Level 3 & 4 Outcomes: Magnitude of Effect
Online Enduring

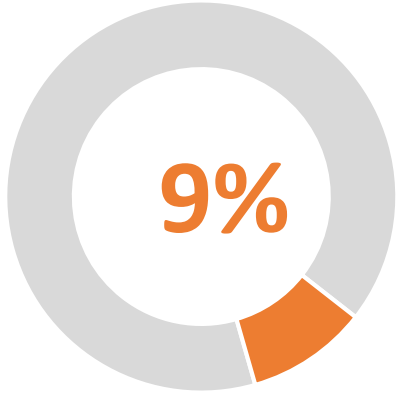
87%

N=1101

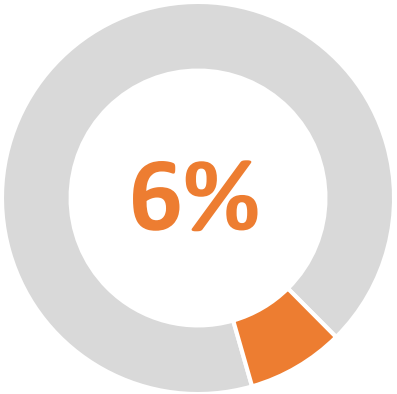
Evaluation respondents intend to make changes in practice as a result of the activity



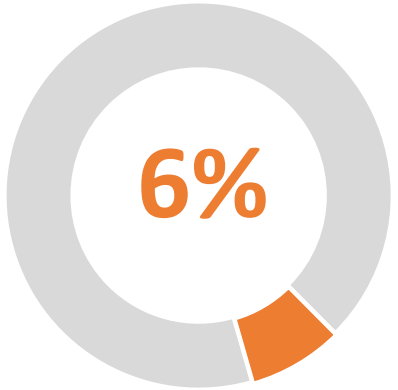
Improve testing and evaluation to diagnose EGPA



Implement new treatment strategies



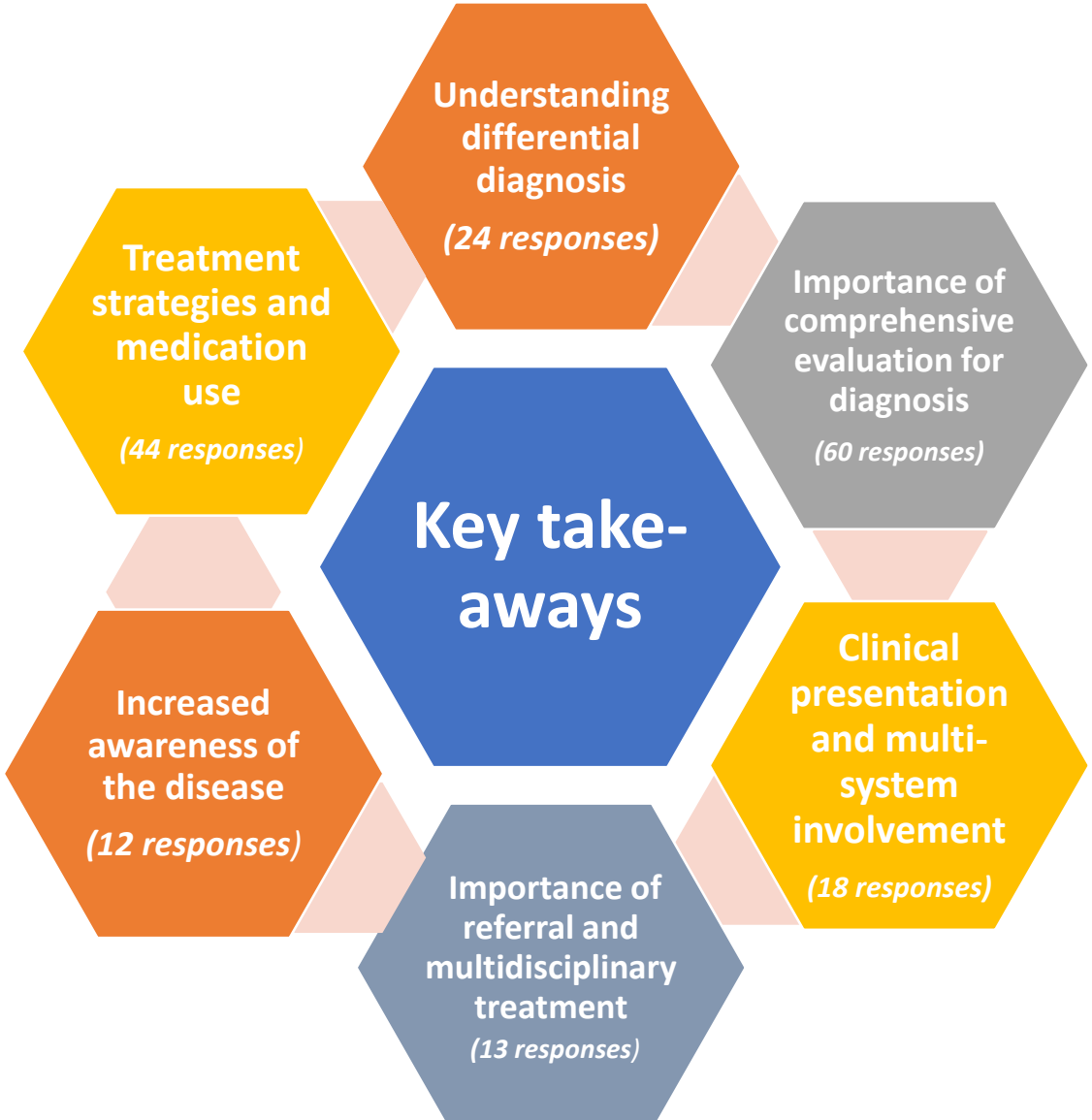
Collaborate and consult with other specialists to provide multidisciplinary patient care



Initiate new medications for EGPA treatment

N=203

Open-ended Feedback
Online Enduring



Needs for Further Education

- Updates on therapies for EGPA
- Pre-operative evaluation for patients with EGPA
- Eosinophilic syndromes
- COPD
- Sarcoidosis
- Asthma
- Pulmonary fibrosis
- Pulmonary hypertension
- Cardiac
- Dermatology

Differential Diagnosis and Treatment selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

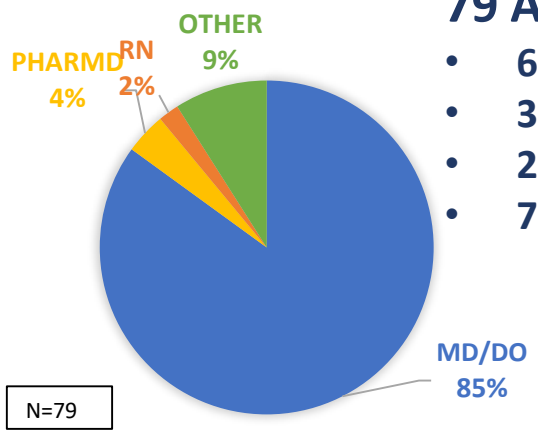
Live Activity Outcomes

Satellite Symposium at CHEST Annual Meeting 2019
October 21, 2019

Educational Impact: Live Dashboard

National Jewish Health®

Participation



79 Attendees

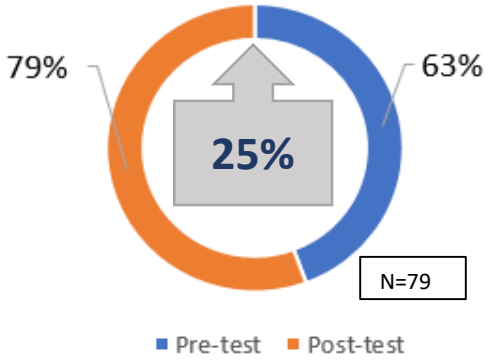
- **67 MD/DO**
- **3 PharmD**
- **2 Nurse**
- **7 Other**

Satisfaction

"It was eye opening. I always thought I did not see these cases, now I wonder and will look harder."-**MD attendee in New Orleans, LA**

"Nice to have different sub specialties represented. Synopsis handout is great. Very concise."-**MD attendee in New Orleans, LA**

Learner Impact



25% overall relative gain in knowledge from pre-activity to post-activity

NARROWING THE GAPS

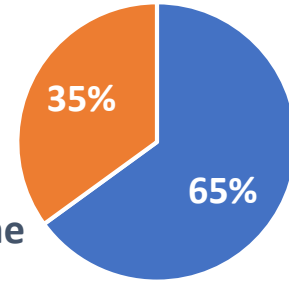
Distinguish EGPA from other eosinophilic lung diseases	**600%** increase in knowledge from pre to post test
Best practices for early evaluation and differential diagnosis of EGPA	**27%** increase in knowledge from pre to post test
Select appropriate treatments for patients with EGPA	**9%** increase in knowledge from pre to post test

Performance

- **97%** of learners report that they are somewhat to extremely likely to make changes to their practice based on what they learned
- **100%** of learners report that the activity enhanced their ability to apply the learning objectives to their practice

Persistent Gaps/Needs

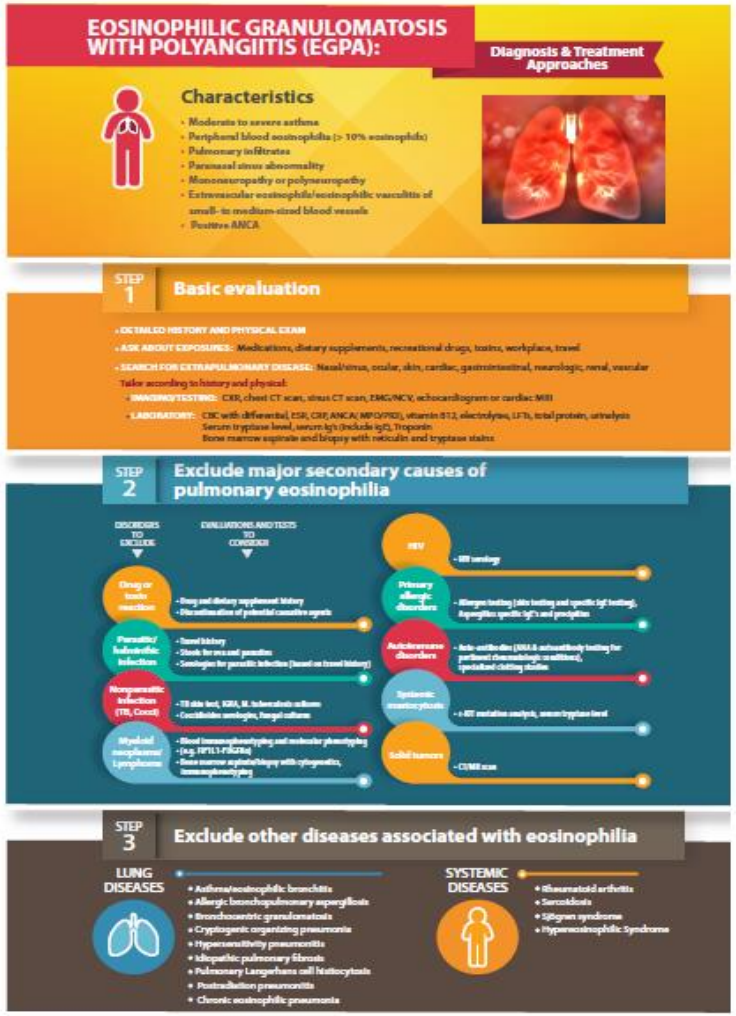
Only 65% of learners were able to recognize that ANCA is most helpful in distinguishing EGPA from chronic eosinophilic pneumonia and hypereosinophilic syndrome



Clinical Reference Aid
Live Activity

National Jewish Health®

Learner Evaluation – Clinical Reference Aid

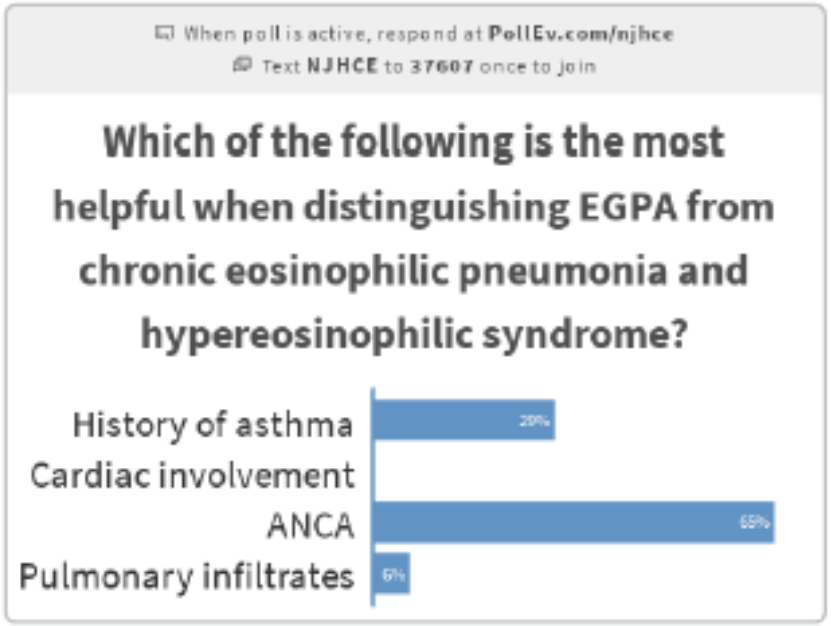


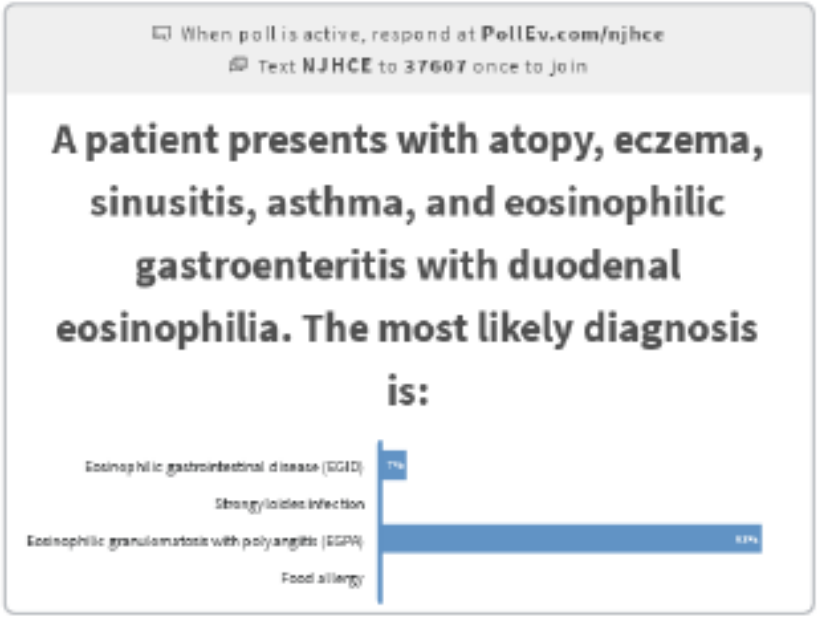
94% of learners report that they are somewhat to extremely likely to use the clinical reference aid infographic in practice

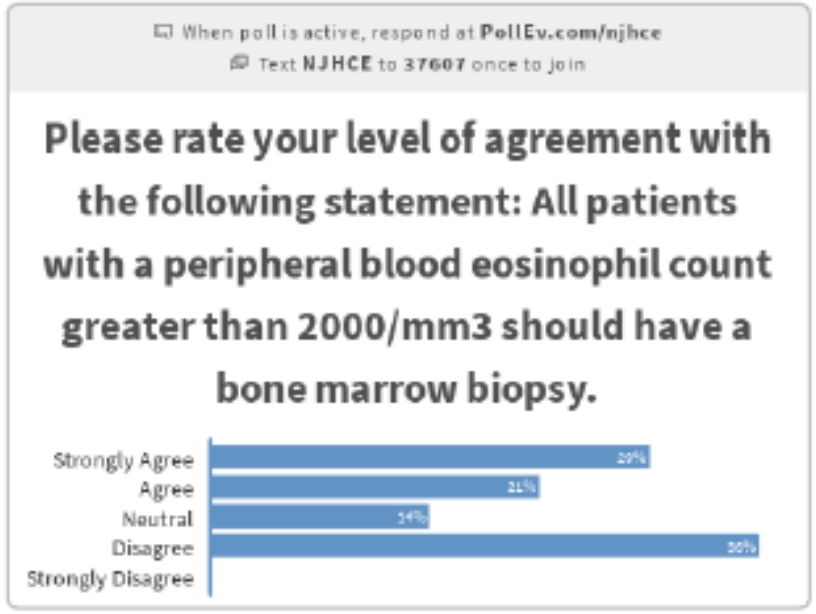
Audience Response Questions: Highlights
Live Activity

National Jewish Health®

A test-and-teach approach was used to engage learners during the live meeting by testing their existing knowledge and using the gaps to teach them the new material presented in the live activity. Questions were tailored to the different faculty presenter's material to test learner's understanding of the proper steps in diagnosing and treating EGPA.

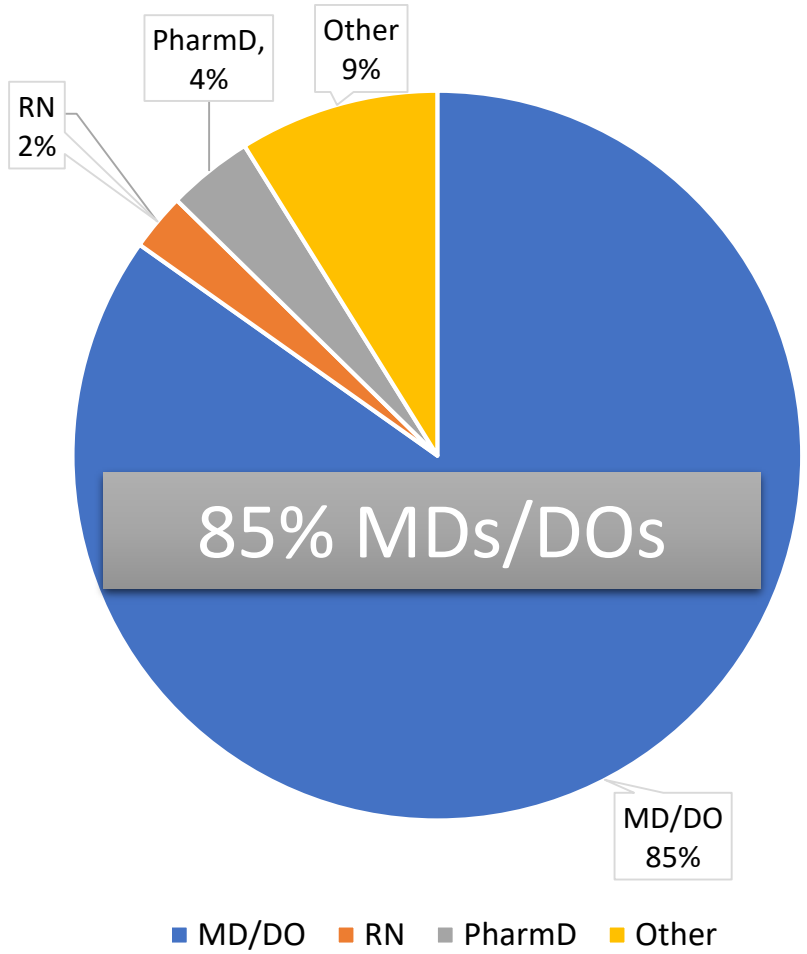






Differential Diagnosis and Treatment selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Level 1 Outcome: Participation (Live Activity)



Designation	# of Participants
MD/DO	67
RN	2
PharmD	3
Other	7
Total	79

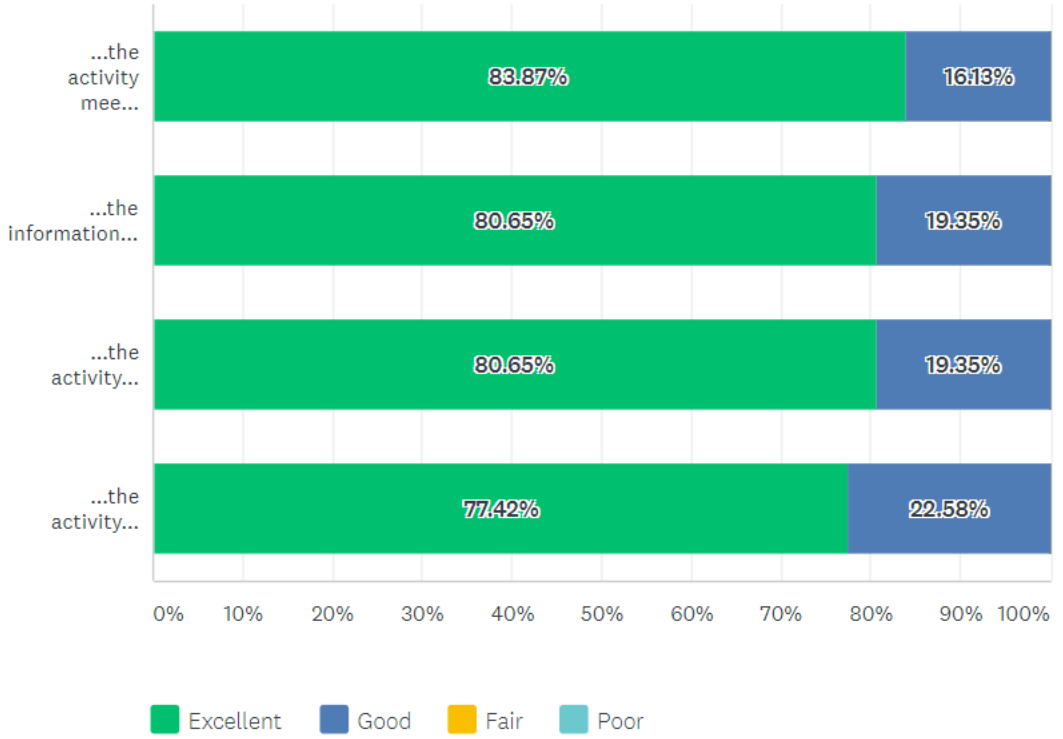
Level 2 Outcome: Satisfaction
Live Activity

National Jewish Health

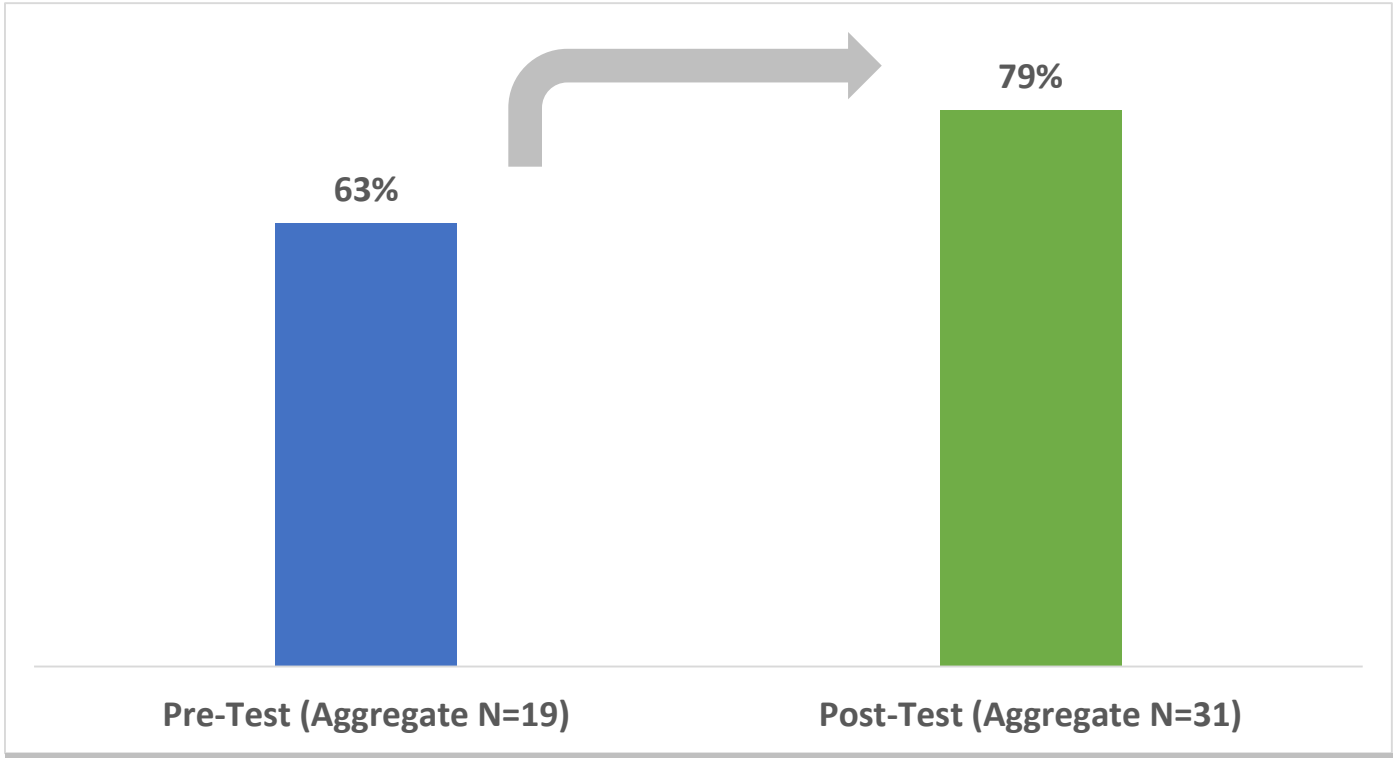
Analysis of participants responses related to educational needs

When asked how well the activity met the following needs, 100% of participants reported the activity was "Excellent" to "Good" at:

	EXCELLENT	GOOD	FAIR	POOR	TOTAL
...the activity meet your educational needs?	83.87% 26	16.13% 5	0.00% 0	0.00% 0	31
...the information presented reinforce and/or improve your current skills?	80.65% 25	19.35% 6	0.00% 0	0.00% 0	31
...the activity enhance your ability to apply the learning objectives to your practice?	80.65% 25	19.35% 6	0.00% 0	0.00% 0	31
...the activity improve your ability to treat or manage your patients?	77.42% 24	22.58% 7	0.00% 0	0.00% 0	31



Level 2 Outcomes: Pre-Test/Post-Test
Live Activity



Level 3 and 4 outcomes were measured by comparing pre- and post-test answers. Attendees' responses to these questions demonstrated that **participants gained knowledge as a result of the activity.**

25%

Overall relative knowledge gain
from pre to post-test

100% of participants say the activity improved their ability to treat or manage their patients

Assessment: Pre-Test/Post-Test
Live Activity

National Jewish Health®

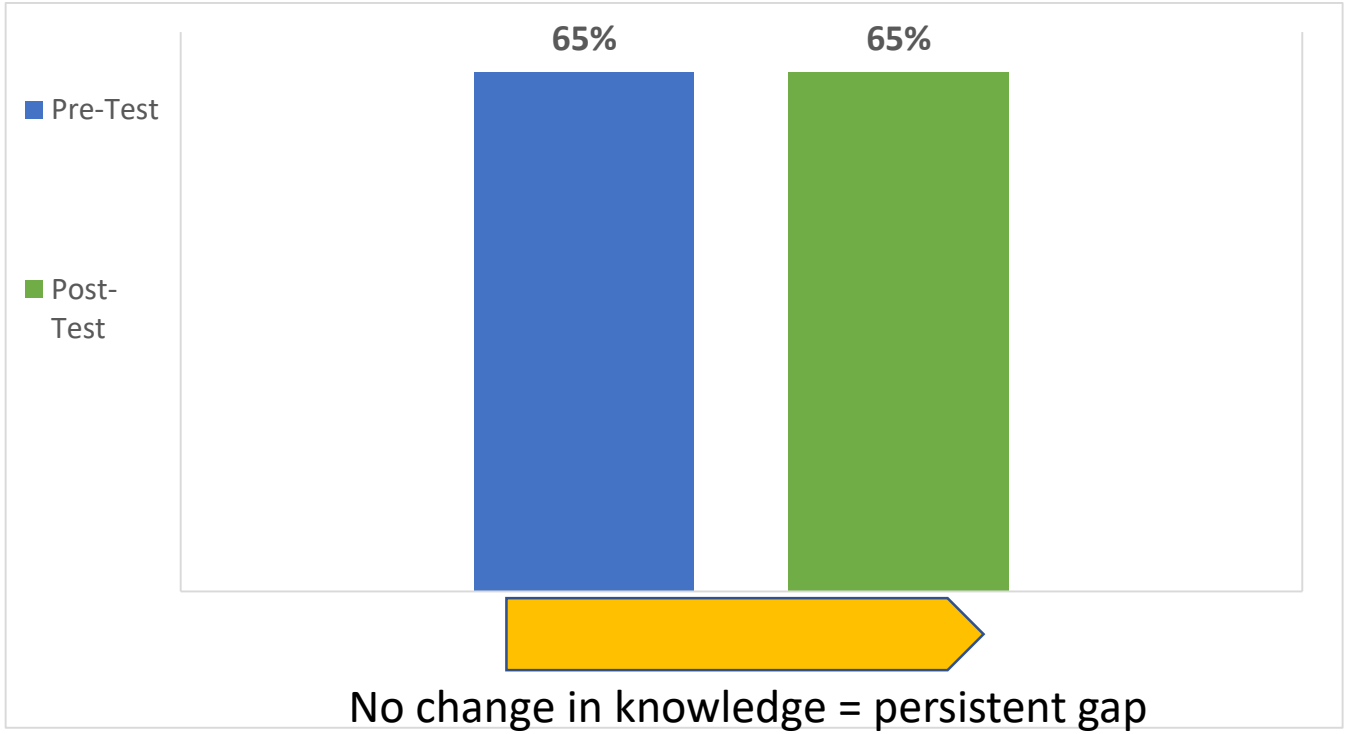
Learning Objective:
Identify clinical features that distinguish EGPA from other eosinophilic lung diseases

Q1: Which of the following is most helpful in distinguishing EGPA from chronic eosinophilic pneumonia and hypereosinophilic syndrome?

A. History of Asthma
B. Cardiac involvement
C. ANCA ✓
D. Pulmonary infiltrates

Average Pre N= 19
Average Post N= 31

0% Knowledge Gain



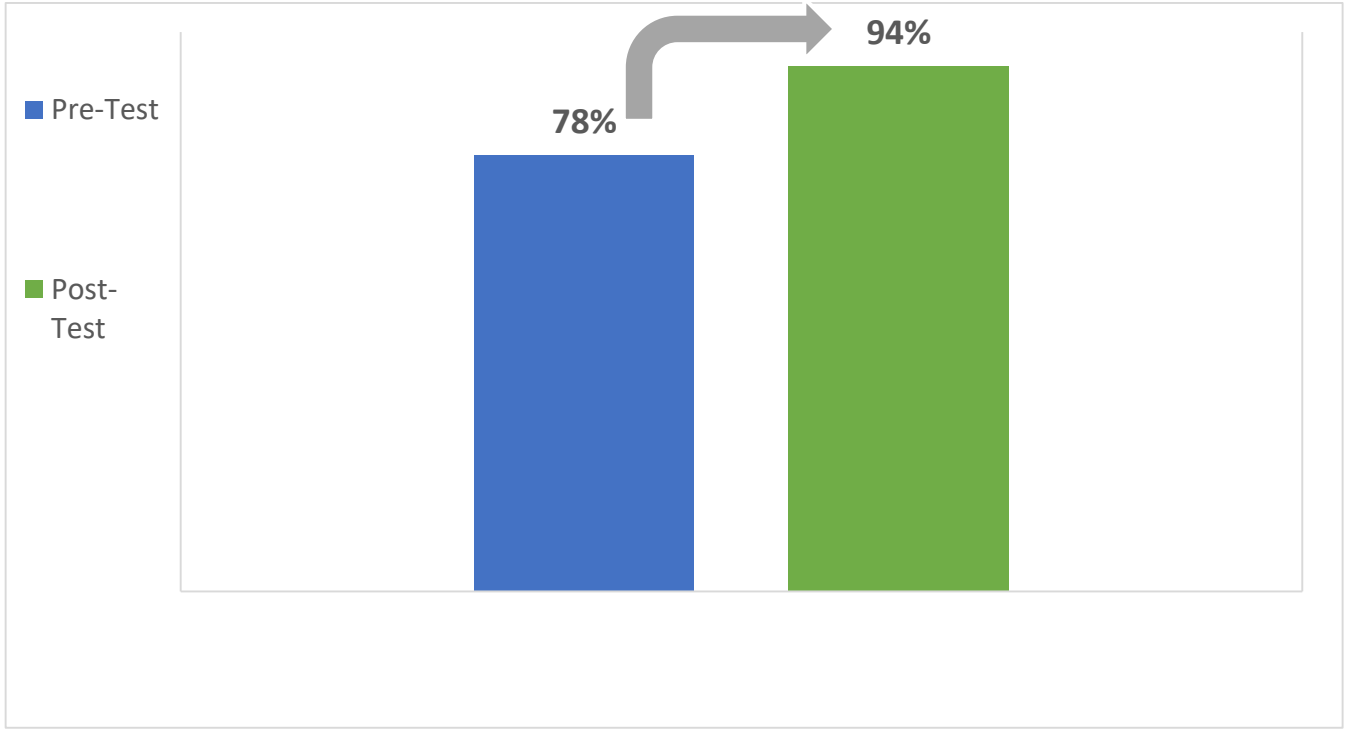
Assessment: Pre-Test/Post-Test
Live Activity

National Jewish Health®

Learning Objective:
Select appropriate treatments for patients with EGPA

Q2: Which of the following treatments for EGPA has been shown to demonstrate improvements in remission, oral corticosteroid dose reductions and/or remaining free of EGPA relapse?

A. Azathioprine
B. Cyclophosphamide
C. Mepolizumab ✓
D. Methotrexate
E. Mycophenolate mofetil



Average Pre N= 19
Average Post N= 31

21% Knowledge Gain

Assessment: Pre-Test/Post-Test
Live Activity

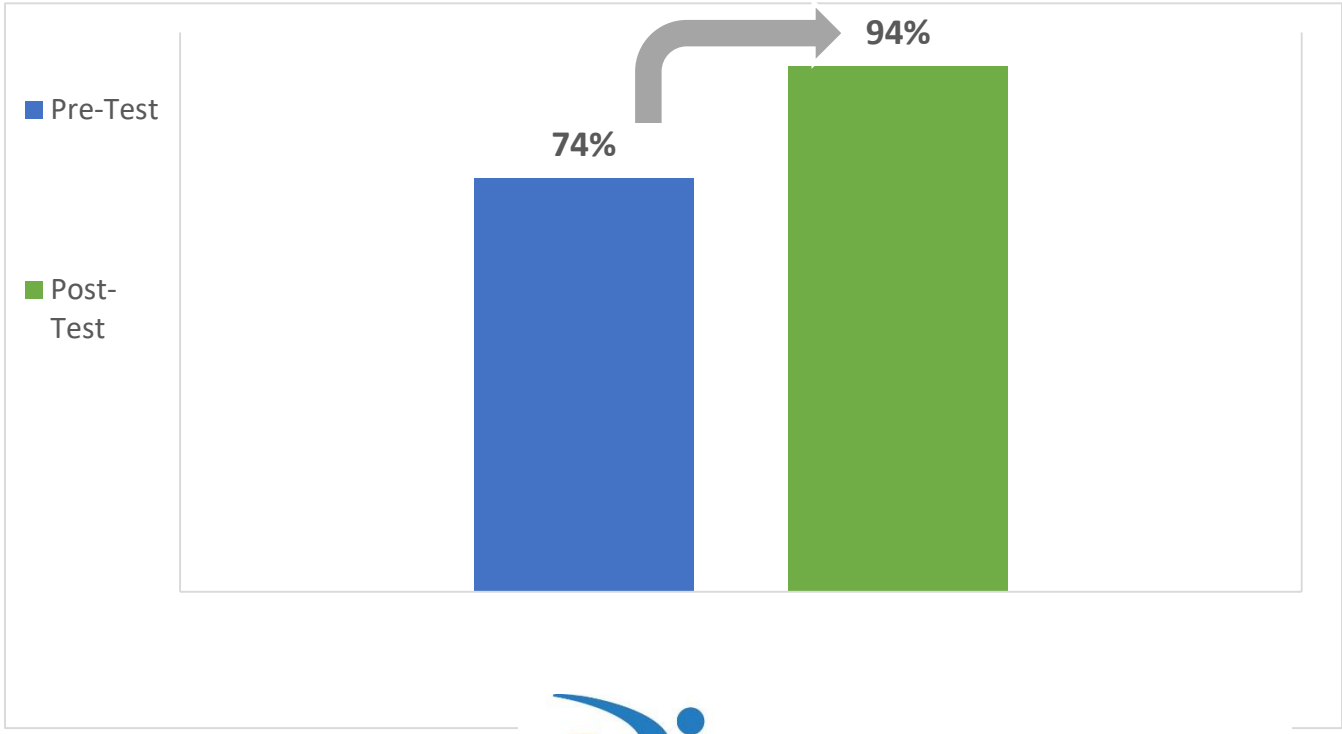
National Jewish Health®

Learning Objective:

Review best practices for early evaluation and differential diagnosis of EGPA

Q3: Which of the following features is most important for making a diagnosis of EGPA?

A. A persistent total blood eosinophil count >1500 cells/µL
B. A skin biopsy showing eosinophil accumulation and degranulation
C. A constellation of clinical and pathologic findings ✓
D. A positive ANCA test



Average Pre N= 19
Average Post N= 31

27% Knowledge Gain

National Jewish Health®

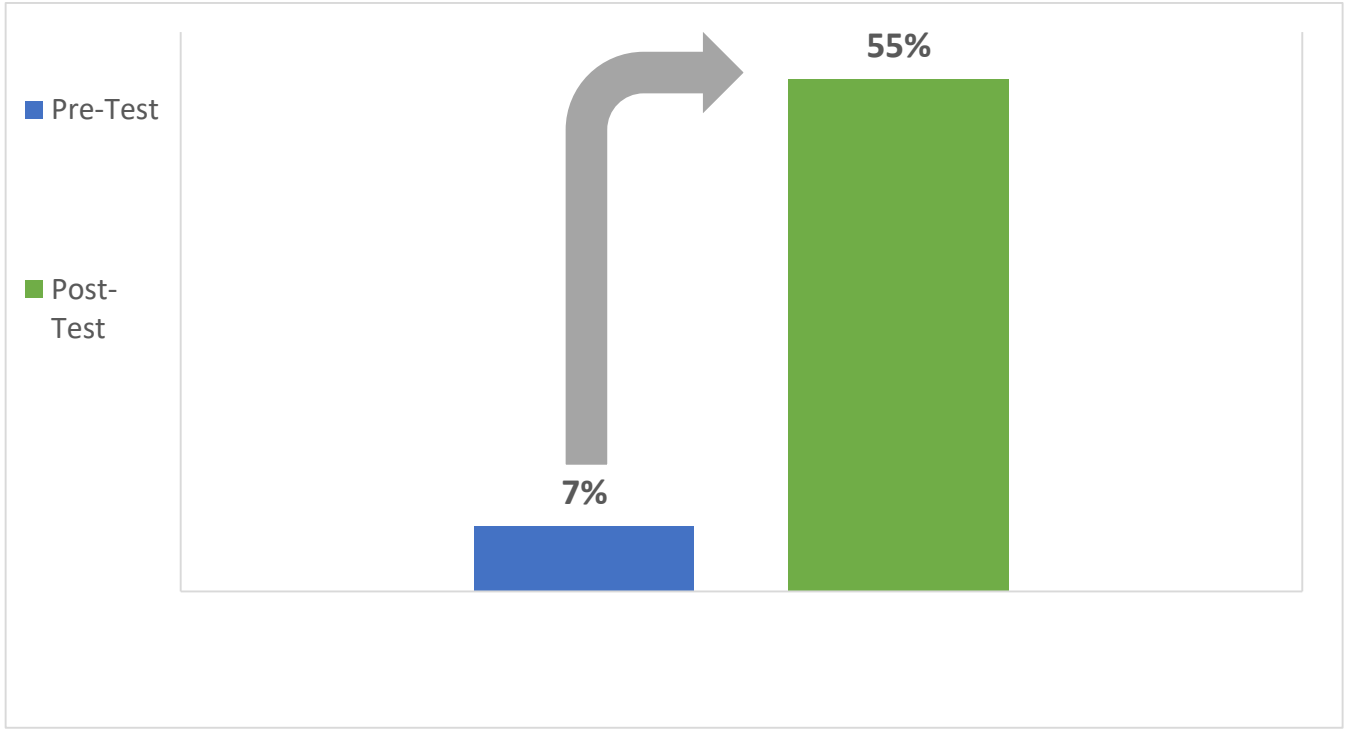
Assessment: Pre-Test/Post-Test
Live Activity

National Jewish Health®

Learning Objective:
Identify clinical features that distinguish EGPA from other eosinophilic lung diseases

Q4: A patient presents with atopy, eczema, sinusitis, asthma, and eosinophilic gastroenteritis with duodenal eosinophilia. The most likely diagnosis is:

A. Eosinophilic gastrointestinal disease (EGID) ✓
B. Strongyloides infection
C. Eosinophilic granulomatosis with polyangiitis (EGPA)
D. Food allergy



Average Pre N= 19
Average Post N= 31

685% Knowledge Gain

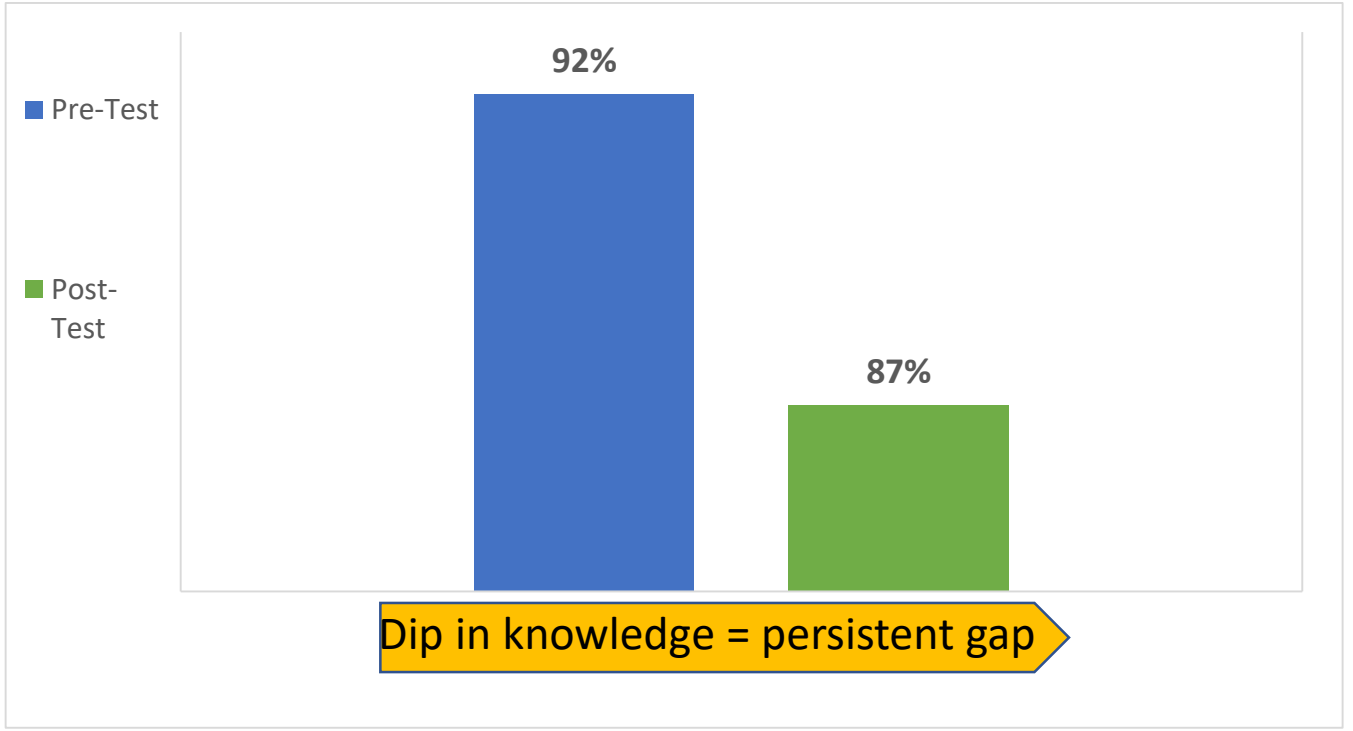
Assessment: Pre-Test/Post-Test
Live Activity

National Jewish Health®

Learning Objective:
Select appropriate treatments for patients with EGPA

Q5: In which clinical scenario should cyclophosphamide be considered?

A. Worsening sinusitis
B. Asthma symptoms requiring at least 8 mg/d of prednisone
C. Foot or wrist drop ✓
D. Presence of MSK symptoms

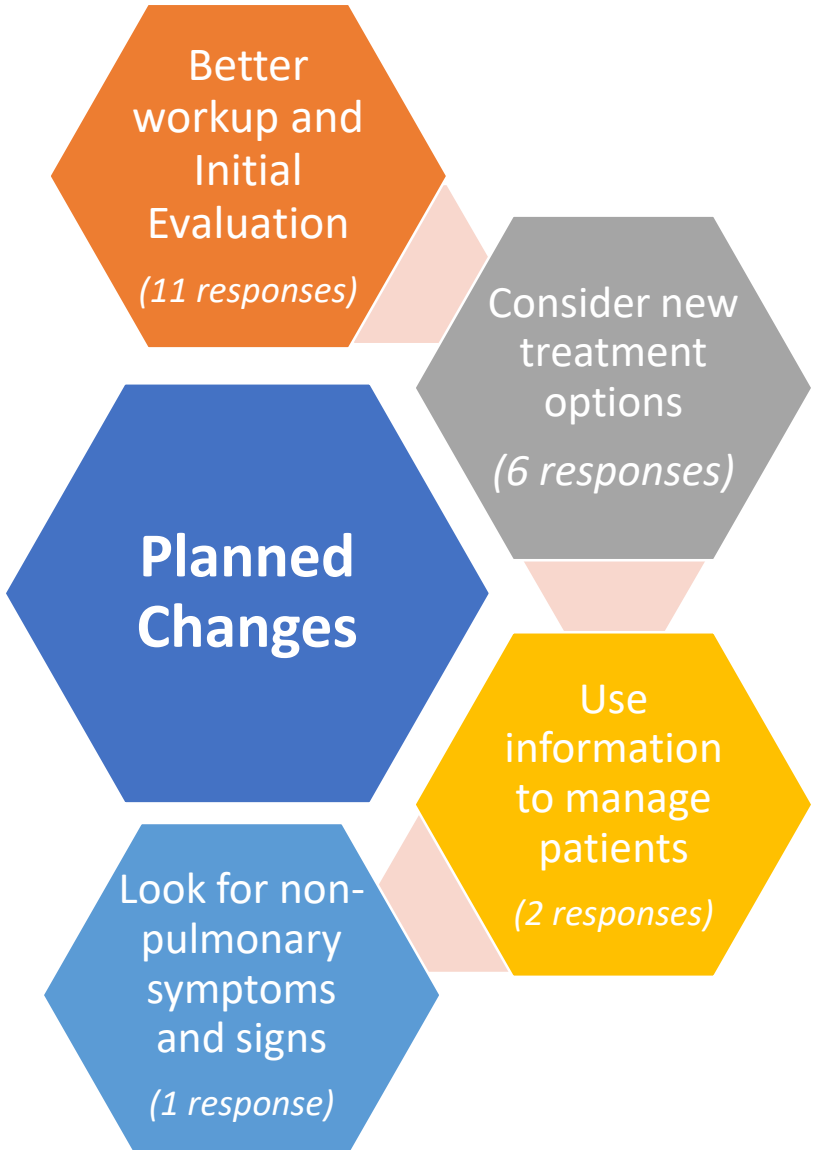


Average Pre N= 19
Average Post N= 31

-5% Knowledge Gain

Open-ended Feedback
Live Activity

National Jewish Health®



Open-ended Feedback
Live Activity

Key Lessons Learned

- How to arrive at differential and actual diagnosis
- Workup and awareness
- Multi-system involvement, think about bone marrow if needed
- Differentiating eosinophilic disorders important
- Multidisciplinary approach important

Needs for Further Education

- Other pulmonary eosinophilia syndromes
- Bronchiectasis, pleural lung disease
- ILD
- COPD
- Asthma
- IPF

Accreditation
Live Activity

- NJH is accredited 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 the live symposia for a maximum of 1.0 *AMA PRA Category 1 Credits*™.

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

National Jewish Health®

Differential Diagnosis and Treatment Selection for Eosinophilic Granulomatosis with Polyangiitis (EGPA)

Thank you for your support of this educational program!

National Jewish Health®