

Hypereosinophilic Syndrome Roadmap: A Guided Workflow for Improved Diagnosis and Treatment in HES

GlaxoSmithKline
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Online Outcomes Summary
Date Range 05/21/21-05/21/22



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Executive Summary

Final Outcomes Summary – Online Enduring



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Program Overview

The goal of this innovative, multimedia, chapterized online activity was to improve the knowledge and competence of allergists and pulmonologists in the diagnosis and management of HES. The activity was distributed on Medscape and included an algorithmic roadmap to demonstrate complex clinical decision-making in HES diagnosis and treatment; whiteboard animations to illustrate HES pathophysiology; and a patient perspective video clip to bring the patient experience to life.

Online Launch Date: 05/21/2021

Online End Date: 05/21/2022

Activity Link: <https://www.medscape.org/viewarticle/950848>

Learning Objectives

- Describe the pathophysiology of HES and role of eosinophils in HES.
- Review best practices for the evaluation and differential diagnosis of HES.
- Identify the mechanisms of action of biologic therapies approved for HES and other eosinophilic disorders.
- Apply the results of clinical studies that examine the safety, efficacy, and tolerability of approved agents when selecting and monitoring therapy for HES.

Target Audience & Accreditation

Allergist/Immunologists and
Pulmonologists

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

Program Features

Final Outcomes Summary –Online Enduring

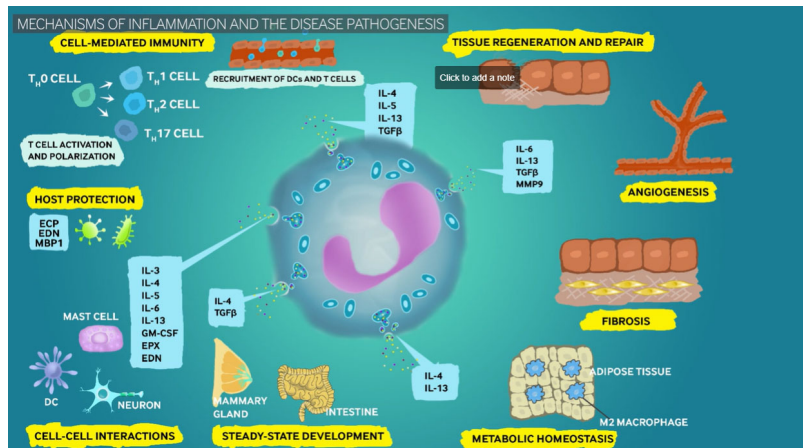


Patient Video

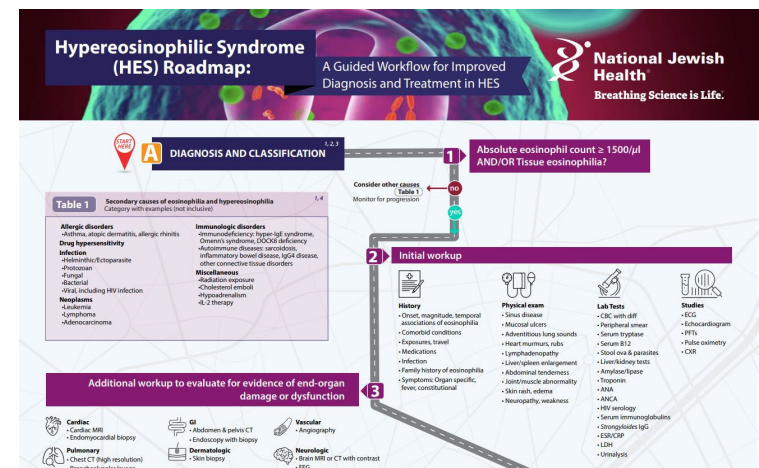


95%
of evaluation respondents found the patient experience insights helpful for their practice [N=1,112]

Whiteboard Animation Clips



Clinical Reference Aid: Algorithmic Roadmap



87%

of evaluation respondents reported they are likely to use the clinical reference aid in practice

[N=1,112]

Audience Generation

Final Outcomes Summary – Online Enduring



Personalized targeting tools across numerous tactics reach health care providers 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 to NJH and MedScape databases and

Spotlight in 2021-2022 Pulmonary Highlights publication

Social media ads and posts

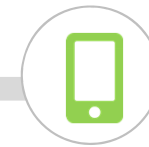
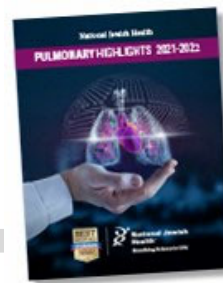
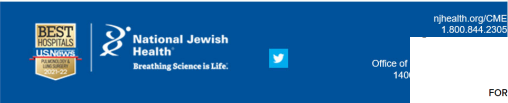
Online Course Spotlight



Hyper eosinophilic Syndrome Roadmap: A Guided Workflow for Improved Diagnosis and Treatment in HES

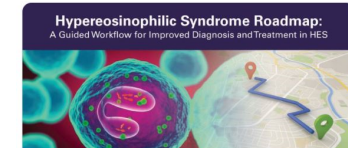
[View Online Activity >](#)

Visit www.njhealth.org/cme for a full list of our upcoming events and online courses.



National Jewish Health Medical Education @NJHealthMedEd

Do you treat #HyperEosinophilicSyndrome? Improve your knowledge and competency in the diagnosis, management and treatment of #HES in this free #CME activity led by @NJHealth Drs. Michael Wechsler and Flavia Hoyte: fal.cn/3ng9G #MedEd @mikewechsler1 @MedscapeCME



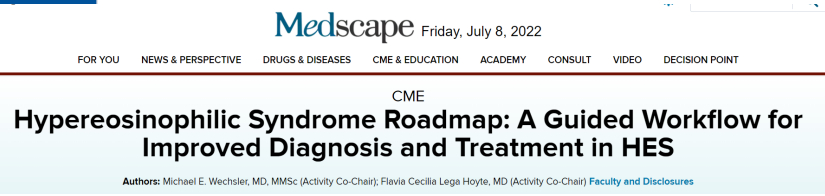
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2 Likes



Dedicated landing page on NJH and MedScape websites

Search engine optimization on MedScape platform

Activity Format: Online Enduring

Final Online Outcomes Summary



Medscape Friday, July 8, 2022

FOR YOU NEWS & PERSPECTIVE DRUGS & DISEASES CME & EDUCATION ACADEMY CONSULT VIDEO DECISION POINT

CME

Hyper eosinophilic Syndrome Roadmap: A Guided Workflow for Improved Diagnosis and Treatment in HES

Authors: Michael E. Wechsler, MD, MMSc (Activity Co-Chair); Flavia Cecilia Lega Hoyte, MD (Activity Co-Chair) [Faculty and Disclosures](#)

This educational activity is supported by an educational grant from **GlaxoSmithKline**



Provided by
National Jewish Health

Parasitic infections	Filariae	Protozoan infections
<ul style="list-style-type: none"> • Strongyloides, with an outbreak • Subcutaneous infections 	<ul style="list-style-type: none"> • Brucella • Histoplasma • Paratuberculosis • Tuberculosis 	<ul style="list-style-type: none"> • Histoplasma • Paratuberculosis • Tuberculosis
Other infections	<ul style="list-style-type: none"> • Histoplasma • Paratuberculosis • Tuberculosis 	<ul style="list-style-type: none"> • Histoplasma • Paratuberculosis • Tuberculosis

Identifying HES Patients

- The challenge:
 - HES is a rare and complex disease: only ~5000 cases in the US
 - Many clinicians don't understand HES or are not aware of it and don't look for it
 - There is no typical HES presentation
- HES patients present to a wide variety of clinicians:
 - Pulmonary
 - Hematology
 - GI
 - Allergy
 - ID
 - Cardiology
 - Dermatology

[CME Information](#)

[Download Slides](#)

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<https://www.medscape.org/viewarticle/950848>

Program Summary Dashboard – Final Outcomes Summary Through 5/21/2022

Hypereosinophilic Syndrome Roadmap: A Guided Workflow for Improved Diagnosis and Treatment in HES

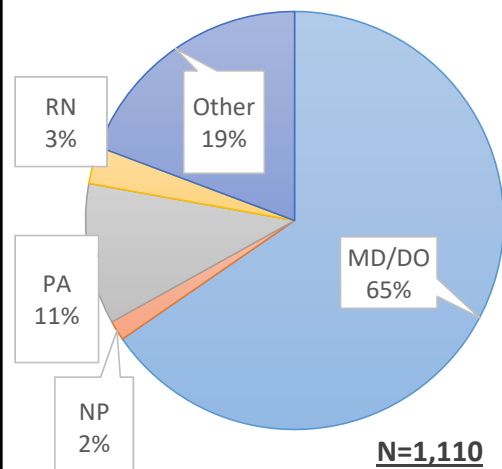
Program Faculty: Michael E. Wechsler, MD, MMSc, Flavia Hoyte, MD

Online: May 21, 2021-May 21, 2022

Online Program Participation

2,240 Learners | 1,110 Completers

Completers by Degree



Specialty	# of Completers
Family Med/General	306
Allergy/Immunology	115
Pulmonology	97
Internal Medicine	71
Surgery	39
Emergency Medicine	27
Pediatrics	23
Hematology/Oncology	23
Cardiology	8
Gastroenterology	7
Other	394
Total	1,110

78%
Physicians and advanced practice providers

Learning Objectives

1. Describe the pathophysiology of HES and role of eosinophils in HES.
2. Review best practices for the evaluation and differential diagnosis of HES.
3. Identify the mechanisms of action of biologic therapies approved for HES and other eosinophilic disorders.
4. Apply the results of clinical studies that examine the safety, efficacy, and tolerability of approved agents when selecting and monitoring therapy for HES

Satisfaction

Evaluation respondents for this online activity reported: **N=1,112**

The activity met the learning objectives

95%

The activity met their educational needs

95%

The activity was free of commercial bias

96%

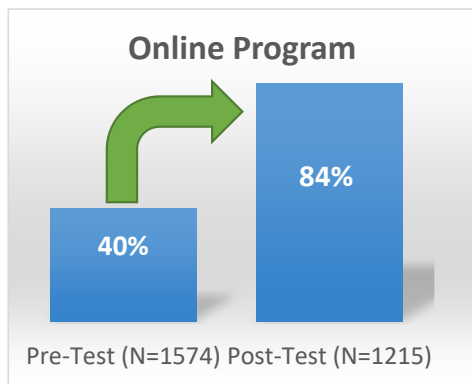
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Program Faculty: Michael E. Wechsler, MD, MMSc, Flavia Hoyte, MD

Online: Medscape May,21 2021-May 21,2022

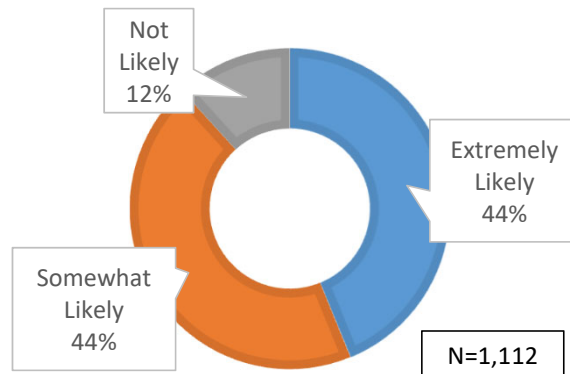
Knowledge



110% relative gain in knowledge
44% absolute gain in knowledge

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:



94% of evaluation respondents reported the activity reinforced and/or improved their skills

Top 3 Practice Changes

Evaluation respondents for this activity reported specific intended practice changes as a result of what they learned:

- 1 Improve differential diagnosis of HES
- 2 Conduct a more comprehensive history and physical exam for patient screening
- 3 Evaluate for evidence of end-organ damage or dysfunction

Patient Impact

1,112 evaluation respondents

Who treat **6,162 patients** with HES and related eosinophilic disorders weekly

Based on self-reported number of patients seen on a weekly basis with conditions discussed in activity (multiplied by 48 for annual estimate).

Potential impact to **295,776** patient visits annually

Program Summary Dashboard – Final Outcomes Summary Through 5/21/2022

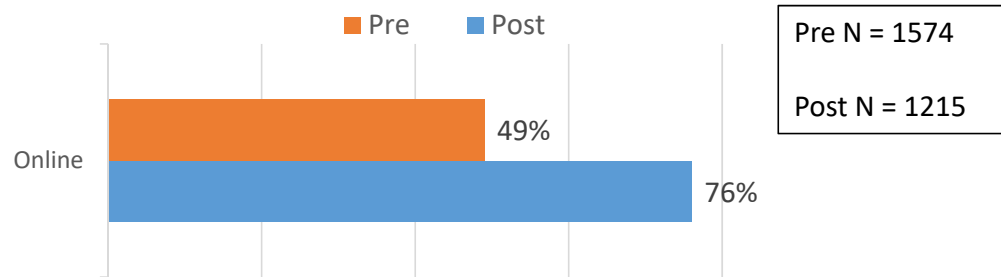
Hypereosinophilic Syndrome Roadmap: A Guided Workflow for Improved Diagnosis and Treatment in HES

Program Faculty: Michael E. Wechsler, Flavia Hoyte, MD
Online: MedScape: 5/21/2021 – 5/21/2022

Persistent Gaps and Needs

- ✓ A gap persists related to **describing the pathophysiology of HES**

Learners were asked to explain the role of eosinophils in HES:



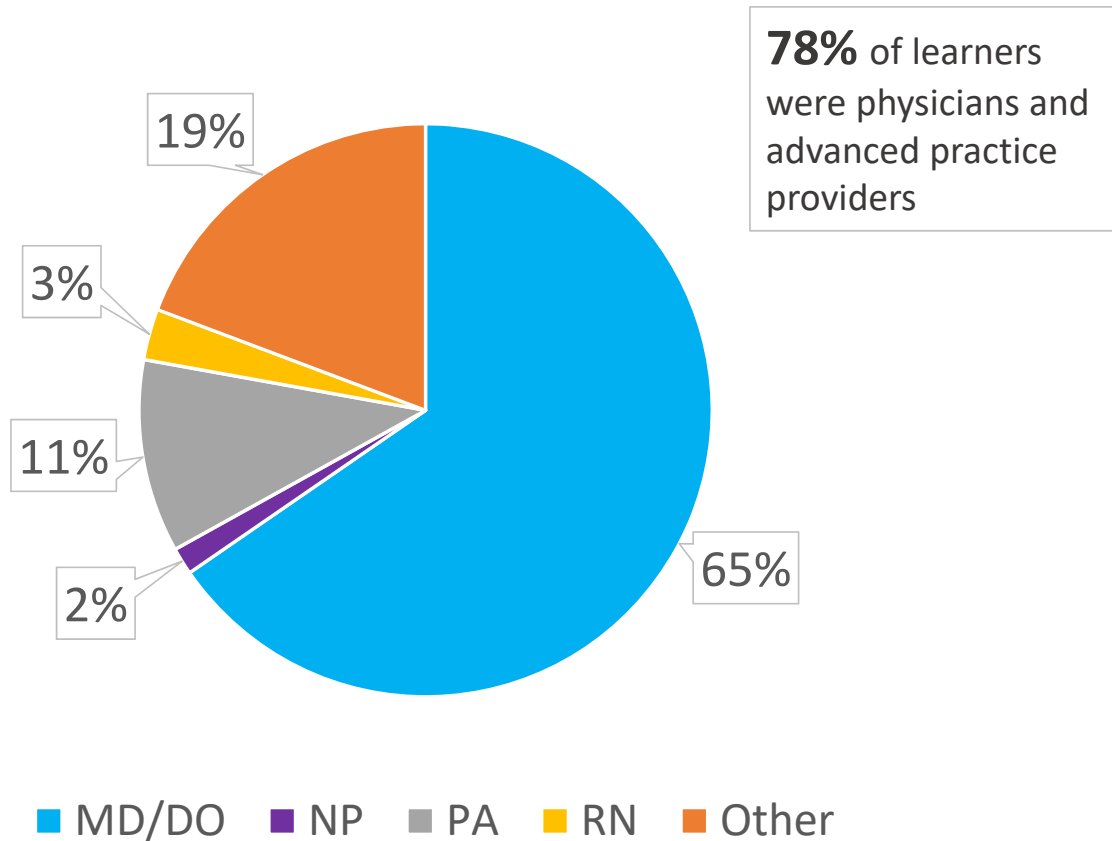
In this online activity, 24% still remained unable to correctly describe the role of eosinophils in HES pathophysiology at post-test.

Program Insights

- Evaluation respondents demonstrated a significant increase in confidence applying the learning objectives in practice. Relative confidence gain from pre- to post-activity was 120%.
- Competence-based learning occurred in 91% of test-takers, demonstrated by their ability to answer case-based questions accurately.
- Needs for future education include pathophysiology of HES, differential diagnosis, and advances in pharmacologic treatment.

Level (1) Outcomes: Participation (Degree)

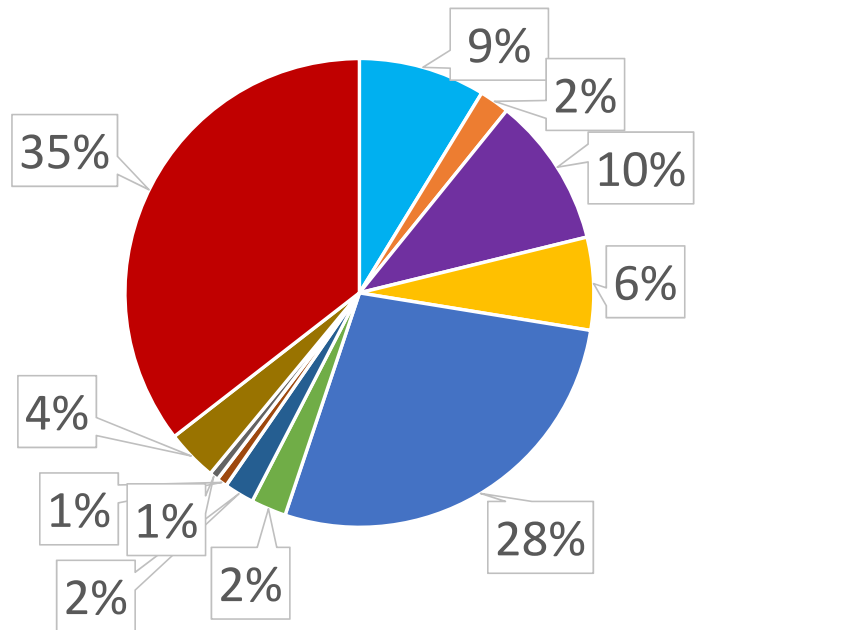
Final Online Outcomes Summary



Degree	Total
MD/DO	726
NP	17
PA	121
RN/LPN	32
Other	214
Total Completers	1,110

Level (1) Outcomes: Participation (Specialty)

Final Online Outcomes Summary



- Pulmonary
- Allergy/Immunology
- Family Med/General
- Hematology/Oncology
- Gastroenterology
- Other
- Pediatrics
- Internal Medicine
- Emergency Medicine
- Cardiology
- Surgery

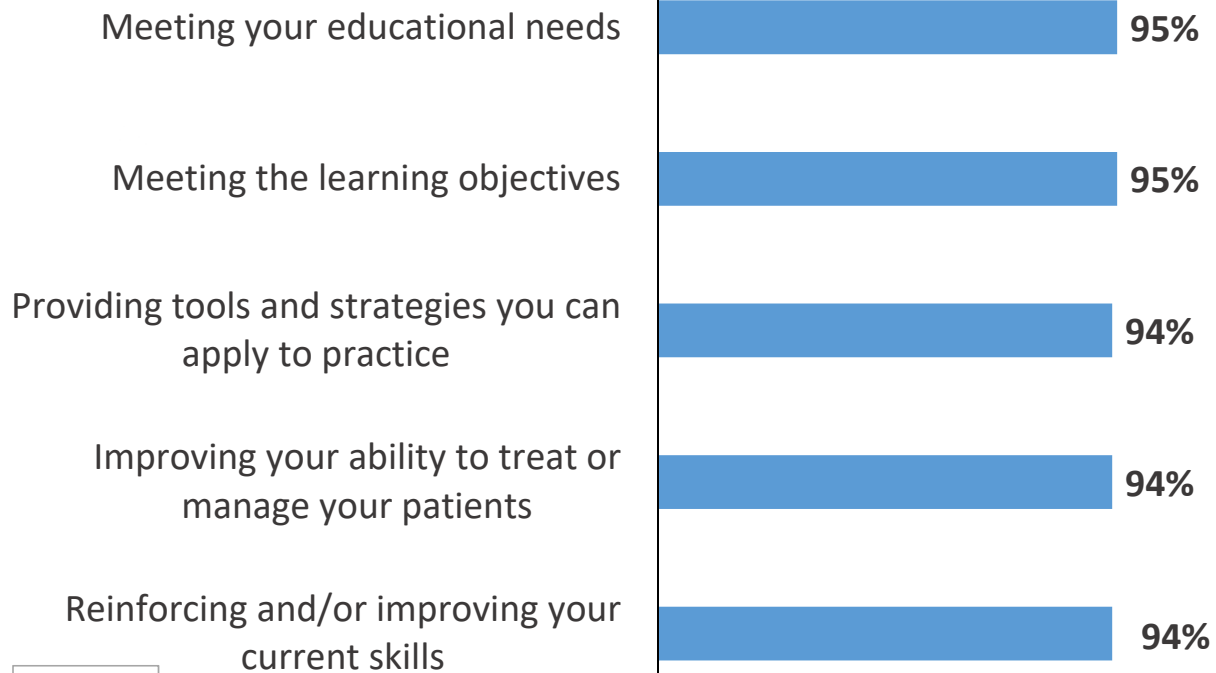
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Gastroenterology	7
Other	394
Total Completers	1,110

Level (2) Outcomes: Satisfaction

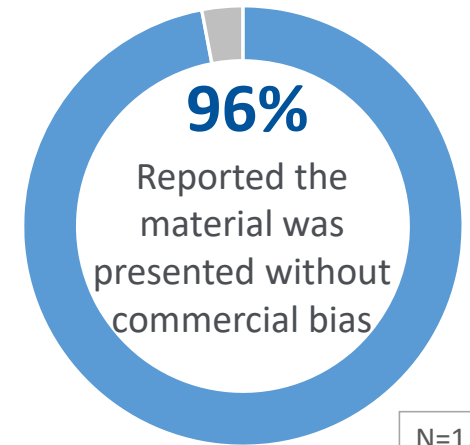
Final Online Outcomes Summary



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



N= 1,112

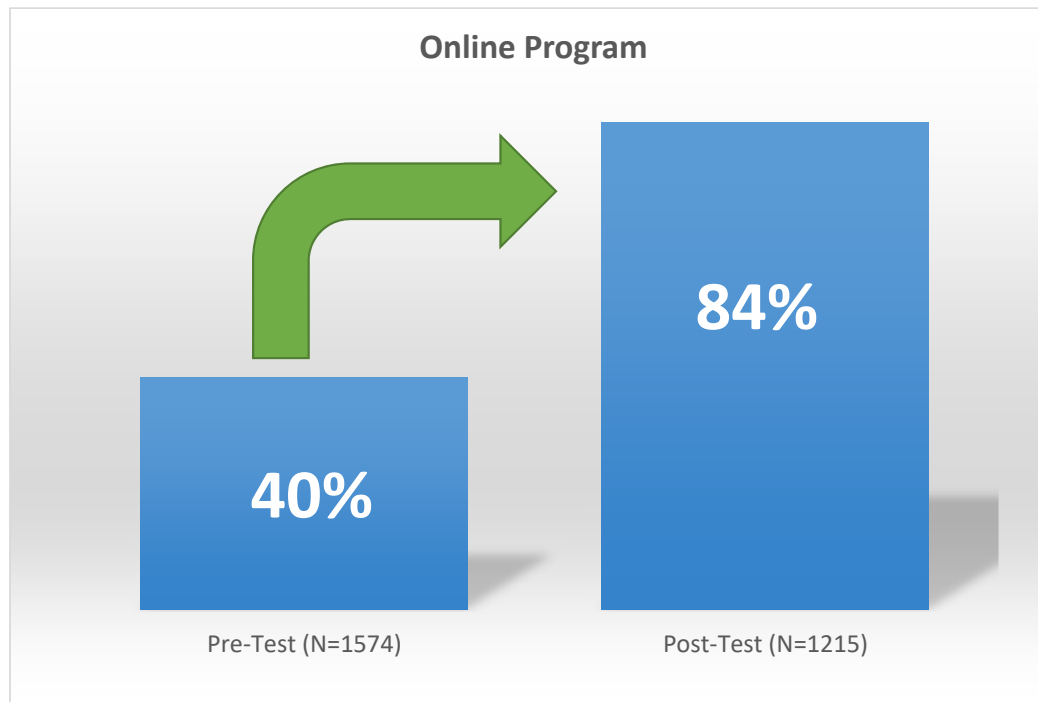


N=1,112



Overall Knowledge Gain

Final Online Outcomes Summary



110% relative gain in knowledge
44% absolute gain in knowledge

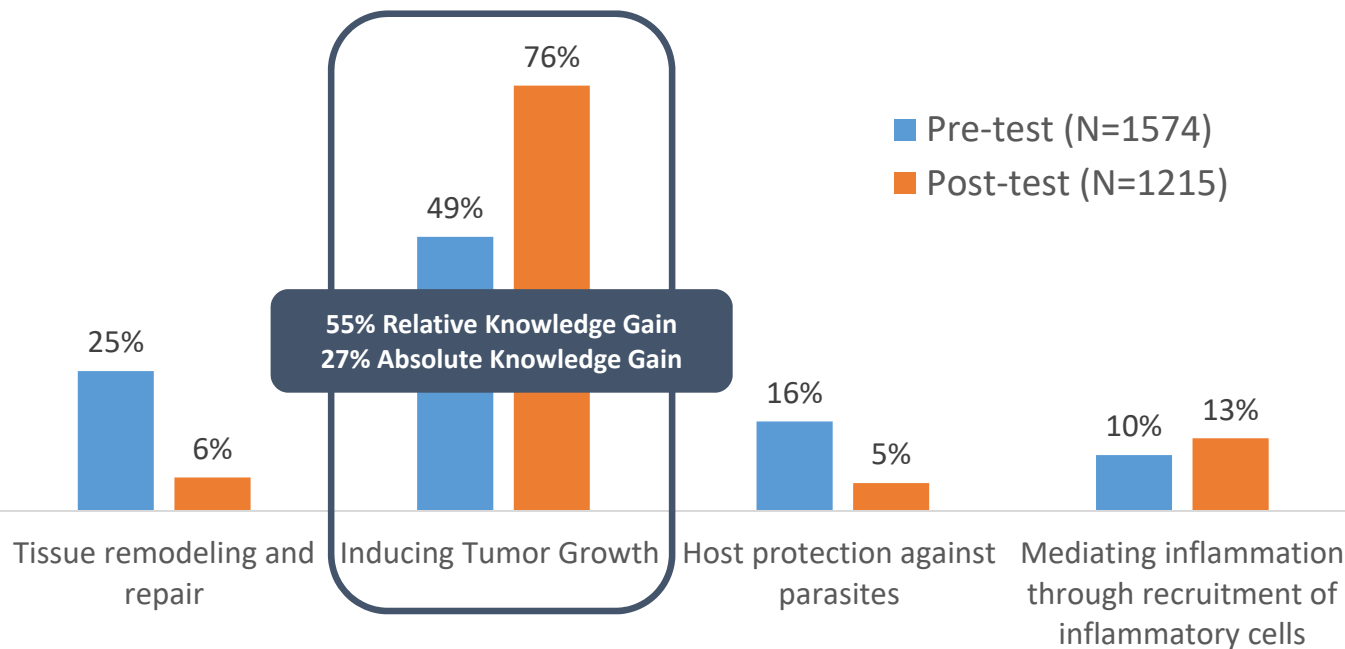
Level (3 & 4) Outcomes: Knowledge & Competence



Final Online Outcomes Summary

Learning Objective: Describe the pathophysiology of HES and role of eosinophils in HES.

Question 1: Eosinophils play an important role in all of the following EXCEPT:



Clinical Rationale:

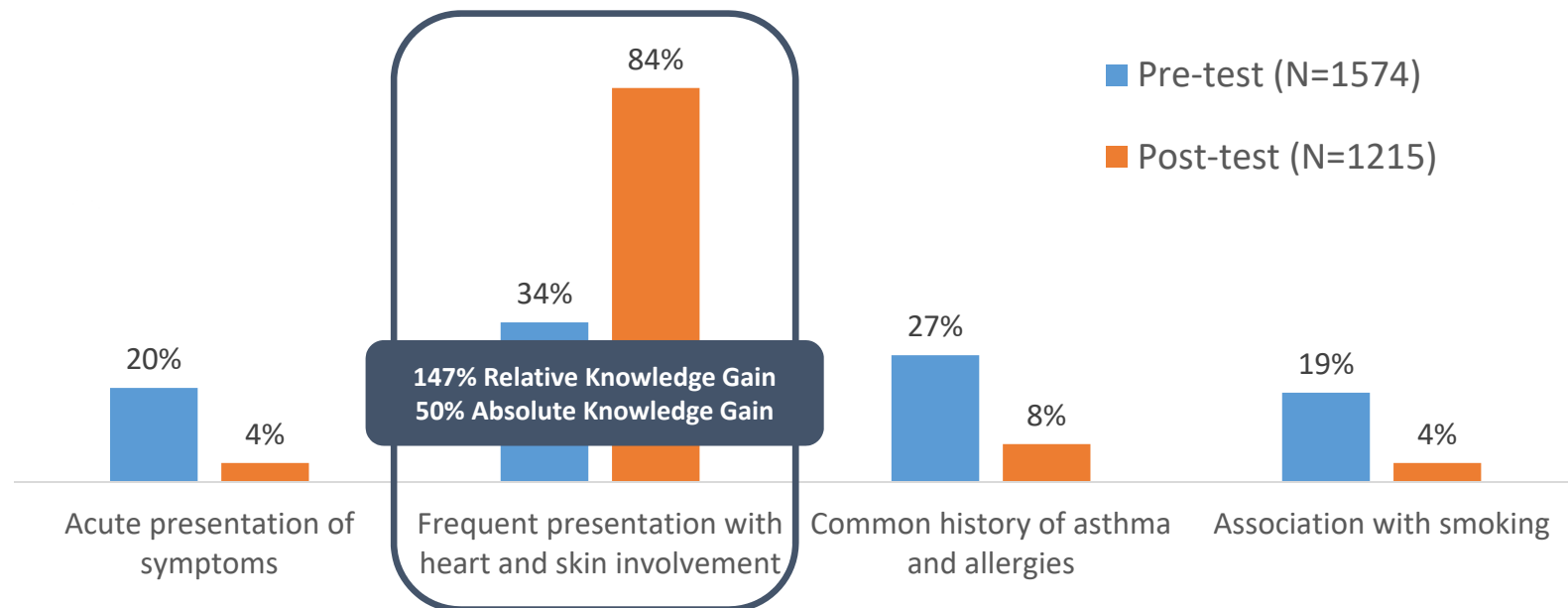
Eosinophils are a type of leukocyte, or white blood cell. They generally represent <5% of circulating white blood cells and are important in both health and disease. In normal physiology, eosinophils contribute to regulatory and homeostatic roles, tissue remodeling and repair, and induction of host protection, especially against parasites. Eosinophils can also contribute to inflammation through the recruitment and activation of other inflammatory cells. Eosinophils also appear to play a role in abrogating tumor growth in some malignancies (answer B is thus incorrect).

Level (3 & 4) Outcomes: Knowledge & Competence

Final Online Outcomes Summary

Learning Objective: Review best practices for the evaluation and differential diagnosis of HES.

Question 2: HES can be differentiated from other pulmonary eosinophilic conditions by which of the following?



Clinical Rationale: Primary pulmonary eosinophilic disorders include acute and chronic eosinophilic pneumonia and eosinophilic granulomatosis with polyangiitis. In contrast to HES and the other pulmonary eosinophilic disorders, only acute eosinophilic pneumonia is characterized by acute presentation of symptoms and association with smoking (answers a and C are incorrect). Both chronic eosinophilic pneumonia and EGPA have a common history of asthma and allergies; this is uncommon in HES (answer c is incorrect). While heart and skin involvement may be seen in EGPA, they are more commonly presenting manifestation of HES vs, the other entities (answer D is correct). Initial studies will involve an electrocardiogram and echocardiogram to look for cardiac involvement, pulmonary function tests to assess lung function and look for evidence of asthma, pulse oximetry and chest x-ray to help rule out other causes of pulmonary eosinophilia.

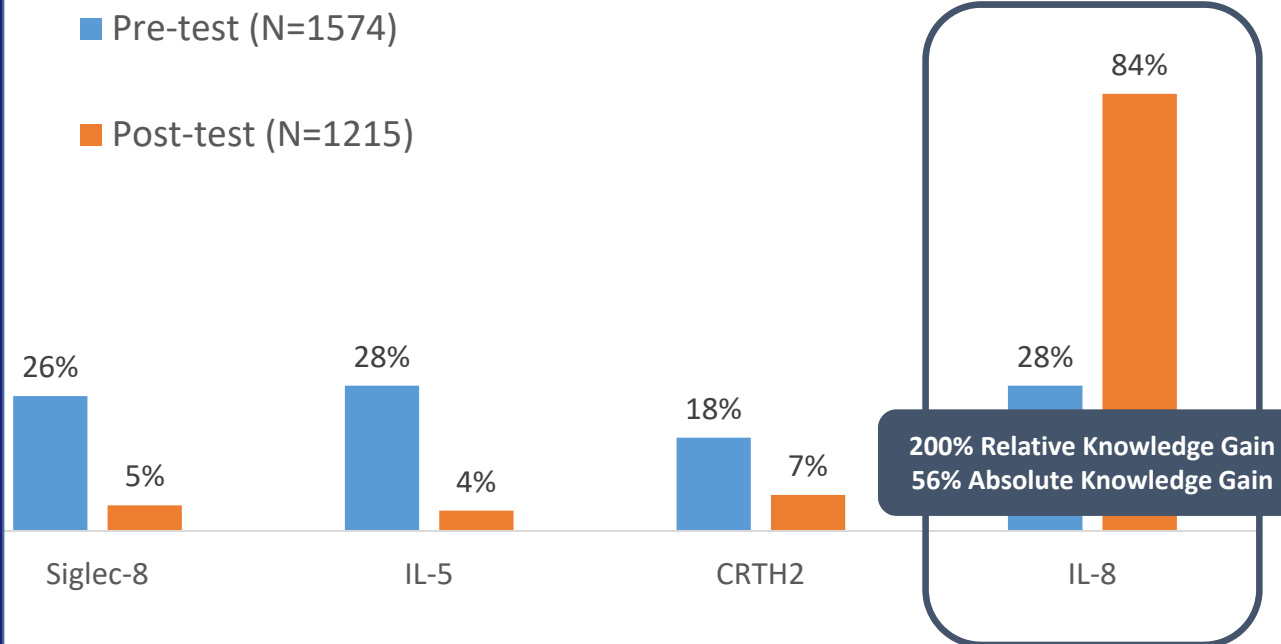
Level (3 & 4) Outcomes: Knowledge & Competence



Final Online Outcomes Summary

Learning Objective: Identify the mechanisms of action of biologic therapies approved for HES and other eosinophilic disorders.

Question 3: Key drivers of eosinophilic inflammation which serve as potential targets in the treatment of HES include all of the following EXCEPT:



Clinical Rationale:

The eosinophil possesses multiple targets that are the focus of active research in patients with eosinophilic diseases. These include IL-5, which is the primary cytokine responsible for eosinophil differentiation, maturation, and growth, the IL-5 receptor alpha, found on both eosinophils and basophils; CCR3, which is highly expressed in eosinophils and basophils but can also be detected in TH1 and TH2 cells, as well as in airway epithelial cells; Siglec-8, or Sialic acid-binding Ig-like lectin 8, which is expressed on eosinophils and mast cells and less-so on basophils; EMR1, or EGF-like module-containing mucin-like hormone receptor-like 1, which in humans is uniquely expressed on eosinophils; CRTH2, which is a prostaglandin D2 receptor present on many cell types. Interleukin 8 is not thought to be a key driver of eosinophilic inflammation (answer D is correct).

Level (3 & 4) Outcomes: Knowledge & Competence



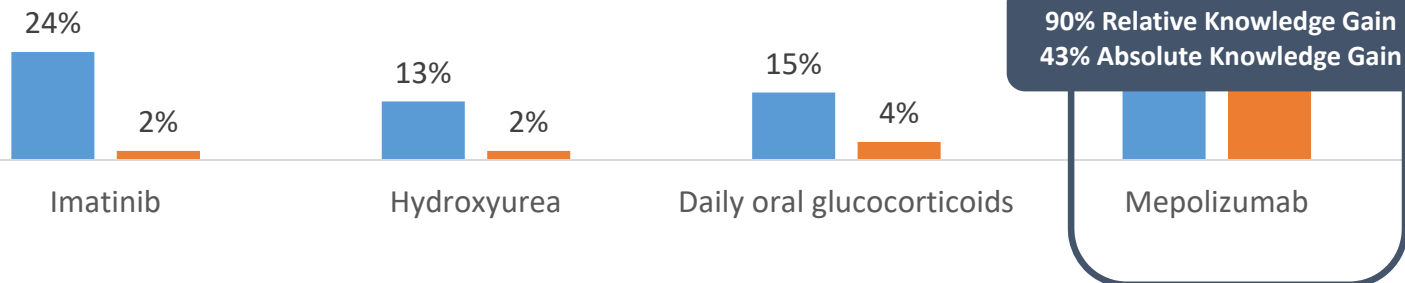
Final Online Outcomes Summary

Learning Objective: Identify the mechanisms of action of biologic therapies approved for HES and other eosinophilic disorders.

Question 4: A 53-year-old female is diagnosed with idiopathic HES after her eosinophil count was found to be consistently in the 5000-6000 range. Her FIP1L1-PDGFR α mutation analysis was negative, and her bone marrow biopsy does not show evidence of other abnormal cell lines or known genetic mutations. She is currently doing well other than peripheral neuropathy of the hands and feet and a dermatitis that has demonstrated eosinophils without vasculitis on biopsy. Her symptoms respond well to bursts of glucocorticoids, but return almost immediately each time the steroid dose is weaned. What is the safest and most effective long-term therapy for this patient?

■ Pre-test (N=344)
■ Post-test (N=1215)

Note: Pre-test N is lower on this question due to a technical issue on the Medscape platform.



Clinical Rationale:

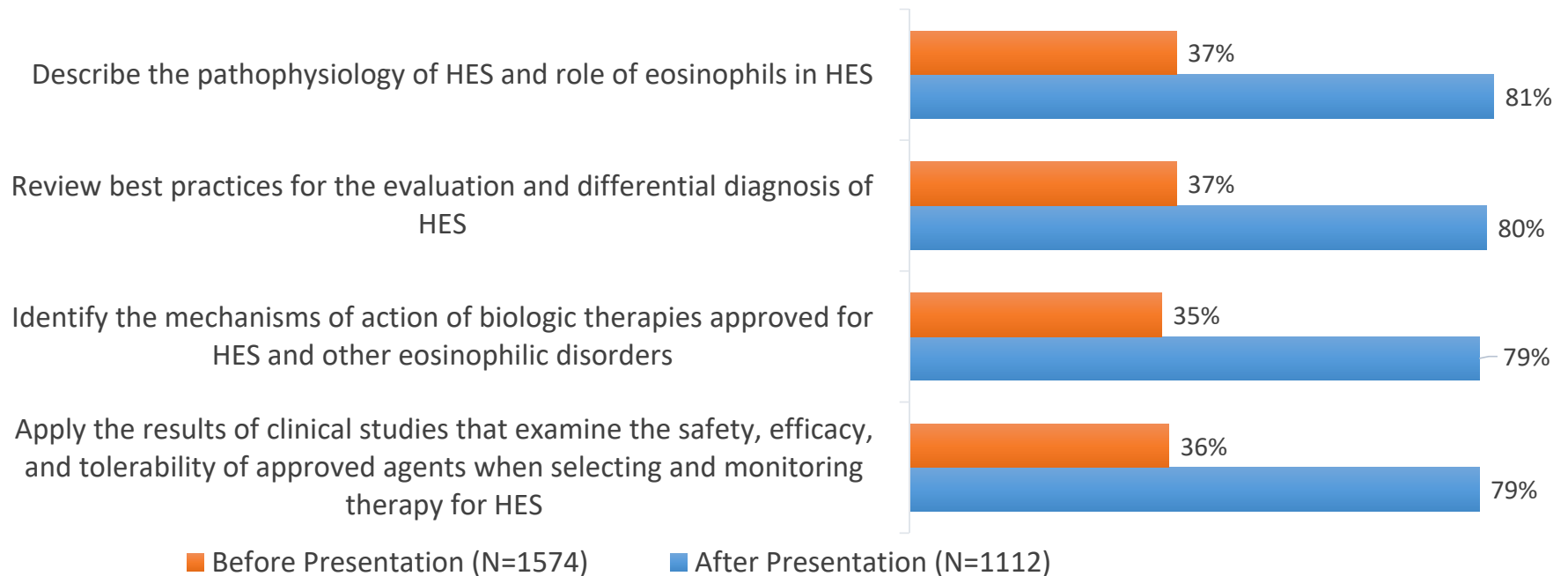
Although there are various drugs in development or drugs approved for other conditions, which target the various receptors on the eosinophil surface and, as such, serve as potential therapies for HES, mepolizumab is the only medication currently approved for the treatment of HES.

Level (4) Outcomes: Competence

Final Online Outcomes Summary

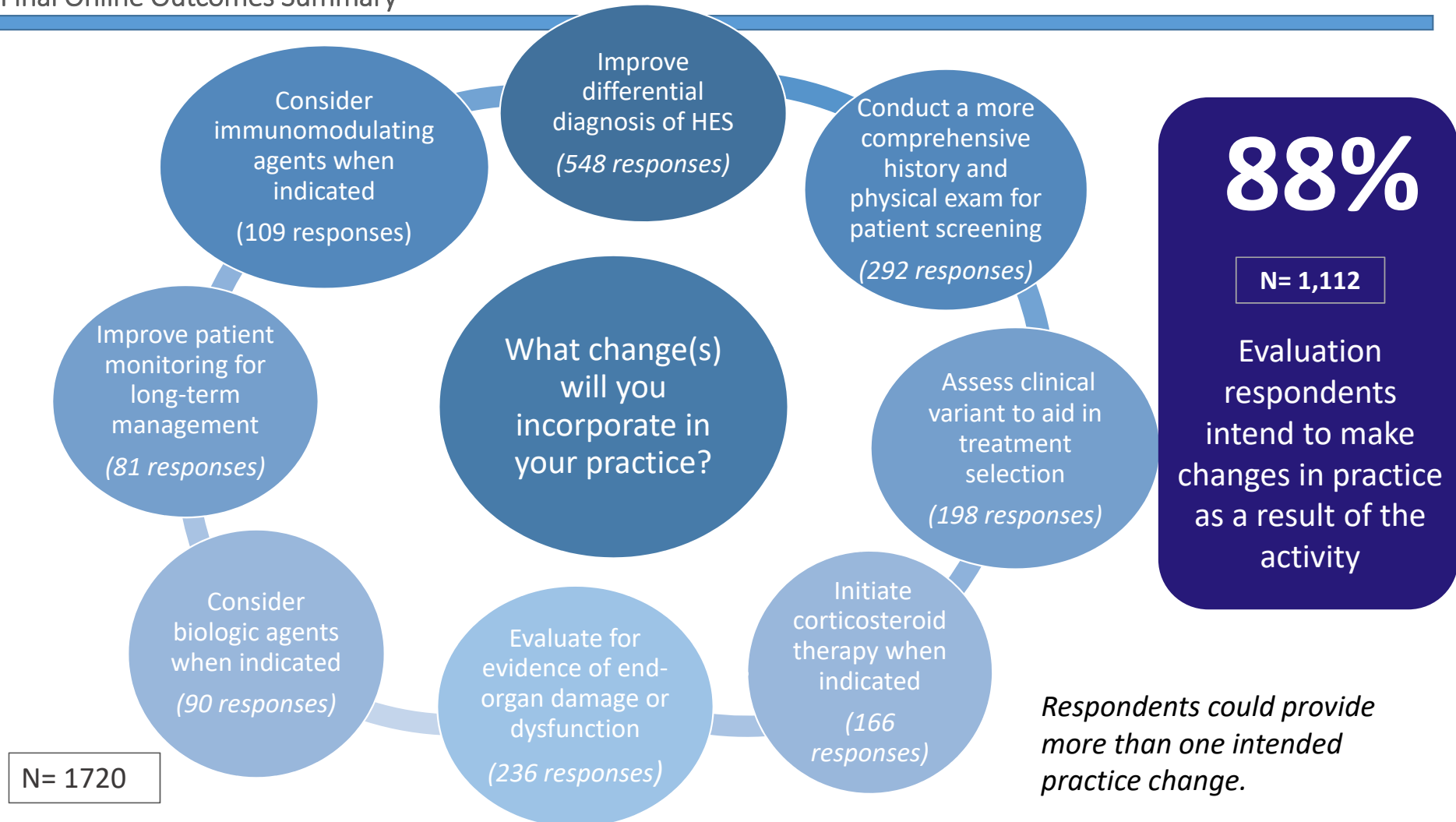


Evaluation respondents reported their confidence as it relates to the learning objectives before and after the activity (Very confident – confident)



Level (4) Outcomes: Competence

Final Online Outcomes Summary



Evaluation Survey Results

Final Online Outcomes Summary



Evaluation respondents reported their key takeaways from the activity:

Better understanding of management of HES	Burden of hypereosinophilic syndrome
Careful evaluation	Consider eosinophilic related disease
Coordination of evaluation with other subspecialists	Pharmacologic treatment of HES
Complexity of HES presentation and the advances in treatment	Earlier diagnosis and treatment options
Advancements in targeted therapy	Importance of biologics in HES
Importance of eosinophils	Differential diagnosis of HES and understanding of the pathophysiology

82%

N= 1,112

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



Evaluation Survey Results

Final Online Outcomes Summary



What topics would you like more information about in future educational activities?

Monitoring patient response to medication

Updates in clinical guidelines

New biologics

New advances in treatment of HES

Tolerability and side effects of new treatments

Differential diagnosis of HES

Cardiac involvement with HES

Related eosinophilic diseases

Drug therapy in more detail



Accreditation Details

Final Outcomes Summary – 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 the enduring material for a maximum of 1.0 *AMA PRA Category 1 Credit™*.

