

Selecting the Right Treatment for Your Patient with Severe Asthma

Final Outcomes Summary: Online Enduring Program

Data: 9/03/20 – 9/03/21

Novartis: NGC38797



**National Jewish
Health**[®]

Breathing Science is Life





Selecting the Right Treatment for Your Patient with Severe Asthma

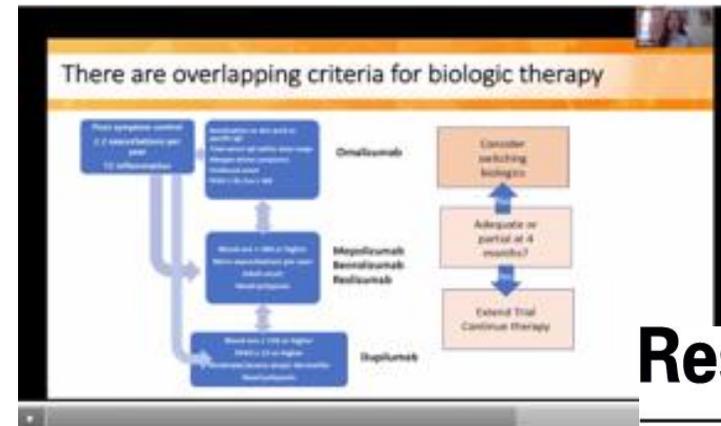
[Final Online Enduring]

Program Overview

This collaborative program is an innovative, multimedia, engaging online enduring program developed in partnership with the Mount Sinai – National Jewish Health Respiratory Institute and the Jane and Leonard Korman Respiratory Institute - Jefferson Health and National Jewish Health, known collectively as The Respiratory Institutes. The goal of this program was to improve the knowledge and competence of allergists, pulmonologists, primary care physicians and pediatricians in the diagnosis, management, and treatment of severe asthma during the online multimedia initiative. Based on an article written by two National Jewish Health physicians, Michael Wechsler, MD, MMsC, and Laurie Manka, MD, entitled *Selecting the Right Biologic for Your Patients with Severe Asthma*, this program leverages the expertise of National Jewish Health's thought leaders to help busy physicians understand the nuances and clinical data to select the best treatment for patients with severe asthma.

Learning Objectives

- Explain the mechanisms of action of biologic therapies and the targets for treatment in severe asthma
- Execute strategies for diagnosing and differentiating uncontrolled and severe asthma
- Select treatments based on endotypes, clinical biomarkers and patient-centered factors
- Interpret the benefits and barriers to the different methods of administration of biologics with a patient-centered approach



Respiratory Institute



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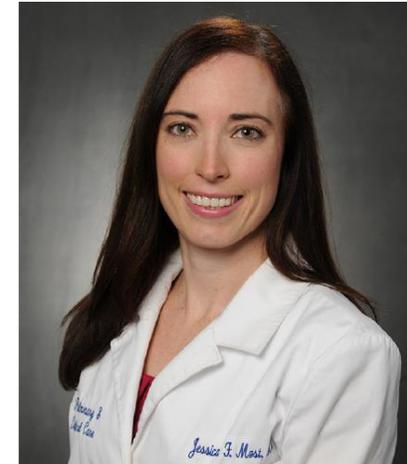
Program Faculty



Michael E. Wechsler, MD, MMSc
Professor of Medicine
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Linda Rogers, MD
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Jessica Most, MD
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Director, Outpatient Services
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“Thank you very much for this enlightening and important activity.” – Online enduring program learner

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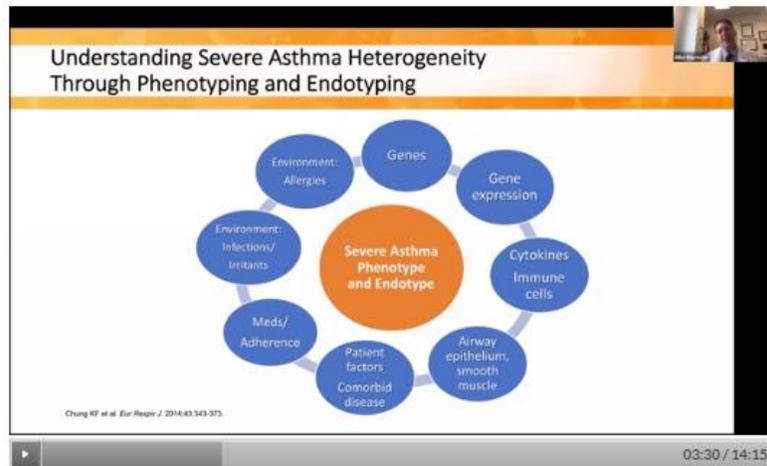


Online Enduring Program – Learner Definitions

Launched 9/03/2020

<https://learning.freecme.com/a/35389PDMAbk>

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Proceed

| Platform | Participant Definition | Learner Definition | Completer/ Test-Taker Definition |
|----------|--------------------------------|--|----------------------------------|
| freeCME | Unique front matter page views | Clicked past the front matter and started the activity | Completer letters generated |
| Platform | Participant Guarantees | Learner Guarantees | Completer Guarantees |
| freeCME | 3,000 | 1,000 | 600 |
| Platform | Participant Actuals | Learner Actuals | Completer Actuals |
| freeCME | 7,798 | 1,789 | 1,447 |

Surpassed learner guarantees by 789 and completer guarantees by 847!

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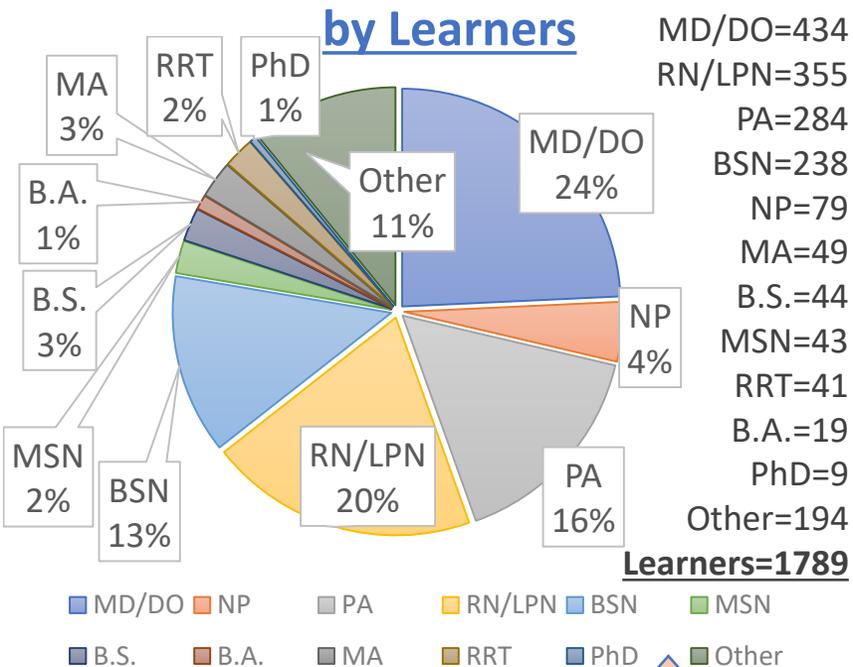


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Quantitative Educational Impact Summary: Final Online Enduring Program

Participation Breakdown

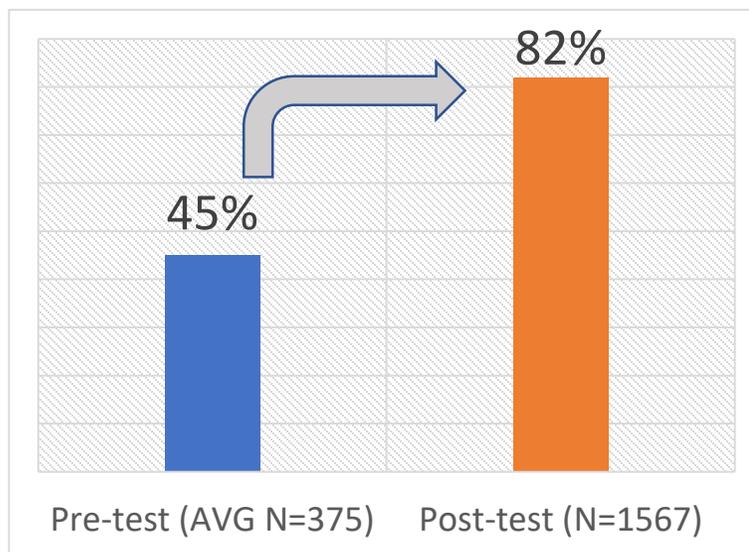
by Learners



1447
Completers

Potential Impact to
435,656
patient visits
this year

Overall Knowledge Gain



82% Relative Knowledge Gain

37% Absolute Knowledge Gain

Top 3 Intended Practice Changes

- 87%** of evaluation respondents (N=1404) reported they intend to make changes to their practice
- ✓ Apply overall knowledge about severe asthma in daily practice
 - ✓ Implement new treatment methods and select the appropriate therapy by asthma type
 - ✓ Incorporate education methods for patients to teach proper inhaler technique

66%

N=1404

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

Relative Gain in Confidence: 109%

Absolute Gain in Confidence: 36%



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Qualitative Educational Impact Summary: Final Online Enduring Program

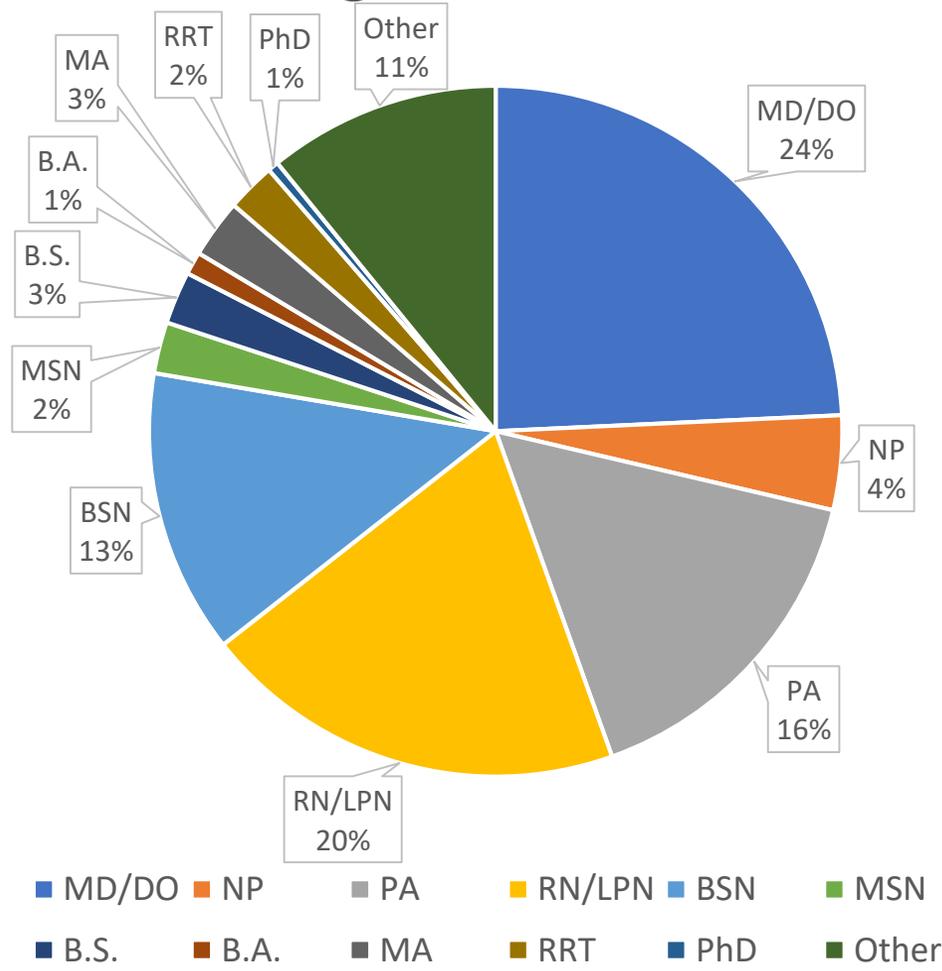
| Patient Impact | Educational Impact | Intended Practice Change |
|---|---|---|
| <p>1,404 Evaluation respondents</p> | <p>179% relative knowledge gain seen from learners in explaining mechanisms of action of biologic therapies and the targets for treatment in severe asthma. [N=1567]</p> | <p>87% of evaluation respondents reported they intended to make changes to their practice as a result of the educational activity [N=1404]</p> |
| <p>Who see 8,378 Severe Asthma Patients Weekly</p> | <p>117% relative knowledge gain seen from learners in regards to executing strategies for diagnosing and differentiating uncontrolled and severe asthma. [N=1567]</p> | <p>67% of evaluation respondents indicated the activity addressed strategies for overcoming barriers to optimal patient care [N=1404]</p> |
| <p>Which translates to 435,656 Potential patient Visits Annually</p> | <p>54% relative knowledge gain seen from learners in selecting treatments based on endotypes, clinical biomarkers and patient-centered factors. [N=1567]</p> <p>44% relative knowledge gain seen from learners in interpreting the benefits and barriers to the different methods of administration of biologics with a patient-centered approach. [N=1567]</p> | <p><i>“The entire program is a great educational tool.” – Online enduring program learner</i></p> |

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Level 1 Outcomes: Participation by Degree: Final Online Enduring



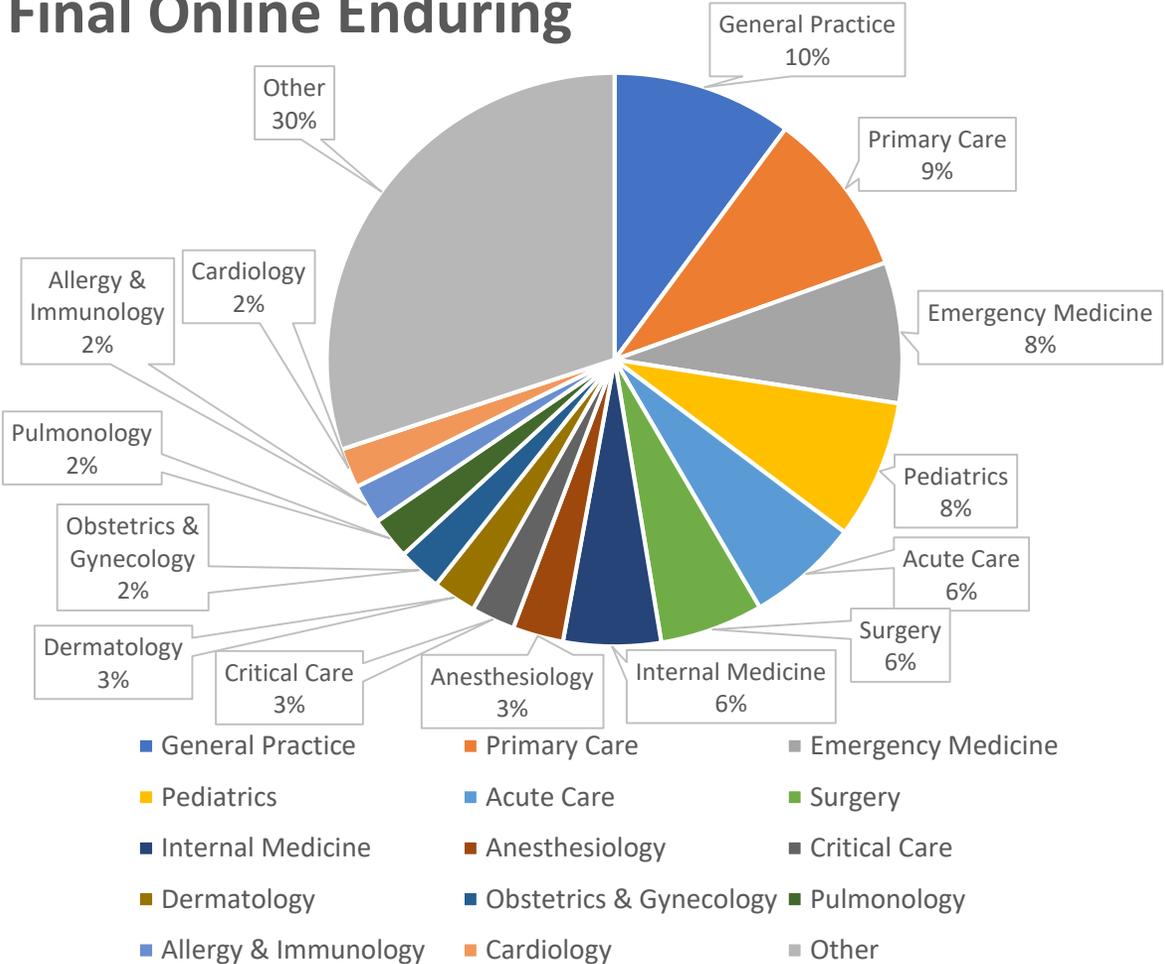
| Degree | Total |
|------------------------|-------------|
| MD/DO | 434 |
| RN/LPN | 355 |
| PA | 284 |
| BSN | 238 |
| NP | 79 |
| MA | 49 |
| B.S. | 44 |
| MSN | 43 |
| RRT | 41 |
| B.A. | 19 |
| PhD | 9 |
| Other | 194 |
| Total Learners: | 1789 |

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Level 1 Outcomes: Participation by Specialty: Final Online Enduring



| Degree | Total |
|---|-------------|
| General Practice | 181 |
| Primary Care | 168 |
| Emergency Medicine | 142 |
| Pediatrics | 140 |
| Acute Care | 113 |
| Surgery | 104 |
| Internal Medicine | 98 |
| Anesthesiology | 51 |
| Dermatology | 44 |
| Obstetrics & Gynecology | 44 |
| Critical Care | 44 |
| Pulmonology | 42 |
| Allergy & Immunology | 40 |
| Cardiology | 40 |
| Other (Geriatric Medicine, Radiology, Pain Management, Hospitalist) | 538 |
| Total Learners: | 1789 |

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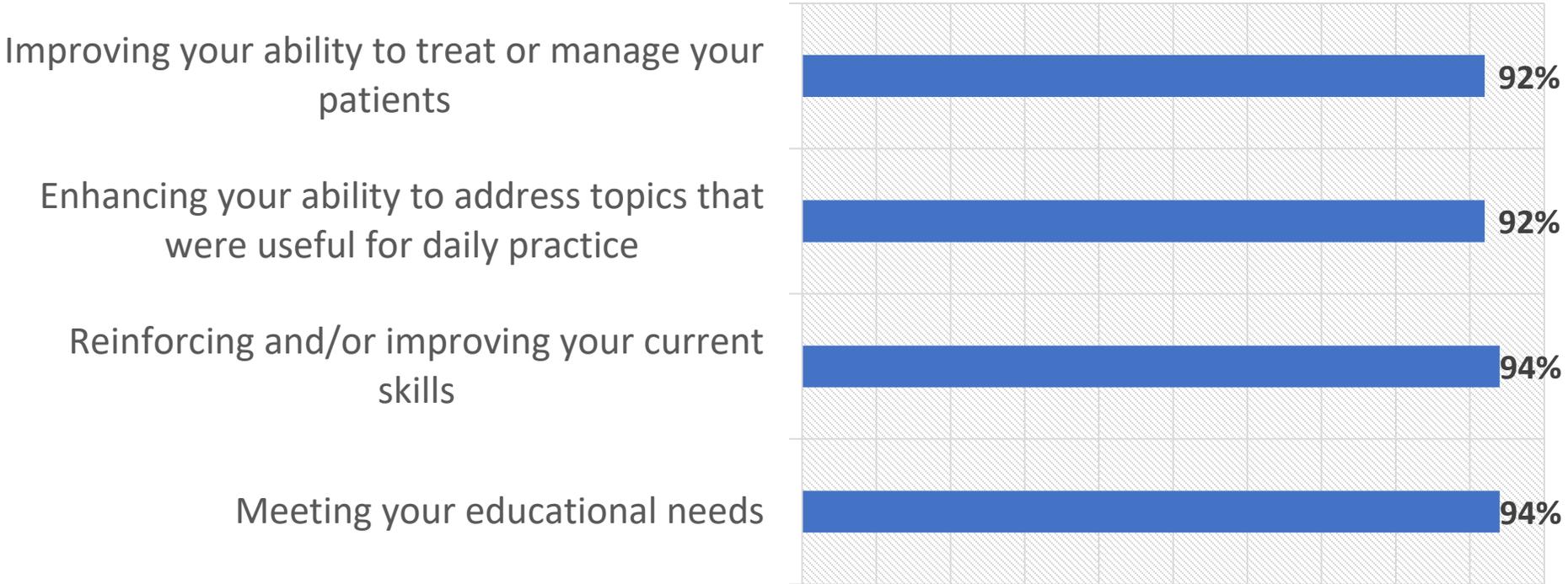
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Level 2&3 Outcomes: Satisfaction & Knowledge – Final Online Enduring

Analysis of participant responses related to educational needs

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



■ Excellent to Good (N=1404)

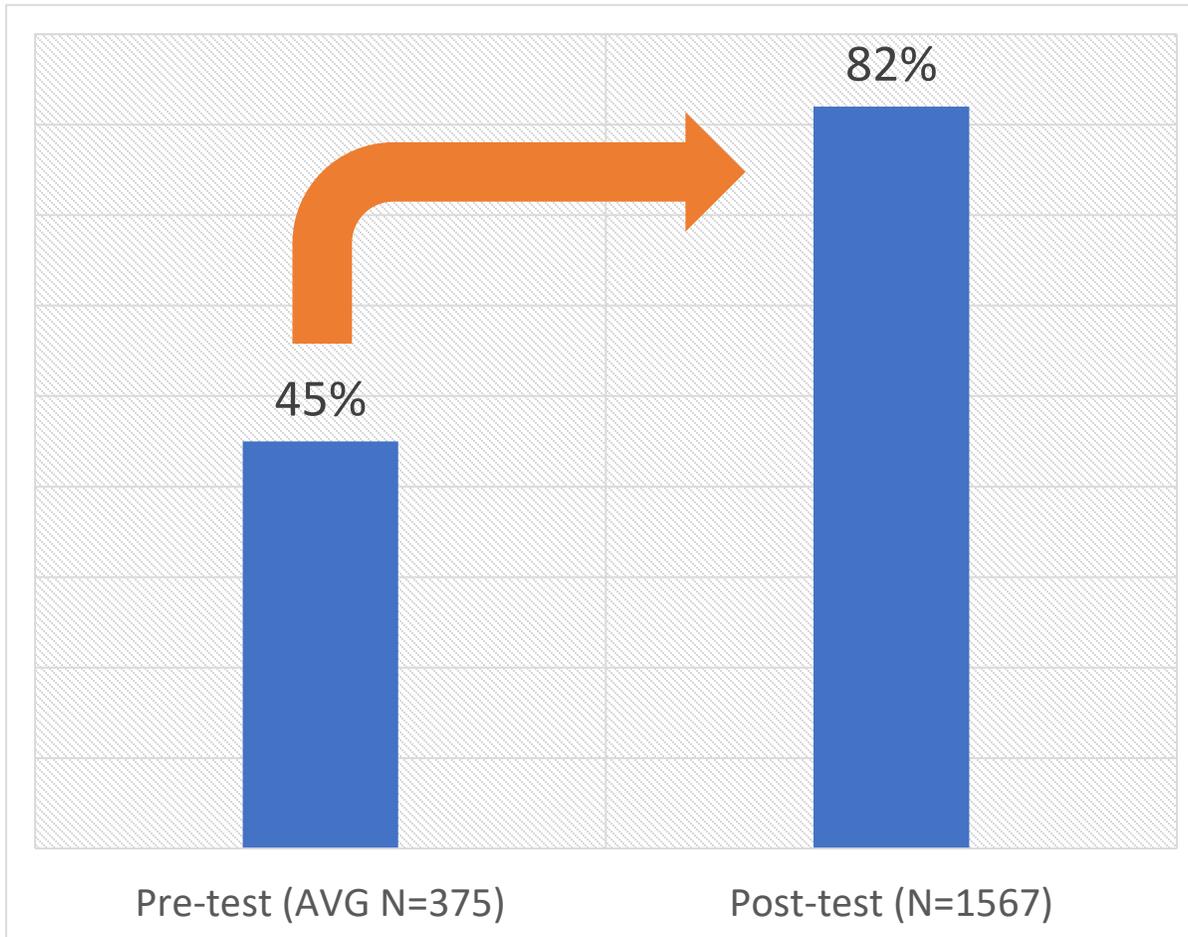
Learners reported high levels of satisfaction related to the ability of the activity to impact practical applications

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Level 3/4 Outcomes: Knowledge/Competence: Overall Knowledge - Final Online Enduring



**Overall Relative Knowledge
Gain: 82%**



**Overall Absolute Knowledge
Gain: 37%**

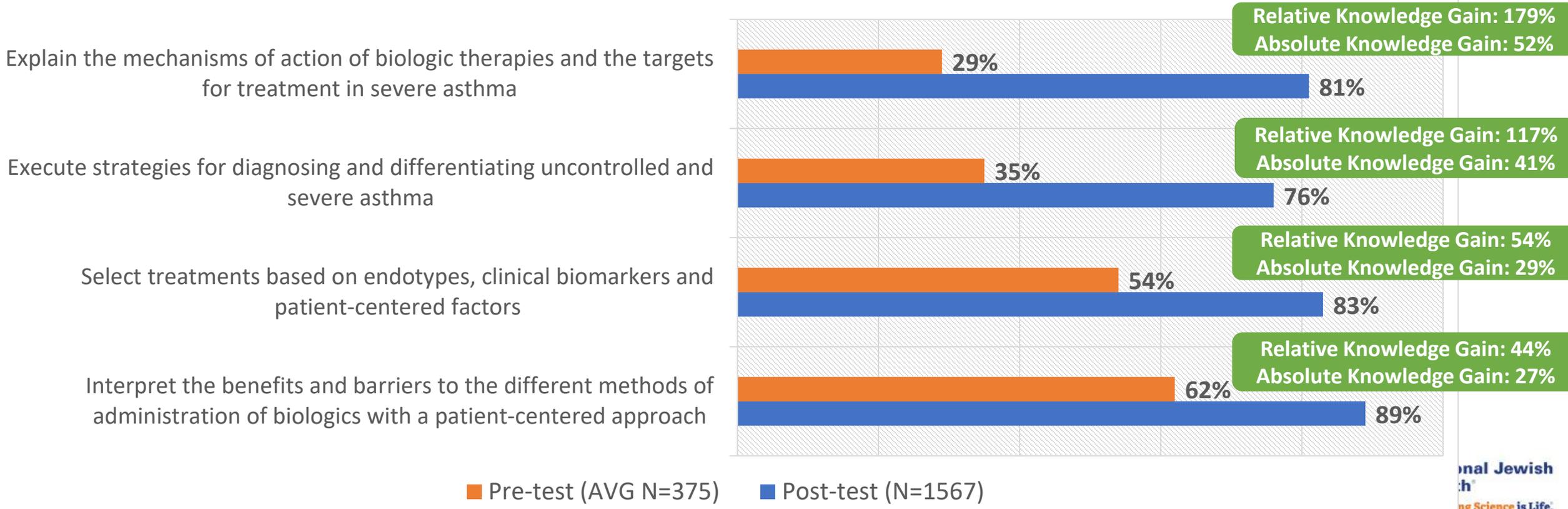
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Level 3 Outcomes (Knowledge) – Final Online Enduring Program: By Learning Objective

Knowledge Gain by Learning Objectives



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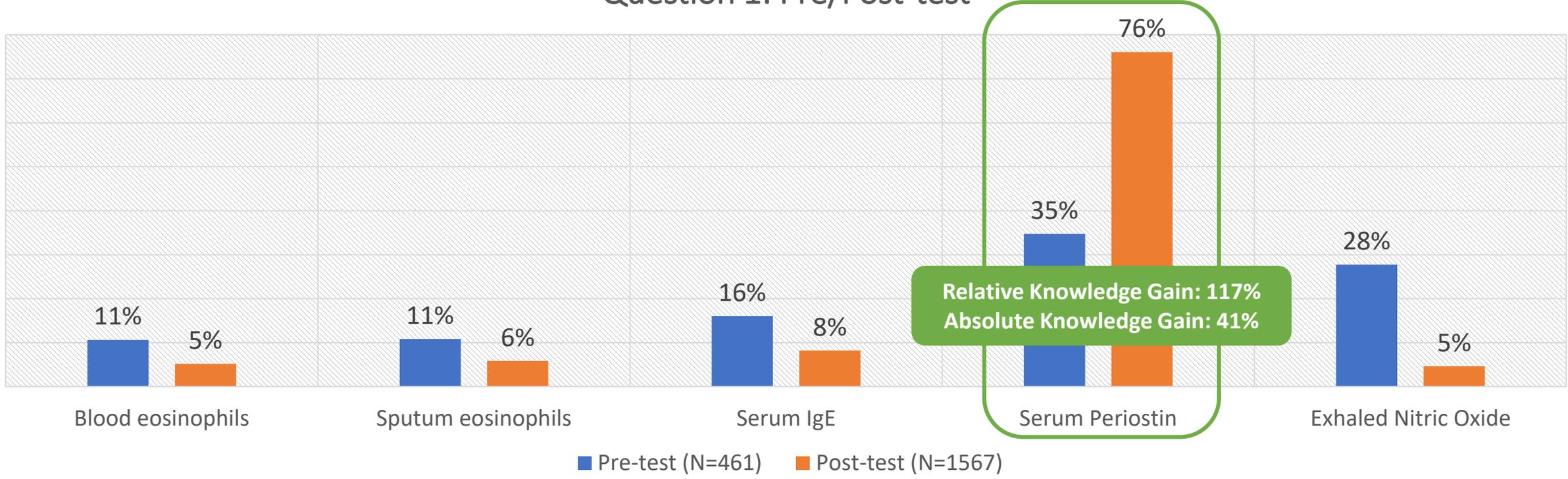


Level 3 Outcomes: Knowledge: Question 1 - Final Online Enduring

Learning Objective: Execute strategies for diagnosing and differentiating uncontrolled and severe asthma

Q1: The best currently available biomarkers for measuring type 2 inflammation in asthma include all of the following except:

Question 1: Pre/Post-test



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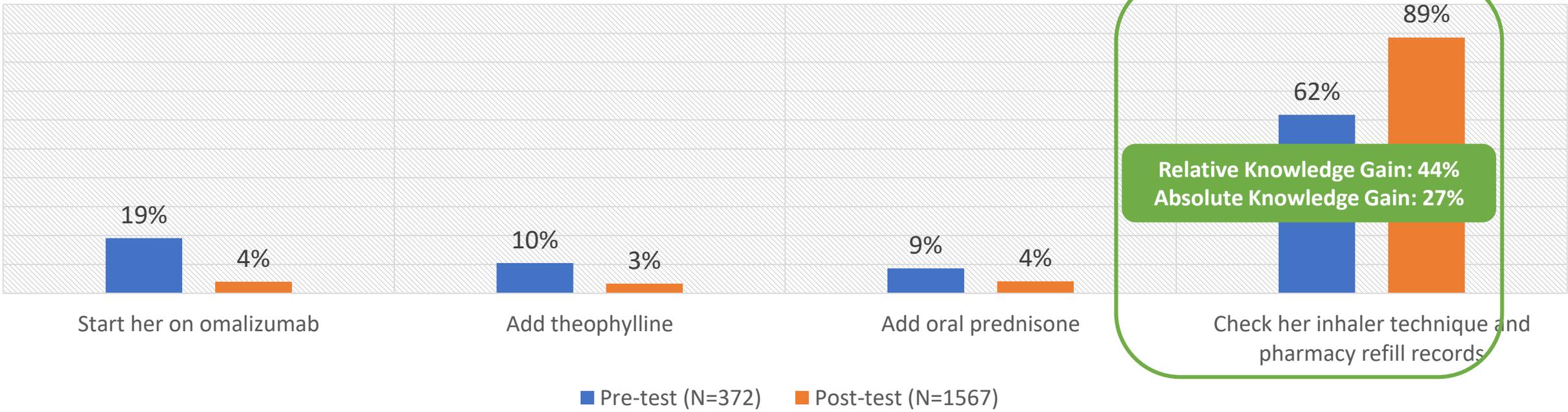


Level 3/4 Outcomes: Knowledge/Competence: Question 2 - Final Online Enduring

Learning Objective: Interpret the benefits and barriers to the different methods of administration of biologics with a patient-centered approach

Q2: A 70-year-old woman with lifelong severe allergic asthma presents to you with uncontrolled asthma despite being prescribed high dose ICS/LABA, leukotriene modifiers and tiotropium. She is hospitalized twice per year and requires oral prednisone rescue courses 4x per year. The next step in her management is the following:

Question 2: Pre/Post-test



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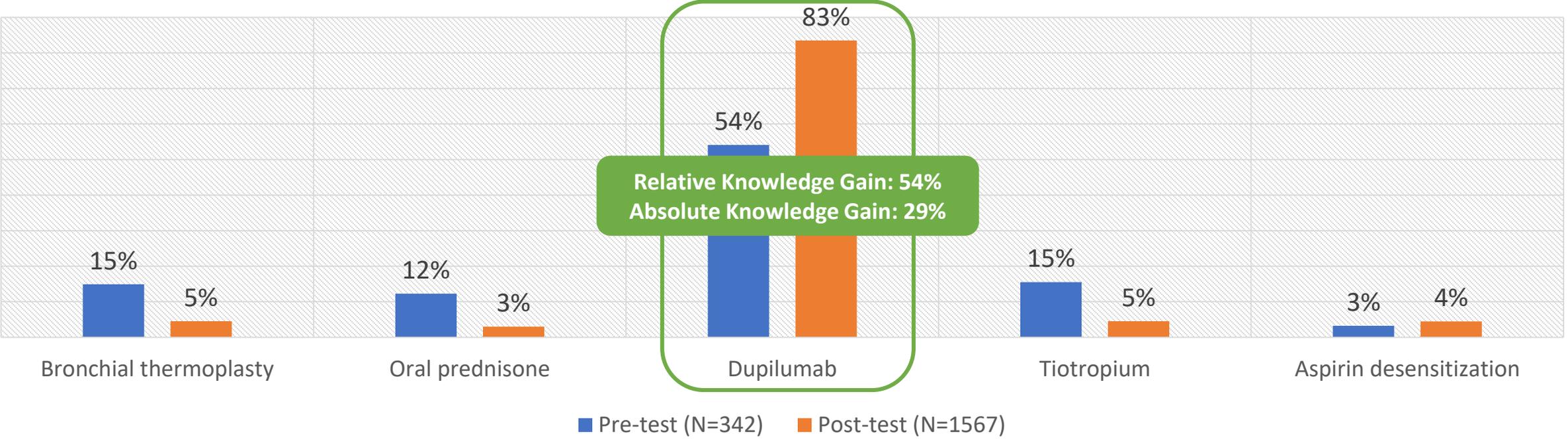


Level 3/4 Outcomes: Knowledge/Competence: Question 3 - Final Online Enduring

Learning Objective: Select treatments based on endotypes, clinical biomarkers and patient-centered factors

Q3: A patient has a history of severe poorly controlled asthma requiring 4 prednisone courses per year. They are compliant with high dose ICS/LABA plus a LTRA. Asthma Control Test = 12, indicating poor control. FEV1 = 70% predicted. FENO = 55 and absolute eosinophils = 550. In addition, the patient is obese with a history of nasal polyps/AERD requiring 2 previous sinus surgeries and continues to have anosmia and sinus congestion. What therapy is considered optimal for this patient?

Question 3: Pre/Post-test



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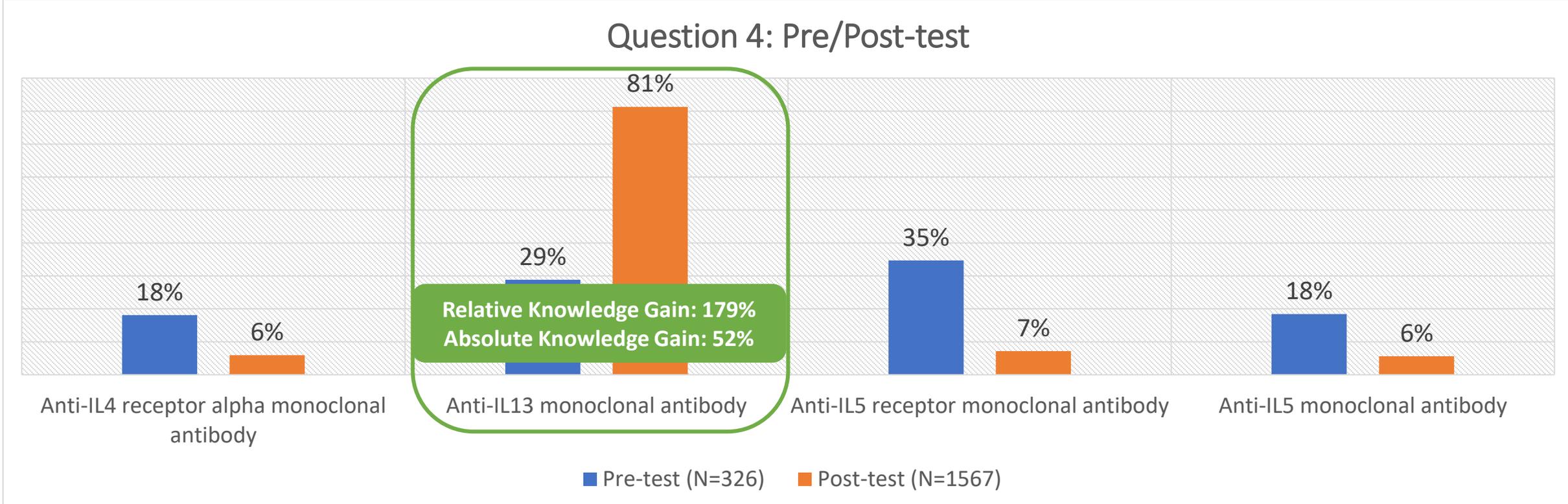
[Final Online Enduring]



Level 3/4 Outcomes: Knowledge/Competence: Question 4 - Final Online Enduring

Learning Objective: Explain the mechanisms of action of biologic therapies and the targets for treatment in severe asthma

Q4: A 55-year-old woman has been dependent on oral steroids for her asthma for the last 4 years. She recently had low bone density and her course has been complicated by weight gain and cataracts and she is afraid of developing more steroid-related side effects. All of the following have been demonstrated to facilitate steroid reduction while reducing asthma exacerbation except:



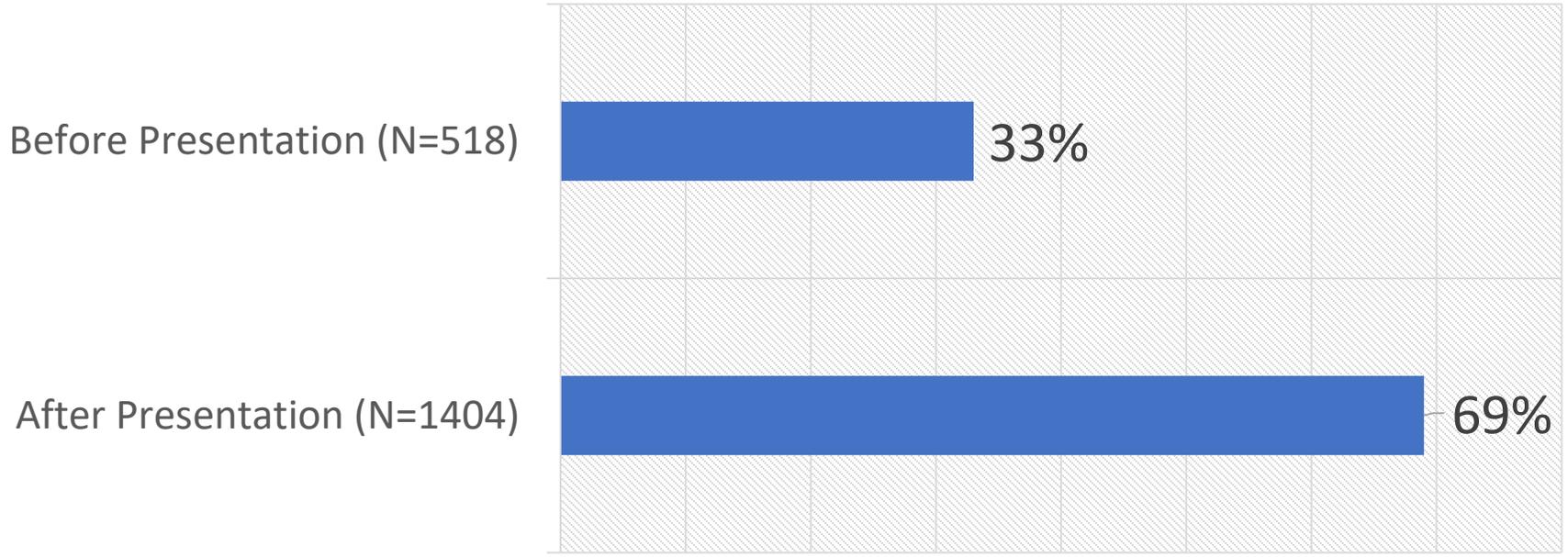
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Level 4 Outcomes: Competence – Final Online Enduring

Learners reported their confidence on the learning objectives before and after the presentation (somewhat confident – very confident)



Relative Gain in Confidence: 109%

Absolute Gain in Confidence: 36%

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Level 4 Outcomes: Competence – Final Online Enduring

An analysis of open-ended comments demonstrates the following changes learners intend to make:

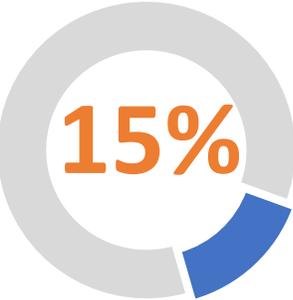
87%

N=1404

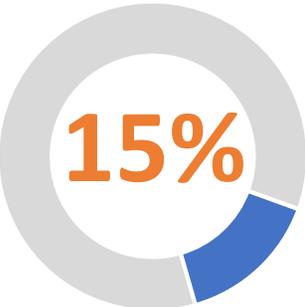
Evaluation respondents intend to make changes to practice as a result of the activity



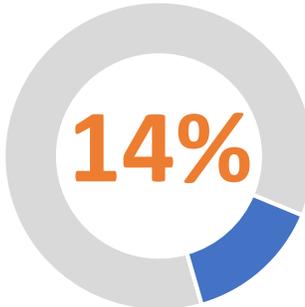
Apply overall knowledge about severe asthma in daily practice



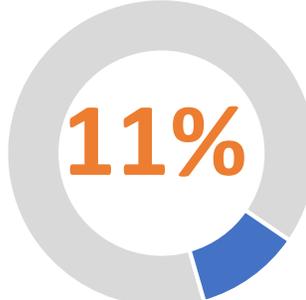
Implement new treatment methods and select the appropriate therapy for the type of asthma



Incorporate education methods for patients to teach proper inhaler technique



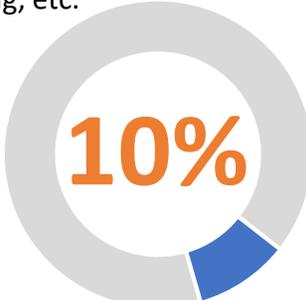
Selection of biologics and management of the medication regimen



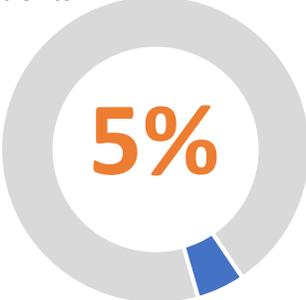
Improve assessment of patients including history, physical, testing, etc.



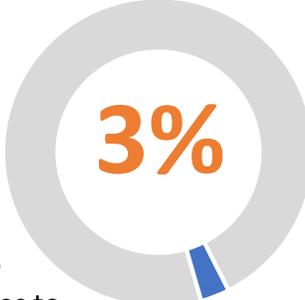
Utilize a patient-centered approach and improve communication w/ patients



Apply guidelines and step therapy to improve management of patients w/ severe asthma



Execute strategies to differentiate uncontrolled and severe asthma for accurate diagnosis



Refer to specialist in more severe cases

N=904



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Program Evaluation: Final Online Enduring

98%

- Material presented in an objective manner and free of commercial bias

99%

- Content presented was evidence-based and clinically relevant

N=1404

Most Important Take-away

Effective treatment plans for severe asthma
(260 responses)

New knowledge of severe asthma based on evidence-based education
(205 responses)

Proper use of biologics and medication management
(144 responses)

Guidelines and step therapy to improve management of patients with severe asthma
(106 responses)

Strategies to differentiate uncontrolled and severe asthma for accurate diagnosis
(87 responses)

Communication and education with patients about compliance with treatment
(87 responses)

Proper assessment for diagnosis and management of severe asthma
(72 responses)

Patient-centered strategies to improve patient care
(58 responses)

Referral to pulmonologist
(14 responses)

N=1033

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Program Evaluation: Final Online Enduring

What do you think is the primary reason why making a diagnosis of severe asthma is so difficult?

| | |
|--|---|
| Presentation of signs and symptoms | Inaccurate information from patient about history |
| Differentiating it from other diseases | Comorbidities and confounding factors |
| Inability to do function testing | Lack of access to resources |
| Inconsistent follow-up with patient | Biological markers (phenotypes vs genotypes) |
| Patient adherence | Limited time to access patient |

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

| | |
|---|-----------------------------|
| Pulmonary fibrosis management | COVID-19 |
| Autoimmune diseases | Pediatric asthma |
| Management of side effects | Pulmonary hypertension |
| Immunology of asthma | Atopic dermatitis |
| Asthma and pregnancy | Ongoing review of biologics |
| Future developments in asthma (ex: biologics) | COPD |

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Program Evaluation: Final Online Enduring Strategies for Overcoming Barriers

- Access to care
- Proper inhaler technique
- Testing
- Communication strategies
- Patient adherence to treatment plan
- Knowledge of optimal treatments
- Proper diagnostic protocol
- Strategies to improve quality of life

67%

N=1404

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

“This activity was very educational and presented very well.” – Online enduring program learner

Selecting the Right Treatment for Your Patient with Severe Asthma

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Program Evaluation: Final Online Enduring

91%

N=1404

Evaluation respondents indicated they are likely to use the additional resources including the infographic in practice

SELECTION CRITERIA FOR PERSONALIZED TREATMENT IN SEVERE ASTHMA

Start with non-invasive testing

(allergy testing, IgE level, blood eosinophil count and FeNO level)

- If poor response to therapy continues, consider induced sputum differential for eosinophil and neutrophil counts and/or bronchoscopy with endobronchial biopsy and BAL



Non-Type 2 Endotype
Neutrophilic airway inflammation or Paucigranulocytic (non-inflammatory)

Biomarkers

- No T2 biomarkers
 - Blood eosinophil <150 μL **AND**
 - FeNO < 20 ppb **AND**
 - Sputum or BAL eosinophil < 2%
- OR**
- If sputum BAL neutrophils also < 40-60% = paucinflamatory

Associated Phenotypes

- Obesity
- Smoking History
- Infections
- Lack of response to corticosteroids

Treatment

- Weight loss
- Bariatric surgery
- Macrolide antibiotics
- Bronchial Thermoplasty
- Secretion clearance
- Pulmonary rehabilitation
- Possible Anti-TSLP or other non-experimental therapies such as Anti-IL-6 or Anti-IL-17



Type 2 Endotype
IL-4, IL-5, IL-13 or IgE mediated inflammation with high eosinophils or FeNO*
*Fractional nitric oxide concentration in exhaled breath.

Biomarkers

- Blood eosinophils > 150 μL
- FeNO > 20 ppb
- Sputum or BAL eosinophils > 2%
- Elevated IgE

Associated Phenotypes

- Early age onset
- History of allergies
- Chronic Rhinosinusitis/Nasal Polyps

Patient-centered consideration for choosing a biologic:

1. Frequency of administration 2 vs 4 vs 8 weeks
2. Location of administration Home vs. Office
3. Insurance and co-payment
4. Other comorbidities
5. Pregnancy*

*Only omalizumab is assigned to pregnancy category B by the FDA

Type 2 patients with:

Select Add-on Biologic Therapy

| | | |
|---|--|--|
| Allergic Eosinophilic Asthma | Anti-IgE Anti-IL-5 Anti-IL-5Ra Anti-IL-4/13 | Omalizumab Mepolizumab, Reslizumab Benralizumab Dupilumab |
| Allergic Noneosinophilic Asthma | Anti-IgE Anti-IL-4/13 | Omalizumab Dupilumab |
| Eosinophilic Asthma who: • Are nonallergic OR • Do not respond to anti-IgE treatment OR • Are out of dosing range for anti-IgE treatment | Anti-IL-5 Anti-IL-5Ra Anti-IL-4/13 | Mepolizumab, Reslizumab Benralizumab Dupilumab |
| OCS Dependence | Anti-IL-4/13 Anti-IL-5 Anti-IL-5Ra | Dupilumab Mepolizumab* Benralizumab* |

Considerations for Related Type 2 Phenotypes

| | | |
|---|--------------|------------|
| • Atopic Dermatitis | Anti-IL-4/13 | Dupilumab |
| • Chronic Idiopathic Urticaria | Anti-IgE | Omalizumab |
| • Chronic Rhinosinusitis and Nasal Polyps | Anti-IL-4/13 | Dupilumab* |

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Accreditation

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 this enduring material for a maximum of 1.0 *AMA PRA Category 1 Credit™*.

Provider approved by the California Board of Registered Nursing, Provider Number 12724 for 1.0 nursing contact hours.

ABIM MOC: Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 1.0 medical knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program.

