44th Annual

NATIONAL JEWISH HEALTH Pulmonary & Allergy

In-person Conference Final Outcomes Summary Submitted to: (Supporter) Grant ID: Date:

National Jewish Health[®]

Breathing Science is Life.

February 2-5, 2022

Keystone Conference Center | Keystone, Colorado

Executive Summary

Outcomes Summary



In-person Program Overview

The 44th Annual Pulmonary and Allergy Update highlighted insights and recent advances in pulmonary medicine, asthma, allergy and immunology, presented by faculty from National Jewish Health, the leading respiratory hospital in the nation. Participants had the opportunity to network with colleagues and nationally recognized experts, and learn the latest updates on management and treatment options for patients.

Conference Learning Objectives

- Review best practices and guidelines for diagnosis and assessment of a variety of chronic diseases and conditions.
- Discuss the latest treatments and key self-management strategies for a variety of chronic diseases and conditions.
- Describe updates in treatment options for respiratory and immunology-related diseases.

Target Audience

Target Audience: Allergists, Pulmonologists, Primary Care and Internal Medicine Physicians, Pediatricians, Physician Assistants, Advanced Practice Nurses, Registered Nurses and others working with adults and children with allergic and pulmonary diseases.



"Speakers are very knowledgeable and provide a great insight of the disease process ."

-2022 Attendee

Faculty – Program Co-Chairs

Outcomes Summary





Michael Wechsler, MD, PhD Director, The Cohen Family Asthma Institute Professor of Medicine Division of Pulmonary, Critical Care & Sleep Medicine National Jewish Health



Eileen Wang, MD, MPH Assistant Professor of Medicine Division of Allergy & Clinical Immunology National Jewish Health



Harold Nelson, MD Professor of Medicine Division of Allergy and Clinical Immunology National Jewish Health



Pamela Zeitlin, MD, PhD Silverstein Chair Professor of Pediatrics National Jewish Health

Program Faculty

Outcomes Summary



Ronald Balkissoon, MD, MSc, DIH

Pulmonary Consultant Division of Pulmonary, Critical Care & Sleep Medicine National Jewish Health

Mark Boguniewicz, MD

Professor of Pediatrics Division of Pediatric Allergy and Clinical Immunology National Jewish Health University of Colorado School of Medicine

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Nir Goldstein, MD Associate Professor of Medicine Division of Pulmonary, Critical Care & Sleep Medicine National Jewish Health

Program Faculty

Outcomes Summary



Flavia Cecilia Lega Hoyte, MD

Associate Professor of Medicine Director, Allergy & Clinical Immunology Fellowship Division of Allergy & Clinical Immunology National Jewish Health

Jeffrey Kern, MD Chief, Division of Oncology, Cancer Center Director, Lung Cancer Center Vice Chair, Finance Professor of Medicine Division of Pulmonary, Critical Care & Sleep Medicine National Jewish Health

Miranda Y. Ku, MD, MPH Assistant Professor of Medicine Division of Gastroenterology National Jewish Health **Bruce J. Lanser, MD, MPH** Assistant Professor of Pediatrics Director, Pediatric Food Allergy Program Director, Pediatric Allergy Fellowship Program Division of Allergy & Clinical Immunology National Jewish Health

Barry J. Make, MD Professor of Medicine Division of Pulmonary, Critical Care & Sleep Medicine National Jewish Health

Robert (Sandy) Sandhaus, MD, PhD Professor of Medicine Division of Pulmonary, Critical Care & Sleep Medicine National Jewish Health

Ellen Volker, MD, MSPH Assistant Professor of Medicine Director, Interventional Pulmonology National Jewish Health

Audience Generation

Outcomes Summary

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

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Educational Impact Summary

Outcomes Summary





Level (1) Outcomes: Participation (Degree)

Outcomes Summary



Degree	Total
MD/DO	36
NP	16
PA	8
RN	4
PharmD	9
Other	11
TOTAL	84

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43% of learners were physicians71% of learners were physicians and advanced practice providers

Level (1) Outcomes: Participation (Specialty) Outcomes Summary



Degree	Total
Pulmonary	30
Allergy	24
Family/Internal/Adult	9
Pediatrics	6
Clinical Immunology	1
Other	14
Total	84

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Level (1) Outcomes: Participation (Location)



Outcomes Summary



Level (2) Outcomes: Satisfaction



Outcomes Summary



COPD Learning Objectives

Lecture Title: Individualized Treatment of COPD: Evaluating dual and triple therapy in COPD Patients

- Distinguish the roles of dual and triple therapy in patients with COPD.
- Apply personalized treatment selection strategies to manage symptoms and reduce exacerbations in patients with COPD.



Learning Objective: Distinguish the roles of dual and triple therapy in patients with COPD.

Question 1: A 75-year-old man with COPD has a FEV1 of 48% predicted and has had an COPD exacerbation treated as an outpatient in the last year.

Which of the following has been shown to improve survival in two large studies of patients like this with COPD?



Learning Objective: Apply personalized treatment selection strategies to manage symptoms and reduce exacerbations in patients with COPD.

Question 2: A 65-year-old woman with COPD and a history of one exacerbation in the past year presents for follow up. She has been on a long-acting muscarinic antagonist bronchodilator. Her eosinophil count is 125 cells/uL.

Which of the following would be most appropriate to prescribe?





Asthma Learning Objectives *Lecture Title: Asthma Management in 2022 and Beyond*

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



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

Question 1: Your patient is a 60-year-old woman with a history of severe uncontrolled asthma. She has had 4 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 this patient?



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

Question 2: Which of the following is not an appropriate dosing regimen for a patient with asthma?



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

Question 3: Barbara is a 30-year-old patient with symptoms of severe asthma. She has had 3 exacerbations in the last year requiring prednisone. Which of the following is the least helpful next step in the evaluation of this patient?



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

Question 4: Alarmins have been shown to mediate all of the following except:





Pre-Test (N=38)

Post-Test (N=50)

Chronic Urticaria Learning Objectives *Lecture Title: Updates in Chronic Urticaria*

- 1. Describe the pathophysiology and inflammatory pathways of chronic urticaria.
- 2. Apply best practices for the evaluation and differential diagnosis of chronic urticaria.
- 3. Compare different guidelines for management and stepwise treatment of CSU.
- 4. Review current and emerging biologic therapies for the treatment of chronic urticaria.



Learning Objective: Describe the pathophysiology and inflammatory pathways of chronic urticaria.

Question 1: Following mast cell activation in chronic urticaria, there is release of chemokines that attract cells to the skin surface. Which of the following cells are the most prominent in the cellular infiltrate?



Learning Objective: Apply best practices for the evaluation and differential diagnosis of chronic urticaria.

Question 2: A 26-year-old female presents for evaluation of hives that have been occurring daily for the past 7 weeks. The hives are pruritic, not painful, and never leave behind bruises. Each individual hive lasts less than 24 hours. The hives respond immediately to antihistamine therapy. She denies any other symptoms and has not been able to identify any obvious triggers. She does not take any medications other than as needed antihistamines. Based on the AAAAI "Choosing Wisely" initiative, which of the following should you do for work-up of this patient's hives?



Learning Objective: Compare different guidelines for management and stepwise treatment of CSU.

Question 3: Which of the following is a difference between the US and international guidelines for the management of chronic spontaneous urticaria (CSU)?



Learning Objective: Review current and emerging biologic therapies for the treatment of chronic urticaria.

Question 4: Which of the following medications already FDA-approved for another condition has shown promising data in phase 3 trials for the treatment of CSU?





Pre-Test (AVG N=36)

Post-Test (AVG N=49)

Pulmonary Hypertension Learning Objectives *Lecture Title: Pulmonary Hypertension Update*

- 1. Evaluate evidence and best practices to inform early diagnosis and assessment of pulmonary hypertension.
- 2. Discuss current and emerging treatment options for treating patients with pulmonary hypertension.
- 3. Evaluate evidence and best practices to inform management of pulmonary hypertension.
- 4. Review the classification and epidemiology of pulmonary hypertension, including Pulmonary Arterial Hypertension (PAH) and associated diseases.



Learning Objective: Evaluate evidence and best practices to inform management of pulmonary hypertension.

Question 1: A 31-year-old woman with history of limited scleroderma with Raynaud's, telangiectasias, and significant GERD, presents for her routine fall check-up with GERD symptoms, but no shortness of breath at rest or on exertion. Although she has a longstanding history of mild fatigue, she has no exercise intolerance or peripheral edema. In addition to evaluating her esophageal disease, which of the following is the appropriate next step?



Learning Objective: Evaluate evidence and best practices to inform early diagnosis and assessment of pulmonary hypertension.

Question 2: Which of the following confirm(s) a diagnosis of pulmonary arterial hypertension?



Learning Objective: Discuss current and emerging treatment options for treating patients with pulmonary hypertension.

Question 3: When should inhaled nitric oxide testing be performed with a right heart catheterization?



Test takers demonstrated a persistent gap related to treatment options for pulmonary hypertension. Additionally, the slight knowledge decrease may be due in part to the difference in sample sizes between unmatched pre- and posttest taker samples.



When considering a medication in the nitric oxide pathway (e.g, sildenafil, tadalafil, riociguat)

In anyone in whom you are In all patients with pre-capillary considering pulmonary hypertension pulmonary hypertension on heart medications cath

38%

Learning Objective: Review the classification and epidemiology of pulmonary hypertension, including Pulmonary Arterial Hypertension (PAH) and associated diseases.

Question 4: Which of the following is true about evidence-based treatments for pulmonary hypertension?



PDE-5 inhibitor or soluble guanylate cyclase stimulator).

Overall Knowledge Gain: Pulmonary Hypertension



Level (3 & 4) Outcomes: Knowledge & Competence Summary – Atopic Dermatitis

Atopic Dermatitis Learning Objectives *Lecture Title: Atopic Dermatitis: From Pathophysiology to Targeted Therapy*

- 1. Apply knowledge of the pathophysiology and assessment of AD to the selection of treatment options for patients with moderate-to-severe AD.
- Review considerations for treatment selection of moderate-to-severe AD including co-morbidities and safety profiles of treatments.
- 3. Review best practices in the multidisciplinary management and continuum of care for patients with AD.



Level (3 & 4) Outcomes: Knowledge & Competence Outcomes Summary – Atopic Dermatitis

Learning Objective: Apply knowledge of the pathophysiology and assessment of AD to the selection of treatment options for patients with moderate-to-severe AD.

Question 1: When discussing pathophysiology of AD with the inquisitive parents of a 4-year-old child, the correct statement is:



Level (3 & 4) Outcomes: Knowledge & Competence Outcomes Summary – Atopic Dermatitis

Learning Objective: Review considerations for treatment selection of moderate-to-severe AD including comorbidities and safety profiles of treatments.

Question 2: Prior to starting a 28-year-old female patient with chronic moderately severe AD on tralokinumab, a newly approved biologic therapy, you inform her that:



Level (3 & 4) Outcomes: Knowledge & Competence Summary Atopic Dermetitie

Outcomes Summary – Atopic Dermatitis

Learning Objective: Review best practices in the multi-disciplinary management and continuum of care for patients with AD.

Question 3: Your recommendations to a colleague who referred a 12-year-old male with chronic moderate AD involving > 50% of body surface area could include:



Level (3 & 4) Outcomes: Knowledge & Competence Summary – Atopic Dermatitis



Pre-Test (AVG N=31)

Post-Test (N=33)

COVID Learning Objectives *Lecture Title: Current and emerging therapies for COVID-19*

- Describe the steps in the viral lifecycle of SARS-CoV-2 and corresponding points for intervention
- Evaluate current and emerging therapies for COVID-19 and what steps of the viral lifecycle they disrupt.
- 3. Identify patients poised to benefit from current and emerging therapies for COVID-19.



Learning Objective: Describe the steps in the viral lifecycle of SARS-CoV-2 and corresponding points for intervention.

Question 1: The Omicron variant has been problematic for therapies targeting which stage of the viral life cycle?



Learning Objective: Evaluate current and emerging therapies for COVID-19 and what steps of the viral lifecycle they disrupt.

Question 2: Remdesivir targets viral replication by inhibiting the action of the RNA-dependent RNA polymerase, hindering transcription. What other therapeutic agent against COVID-19 also works at this step?



Learning Objective: Identify patients poised to benefit from current and emerging therapies for COVID-19.

Question 3: A 34-year old woman with chronic renal disease (egfr 35) and migraines presents with her fiancée for management of acute COVID-19 diagnosed by PCR yesterday. She developed loss of smell 7 days ago but did not seek testing until she developed worsened headaches, not responsive to her usual cafergot. She states she is a "hard stick" and is asking for an oral medication to "fight the virus." You should recommend:



Overall Knowledge Gain: COVID



Pre-Test (AVG N=5)

Post-Test (N=39)

Level (3&4) Outcomes: Knowledge & Competence



Outcomes Summary – Asthma Cases: Interactive Polling

Asthma Case Polling Question 1

CASE DETAILS:

- 56-year-old never smoker
- 10-year history of severe persistent asthma
- Uncontrolled with 6-8 exacerbations per year
- Nocturnal symptoms ~4-6 times per month

MEDICATIONS:

- High dose ICS/LABA, montelukast, albuterol prn
- Prednisone course completed ~1 week ago

TESTING:

- Total IgE 33
- Absolute Eosinophil Count 0-100
- Exhaled Nitric Oxide 8
- ACT score 13
- Skin testing negative to environmental aeroallergens
- CT chest without contrast with very mild bibasilar bronchiectasis
- BAL cell count show 0% eosinophils and 80% neutrophils.



Level (3&4) Outcomes: Knowledge & Competence

Outcomes Summary – Asthma Cases: Interactive Polling

Asthma Polling Question 1: Which statement is correct?

11%

She has missed granulocytic asthma 0%

She has paucigranulocytic asthma that is associated with airway inflammation

Her neutrophilic inflammatory pattern could be associated with infection or corticosteroid use.

She has evidence of Type 2 asthma 0%

Polling questions were used to facilitate learner engagement and provide opportunities to practice clinical decisionmaking with regard to evaluation and management of severe asthma. Learners demonstrated competence in identifying types and causes of asthma inflammation.

89%

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Level (3&4) Outcomes: Knowledge & Competence 🔰



Outcomes Summary – Asthma Cases: Interactive Polling

Asthma Case Polling Question 2

CASE DETAILS:

- 47-year-old man
- Asthma diagnosed 5 years ago
- Previously well controlled asthma
- URIs triggering 4 asthma exacerbations the last year, one requiring hospitalization but not ICU
- Worsening sense of smell and taste
- Experiences heartburn once a week

PMH: Asthma, Chronic sinusitis, Gout, GERD
PSH: Appendectomy, FH: CAD, HLD, HTN
SH: Engineer, Former smoker, 15 pack years
ALLERGIES: naproxen

MEDICATIONS: Medium dose ICS/LABA, albuterol prn, Flonase prn, Famotidine prn

PERTINENT PHYSICAL EXAM FINDINGS:

Occasional end expiratory wheezing Edematous inferior turbinates with copious white mucus

Possibly nasal polyps noted on right

TESTING: Total IgE 270, Absolute Eosinophil Count 700 cells/mcL, Exhaled Nitric Oxide 277 ppb, ACT score 13, Skin testing negative

to environmental aeroallergens



Level (3&4) Outcomes: Knowledge & Competence 2 National Jewish

Outcomes Summary – Asthma Cases: Interactive Polling



Level (4) Outcomes: Competence

Outcomes Summary

Screen more COPD patients for alpha-1 antitrypsin deficiency (12 responses)	Improve management of COPD, including earlier initiation of triple therapy (12 responses)	Improve evaluation and treatment of chronic cough (10 responses)	
Evaluate phenotype and endotype in patients with asthma (8 responses)	Improve management of asthma and consider biologics when indicated (23 responses)	Consult with gastroenterologists in management of eosinophilic esophagitis (9 responses)	92% AVG N = 46*
Improve management of chronic urticaria and order less lab work per the guidelines (6 responses)	Utilize new treatments for atopic dermatitis (9 responses)	Utilize new medications appropriately for COVID-19 patients (9 responses)	Evaluation respondents intend to make changes in practice as a result of the activity
	More thorough evaluation and risk stratification for patients with pulmonary hypertension (5 responses)		*This question was asked in the daily evaluation. A total of 185 responses were received from 4 daily evaluations, for an average of 46 respondents in each evaluation

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Level (4) Outcomes: Competence

Outcomes Summary



I enjoyed the [...] update in new diagnostic tools and therapies.

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- Quote from 2022 Attendee

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N=38

66%

Evaluation respondents

indicated the activity

addressed strategies

for overcoming

barriers to optimal

patient care

What barriers to optimal patient care did the education provided help to address?

- Cost of new drug therapies
- Better collaboration between specialist and primary-care team for efficient and cost-effective co-management of these diseases
- Getting patients access to certain therapies
- Improving differential diagnosis
- Understanding the latest treatments available
- Insurance coverage of newer biologics and small molecules
- Cost and how to address insurance costs and coverage
- Payment assistance programs for biologics

Evaluation Survey Results

Outcomes Summary



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

Pulmonary

- Asthma
- Cystic fibrosis,
- Imaging reviews with regard to certain ILDs
- Lung transplantation- indications, etc.
- Post COVID-19 syndrome and outpatient management strategies
- Neuromuscular diseases affecting the lungs
- Nontuberculous mycobacterium infections
- Management of pneumonitis related to immunotherapies for cancer
- Pulmonary disease or function post-COVID
- Pulmonary fibrosis
- Radiology sessions and use of POC ultrasound
- Sleep apnea related lectures and therapeutic options
- Role of inflammation in bronchopulmonary dysplasia
- Treating acute exacerbations

Allergy

- Contact dermatitis
- Chronic rhinosinusitis
- Immunotherapy
- Dietary treatment of allergic disease
- Food allergy desensitization
- Food allergy/ OIT
- Environmental allergy/OAS/immunotherapy
- Eosinophilic Esophagitis
- The role of inhalant allergies on EoE





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 this live activity for a maximum of 14.75 *AMA PRA Category 1 Credits*™.

Provider approved by the California Board of Registered Nursing, Provider Number 12724, for 14.75 contact hours.

