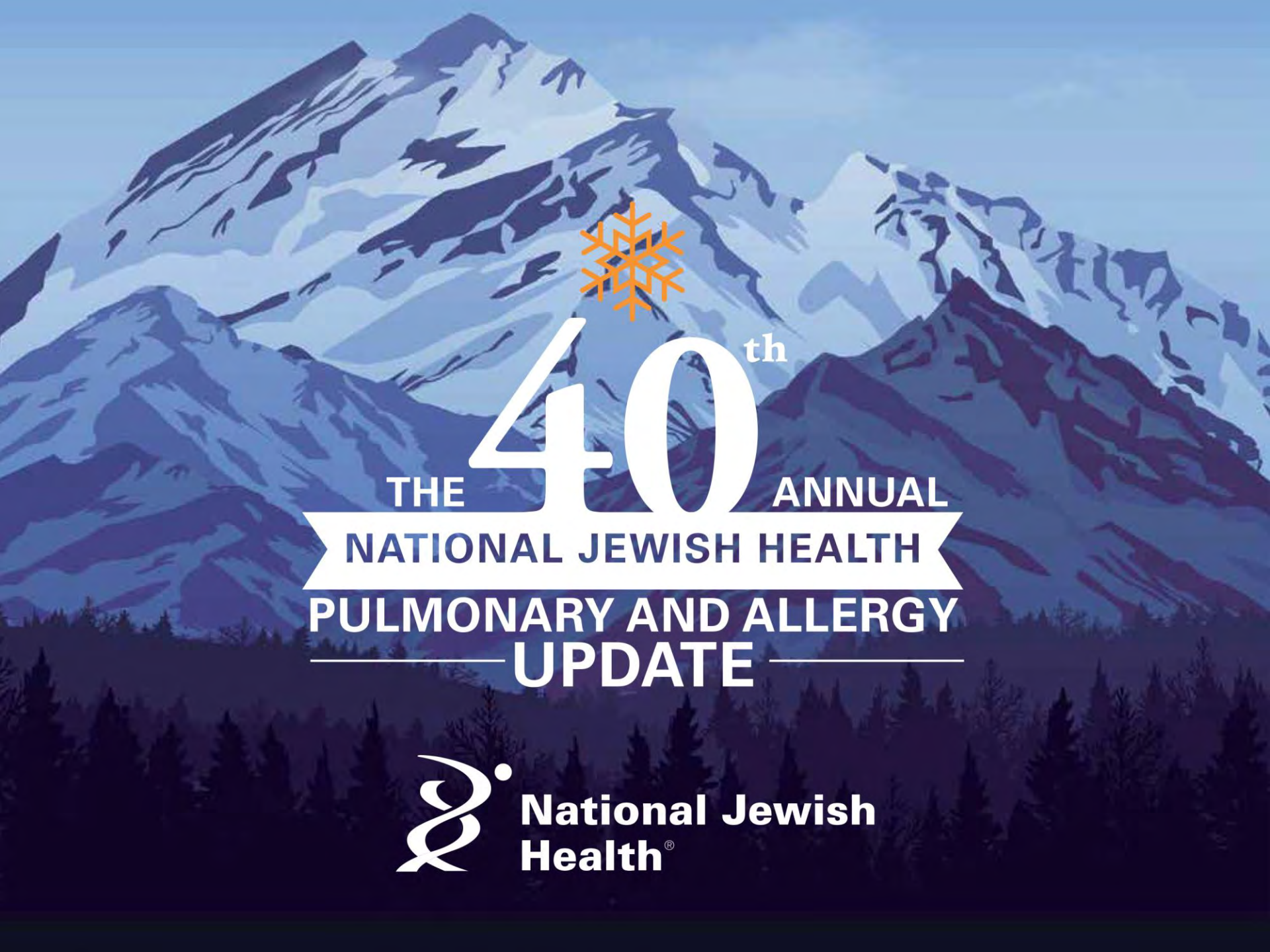

THE 40th ANNUAL
NATIONAL JEWISH HEALTH
PULMONARY AND ALLERGY
UPDATE
National Jewish
Health®

THE 40th ANNUAL NATIONAL JEWISH HEALTH PULMONARY AND ALLERGY UPDATE

National Jewish Health

Executive Summary: Activity Details

January 31 - February 3, 2018 Keystone, Colorado

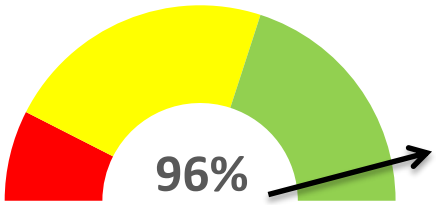
The National Jewish Health Annual ***The Pulmonary and Allergy Update*** highlighted insights and recent advances in immunology, pulmonary medicine, asthma, and allergy presented by faculty from the leading respiratory hospital in the nation. Participants had the opportunity to network with colleagues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

Features included:

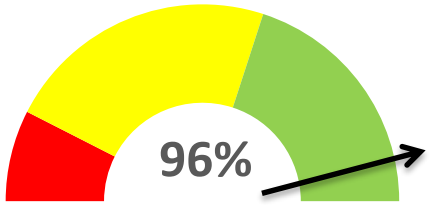
✓Workshops and small-group sessions provided great opportunities to discuss key issues and interesting cases with colleagues and National Jewish Health faculty and staff
✓Interactive didactic presentations
✓Case-based learning
✓Automated Response System (ARS)

Dashboard: Activity Impact

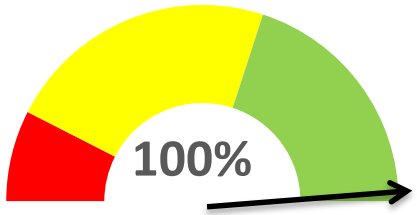
Improved Ability to Treat and Manage Patients



Enhanced Ability to Apply Learning Objectives to Practice



Intend to Make Changes to Practice



117

Learners

80%

Prescribers

20%

Nursing/Other

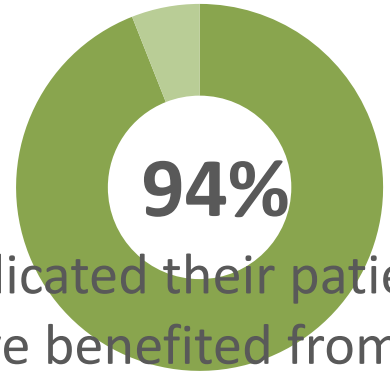
Overall relative knowledge gain from pre- to post-activity

24%

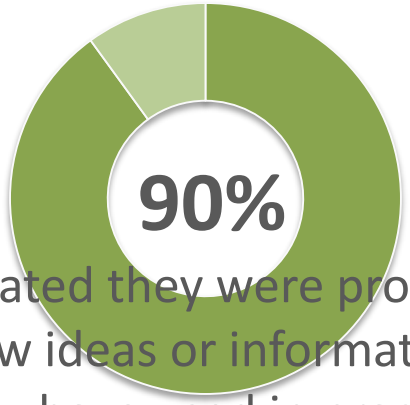
Estimated # of patients seen per month by participants

2500+

Overview: Self-Reported Performance (45-Day Survey Results)



indicated their patients have benefited from the information learned



indicated they were provided new ideas or information they have used in practice

The **top three changes** respondents have made or intend to make (for those that had not seen any patients in that target therapeutic area within the 45-day time period) are:

- ✓ Change my screening/prevention practice
- ✓ Incorporate different diagnostic strategies into patient evaluation
- ✓ Modify treatment plans

N=32

THE 40th ANNUAL NATIONAL JEWISH HEALTH PULMONARY AND ALLERGY UPDATE

National Jewish Health

Key Lessons Learned

- New info about cystic fibrosis
- Therapy for AD and effectiveness of immunotherapy
- Get the new shingles vaccine (Shingrex) NOW!
- Overall approach to evaluating and treating COPD and Asthma.

Needs for Further Education

- Eosinophilic Esophagitis
- CT Scan and Cases
- Vitamin D and Asthma
- Urticaria
- NTM Lung Disease

What Attendees are Saying

"Keep up the excellent format, subject matter and faculty."

"Excellent presentation by Dr Swigris. I learned a great deal. Thank you."

"CF talks and workshop superb. Great speakers. They should be back for future meetings."

"This conference was fantastic. I enjoyed the timing of the talks, the speakers, the content, and the location."

Learning Objectives: Asthma (Childhood)

1. Understand the epidemiology of childhood asthma
2. Recognize risk factors for asthma
3. Understand basic pathophysiology
4. Understand approach to treatment
5. Become familiar with evolving therapeutics

Learning Objectives: Asthma (Biologics)

1. Discuss current approaches to the management of moderate to severe asthma in adult patients

2. Describe new and emerging biologics for the management of moderate to severe asthma

Learning Objectives: COPD (Phenotypes)

1. Discuss the role of phenotypes and high-risk subjects in diagnosis and management of COPD

2. Select personalized approaches for COPD based on phenotypes and risk of disease progression

Learning Objectives: COPD (New Approaches)

1. Discuss updated clinical practice guidelines to the assessment and management of patients with COPD including the role of exacerbations

2. Select appropriate therapies based on the new 2017 GOLD Guidelines for management of COPD

3. Review effective communication strategies to improve engagement, adherence and self-management for patients with COPD

Learning Objectives: Atopic Dermatitis

1. Describe the burden of illness in patients with AD and barriers to treatment
2. Manage patients with AD in accordance with the latest treatment guidelines and expert recommendations
3. Apply knowledge of the pathophysiology and assessment of AD to the selection of treatment options
4. Summarize research on the safety, efficacy, and mechanisms of action of newly approved and emerging therapies for the treatment of AD

Learning Objectives: Cystic Fibrosis

1. Review current clinical guidelines to the diagnosis and treatment of patients with CF.
2. Describe the role of CFTR modulation in the treatment of patients with CF.
3. Evaluate therapies for patients with CF based on safety, efficacy and patient characteristics.

Learning Objectives: Food Allergy

1. Review the methods of immunotherapy currently under investigation (OIT, EPIT and SLIT)
2. Understand the efficacy and safety of these methods.
3. Understand the immunologic effects of the therapies.
4. Review the updated NIAID guidelines and its impact on treatment

Learning Objectives: Idiopathic Pulmonary Fibrosis

1. Describe best practices for diagnosing IPF based on the most recent evidence-based guidelines
2. Develop a comprehensive assessment strategy to differentiate IPF from other interstitial lung diseases
3. Develop a comprehensive approach to management of IPF based on the most recent clinical data to include pharmacologic and non-pharmacologic therapies
4. Determine appropriate strategies for the multidisciplinary healthcare team to effectively educate patients with IPF about their disease and address quality of life issues

Learning Objectives: Rheumatoid Arthritis

1. Review recent clinical practice guidelines for the timely diagnosis and treatment of patients with rheumatoid arthritis

2. Discuss the potential role of biomarkers in the management of and biologic treatment selection for rheumatoid arthritis

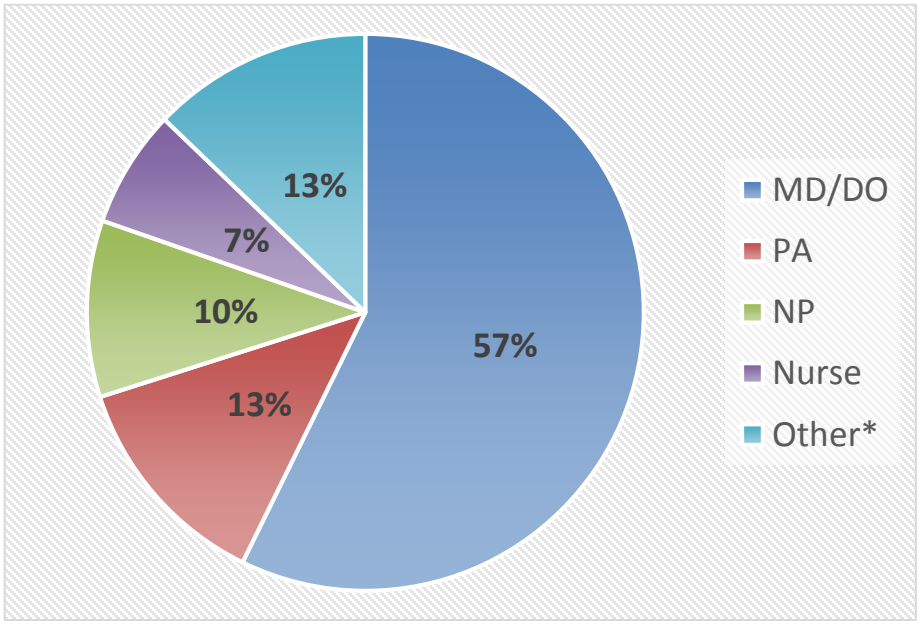
Outcomes Strategy

Strategies to measure participants' knowledge and competence:

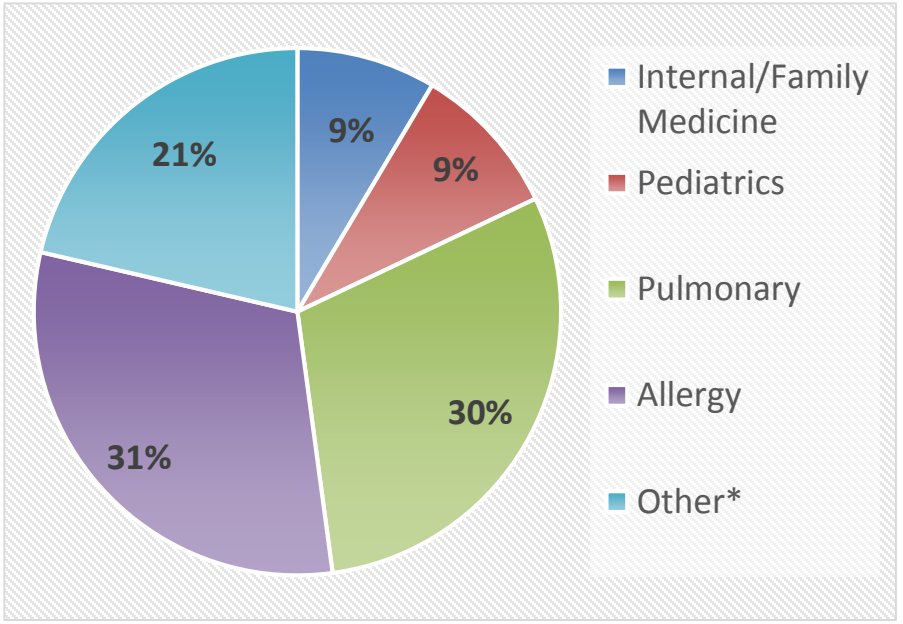
- ✓ Pre-tests, post-tests
- ✓ ARS questions throughout the activity
- ✓ Evaluations
- ✓ 45-day follow up surveys

Level 1 Outcomes: Participation

ATTENDEE DESIGNATION



ATTENDEE SPECIALTY



N=117

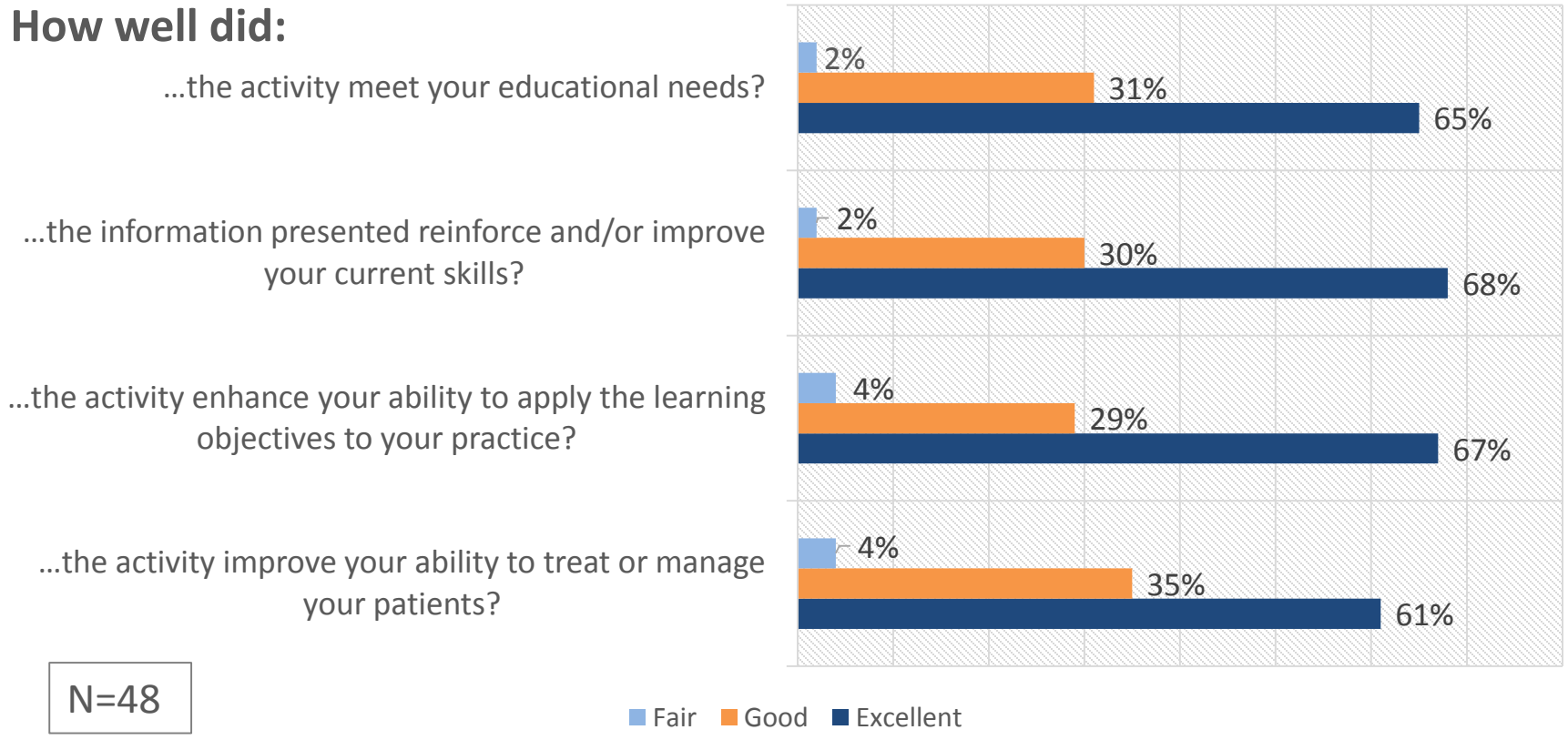
***Other:** BA, DPT, MPT, PharmD, PhD, RMA, etc.

***Other:** CF, ID, Pharmacy Research, Rhinology, Sleep, etc

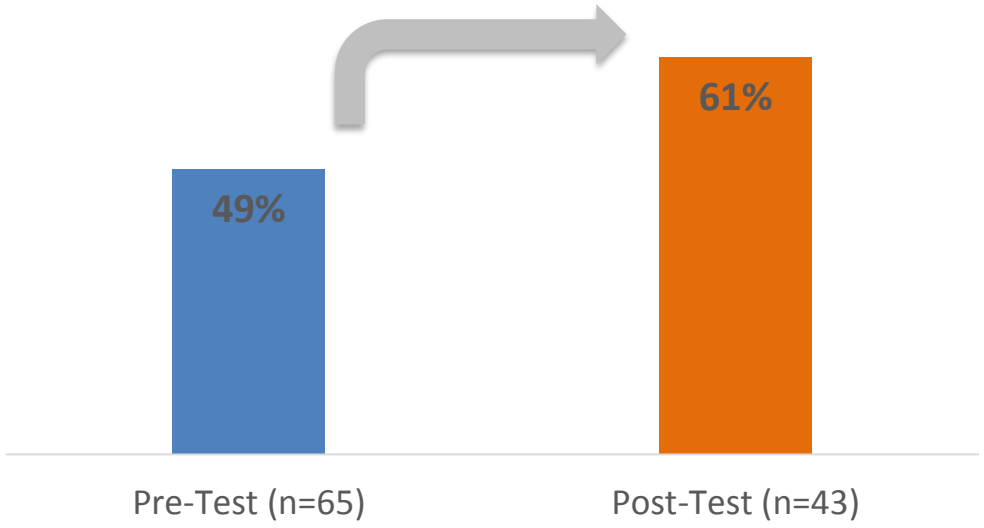
Level 2&3 Outcomes: Satisfaction/Learning

Analysis of participants responses related to educational needs

How well did:



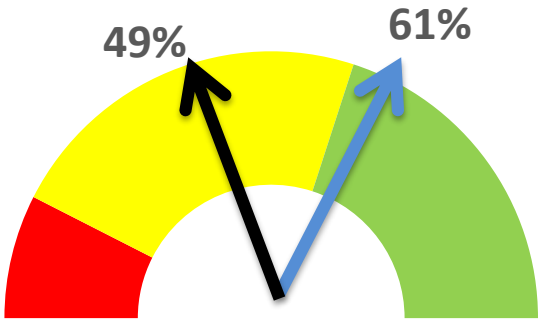
Level 3 & 4 Outcomes: Learning (Knowledge/Competence)



Overall relative knowledge gain from pre- to post-activity

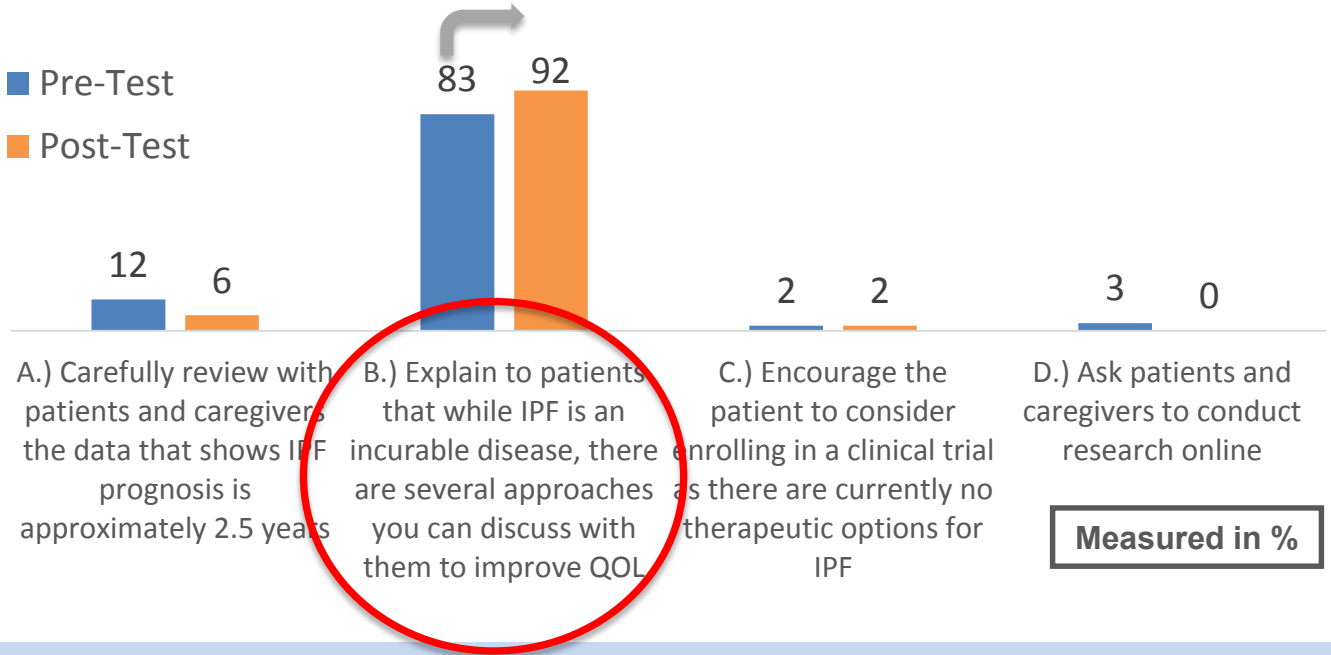
24%

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



Pre/Post Test Comparison:(Addresses IPF Learning Objective #4)

What is the best approach to discussing IPF disease management with patients and caregivers?

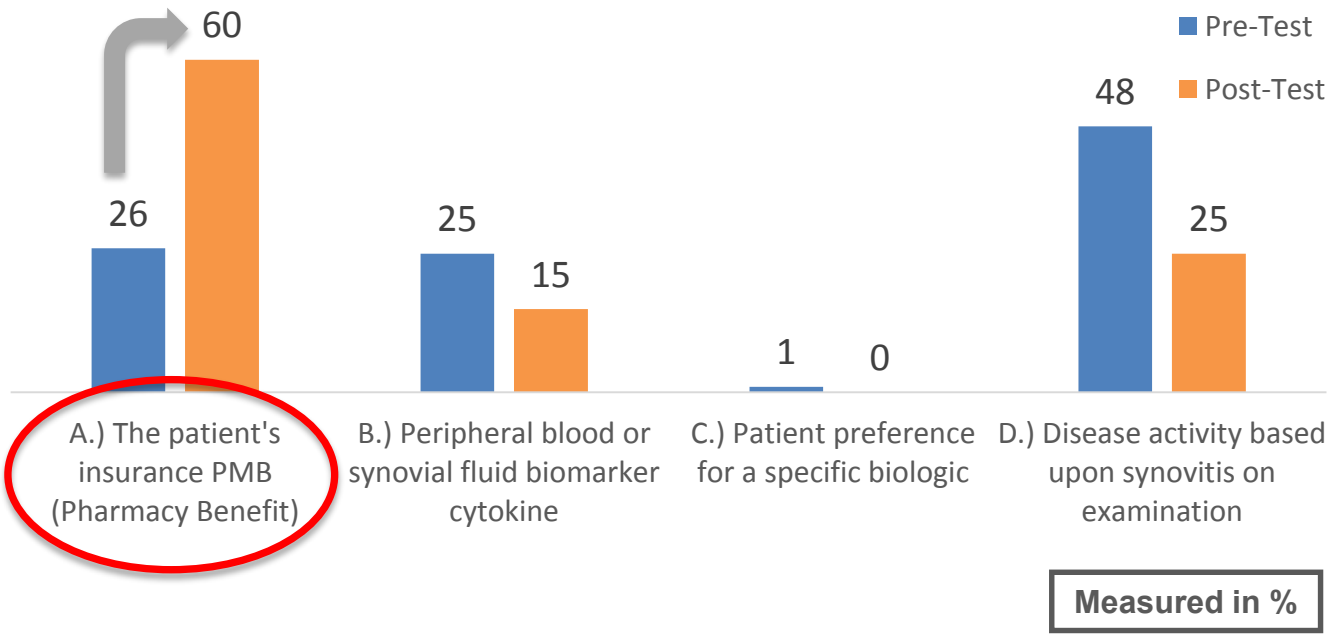


Average relative knowledge gain pre- to post-activity: **10%**

Best Answer: B (Explain to patients that while IPF is an incurable disease, there are several approaches you can discuss with them to improve QOL). *The correct answer is b. Although it is important to be truthful and realistic with patients, and prognosis is generally not great, studies of large groups of IPF patients reveal that median survival ranges from 3-5 years. There are pharmacological and non-pharmacological options for patients with IPF. To improve quality of life, patients should enroll in and complete pulmonary rehabilitation, determine supplemental oxygen needs, stay up to date with vaccinations, obtain general information about IPF, learn about potential comorbid conditions and determine whether lung transplantation is a therapeutic option.*

Pre/Post Test Comparison:(Addresses RA Learning Objective #2)

Rheumatologists in the US prescribe a biologic agent for a specific RA patient based upon:



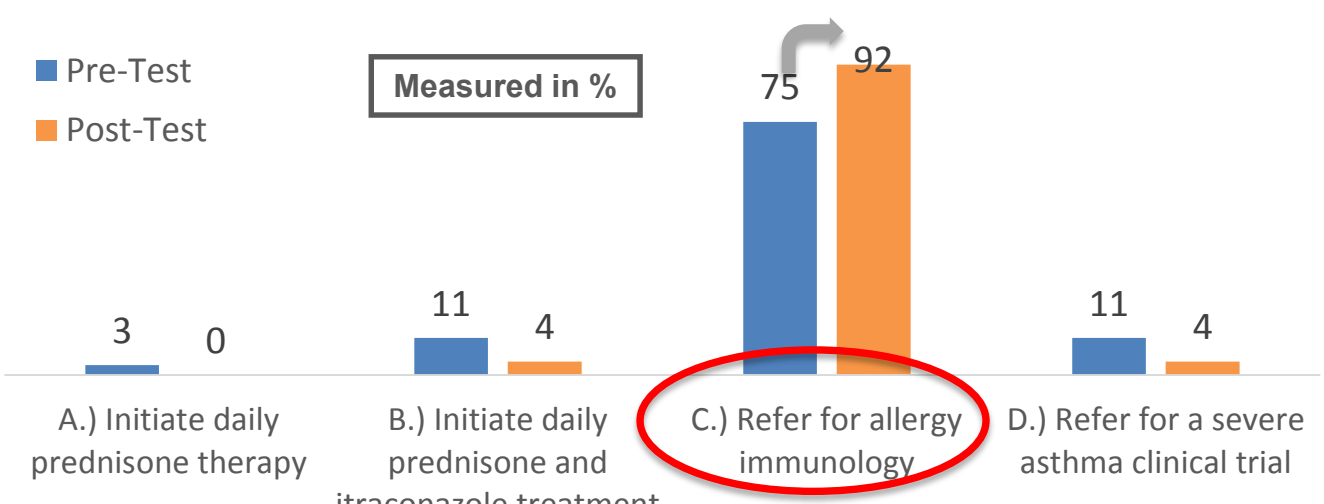
Average relative knowledge gain pre- to post-activity:

131%

Best Answer: A [The patient's insurance PMB (Pharmacy Benefit)]. *Due to the expense of biologics (10 K to 40 K/year) , only patients with insurance can take these medications in the US. Unfortunately PBMs are hired by all the private insurance carriers to negotiate the lowest cost for the 9 RA approved biologics. Therefore insurance companies raise the out of pocket Co-Pay costs to patients of the insurance companies "non preferred drugs" so that patients can not afford to go on a specific biologic. Insurance coverage and medication costs are often deciding factors in what treatments are prescribed.*

Pre/Post Test Comparison:(Addresses Asthma Learning Objective #4)

A 12 yo boy with asthma and allergic rhinitis has been managed with fluticasone/salmeterol 250/50 mcg 1 puff twice daily, cetirizine 10mg daily and montelukast 10 mg daily for the last year. He is skin test positive to dogs, cats, cockroach, ragweed and aspergillus. His IgE level is 550. His chest radiograph reveals moderate hyperinflation but is otherwise unremarkable. Despite good compliance to his medication regimen, he has been hospitalized twice in the past four months for asthma exacerbations. What is the best next step?

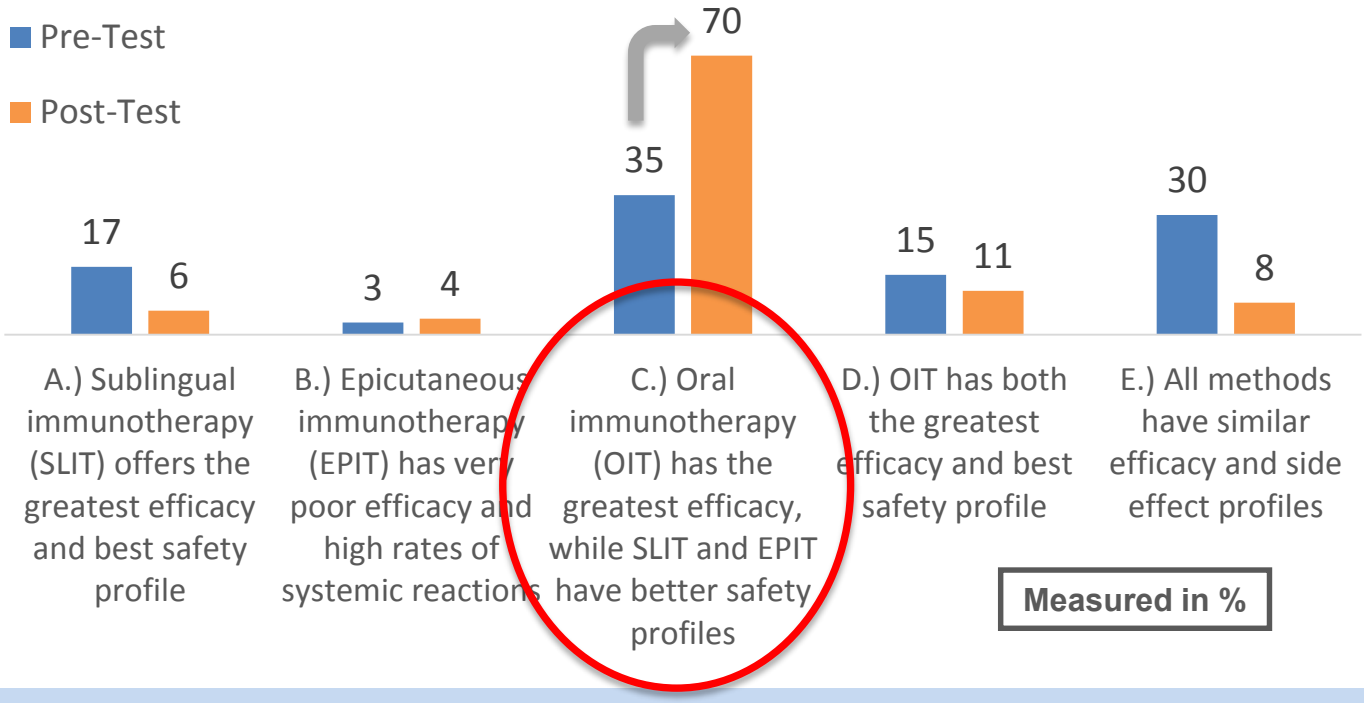


Average relative knowledge gain pre- to post-activity: **23%**

Best Answer: C (Refer for allergy immunology). *Initiating daily prednisone therapy is not a standard of care in the NHLBI guidelines. Initiating daily prednisone and itraconazole treatment is standard of care for allergic bronchopulmonary aspergilosus, not asthma and allergies. The IgE of 550 does NOT meet criteria for ABPA. Referral for allergy immunotherapy is a standard of care and in the NHLBI guidelines. Referral for a severe asthma clinical trial is a great idea, but NOT standard of care and not guaranteed to get therapy in a blinded study.*

Pre/Post Test Comparison:(Addresses Food Allergy Learning Objective #1)

Which of the following statements is true regarding the various forms of immunotherapy for food allergy?



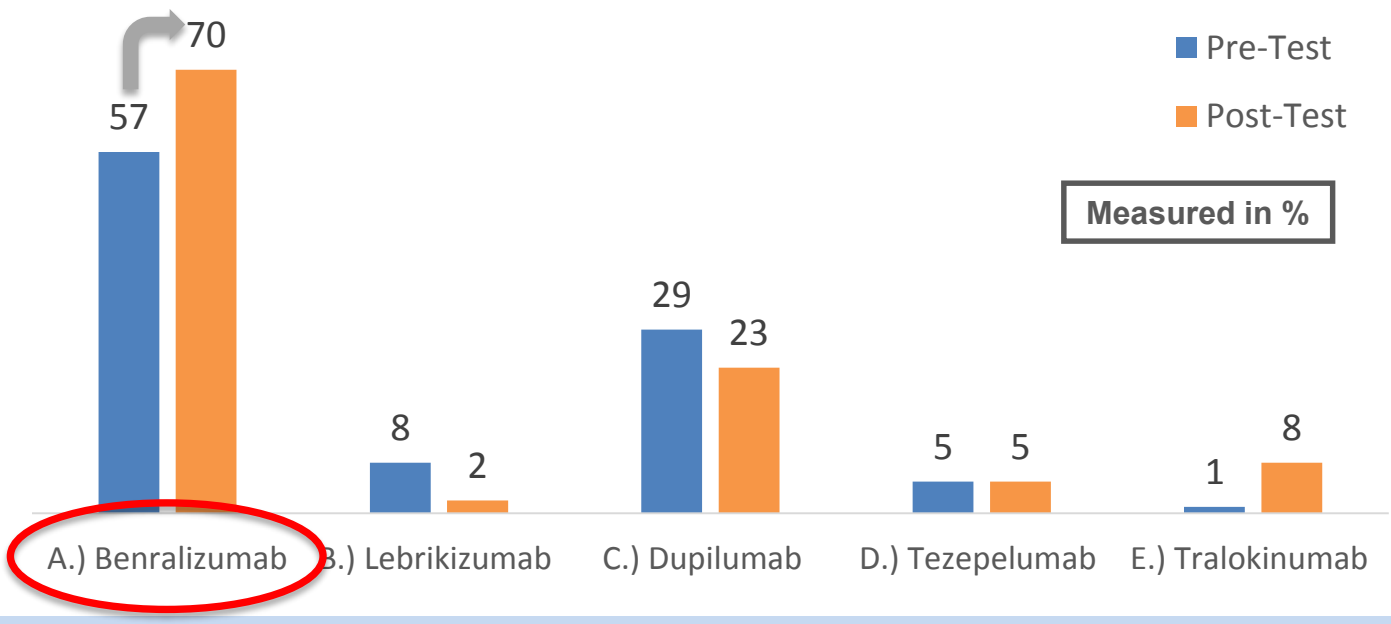
Average relative knowledge gain pre- to post-activity:

100%

Best Answer: C [Oral immunotherapy (OIT) has the greatest efficacy, while SLIT and EPIT have better safety profiles]. ***As OIT has been shown to have the greatest efficacy and success at achieving desensitization. However, OIT comes with the greatest side effects. SLIT and EPIT have shown modest evidence for the ability to achieve desensitization. SLIT and EPIT have improved safety profiles, compared to OIT.***

Pre/Post Test Comparison:(Addresses Severe Asthma (Adult) Learning Objective #2)

Which of the following biologic agents are approved for the treatment of severe persistent asthma characterized as Th2 high?



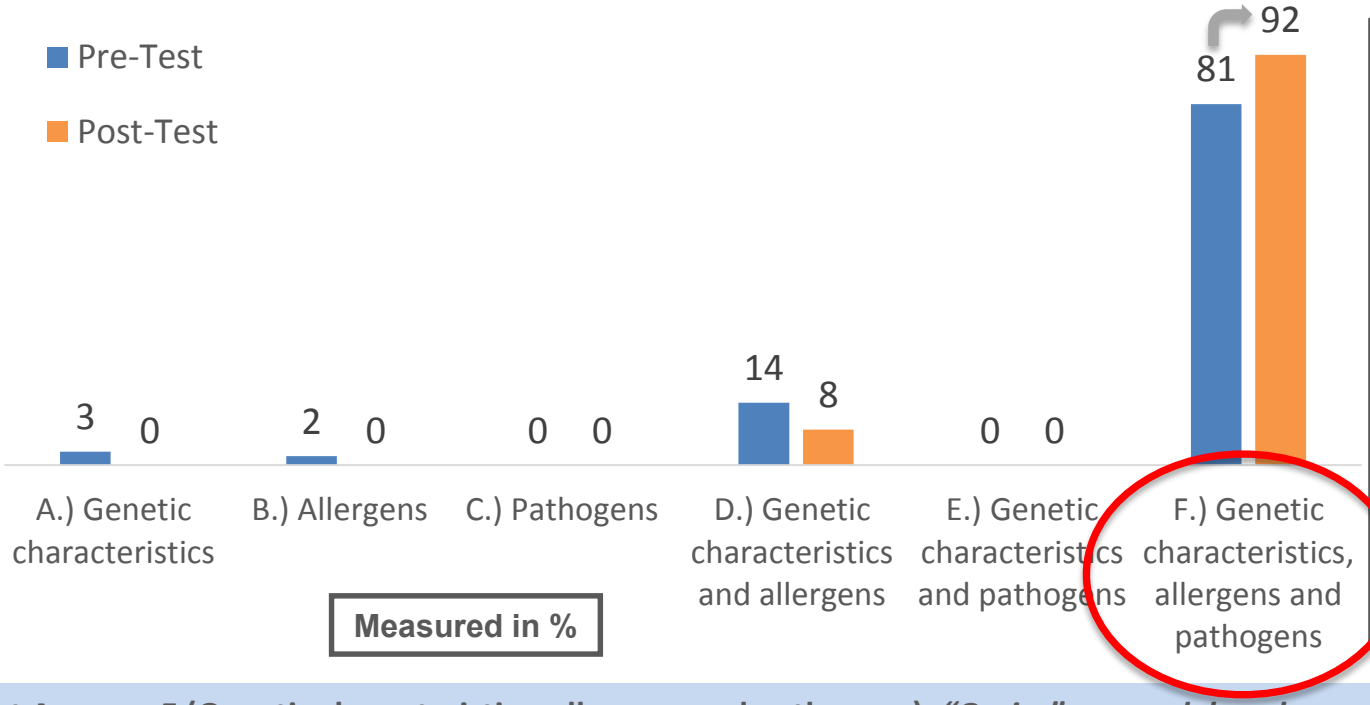
Average relative knowledge gain pre- to post-activity:

23%

Best Answer: A (Benralizumab). ***Benralizumab (anti-IL-5Rα) is the only one of these agents that is approved for the treatment of severe persistent eosinophilic asthma, which would be characterized as type 2, or Th2 high. Although lebrikizumab (anti-IL-13), dupilumab (anti-IL-4R α), and tralokinomab (anti-IL-13) would all be appropriate for type2 high, they are not yet approved for use in asthma. Dupilumab is approved for use in atopic dermatitis. Tezepelumab (anti-TSLP), also not yet approved, may end up demonstrating benefit in both type 2 high and type 2 low asthmatics since TSLP is an upstream mediator, but studies will have to be done to demonstrate this.***

Pre/Post Test Comparison:(Addresses Asthma (Childhood) Learning Objective #2)

Which of the following are risk factors for developing asthma?



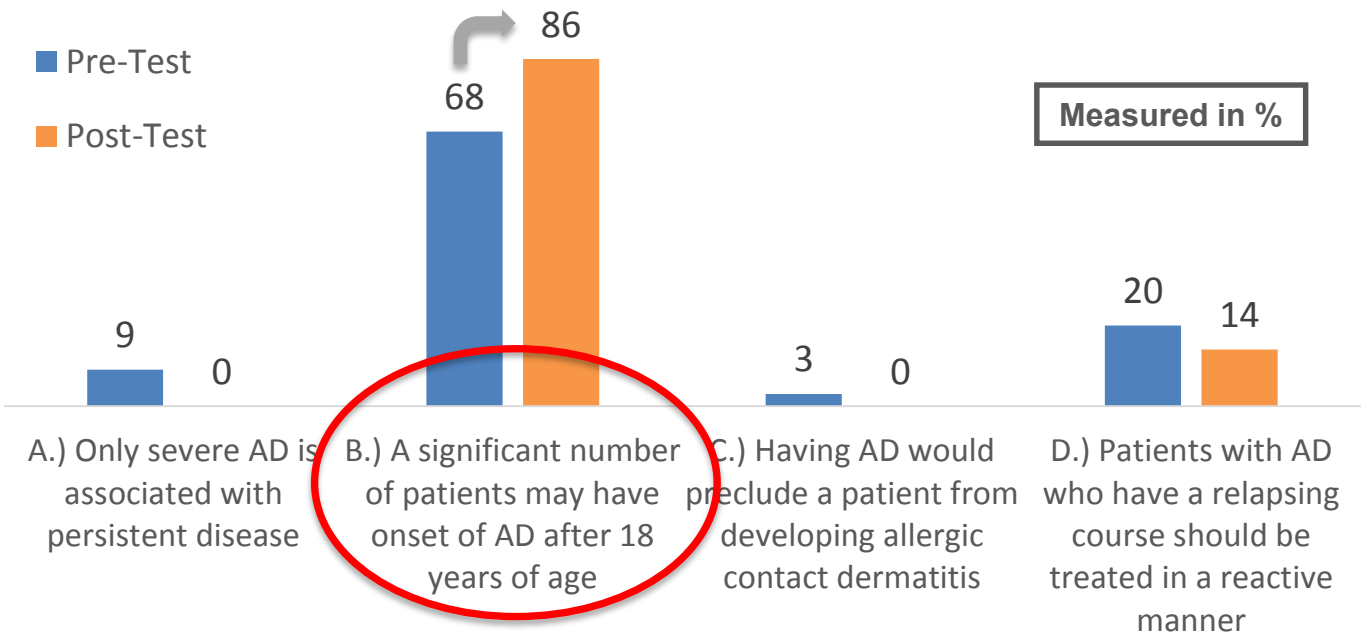
Average relative knowledge gain pre- to post-activity:

14%

Best Answer: F (Genetic characteristics, allergens and pathogens). ***"Omics" research has demonstrated that there are multiple genes that are influenced by a variety of complex and interacting factors like gene modifiers, methylation, protein levels and intermediate phenotypes. Genetic characteristics for atopy have been identified as risk factors for the development of asthma. Environmental exposures to biological allergens including dustmite and cockroach are risk factors for the development of asthma. Additionally, a variety of viruses, bacteria and fungi have been implicated as risk factors for developing asthma.***

Pre/Post Test Comparison: (Addresses Atopic Dermatitis Learning Objective #1)

In discussing the burden of illness and barriers to treatment with a patient who has atopic dermatitis, the true statement is:



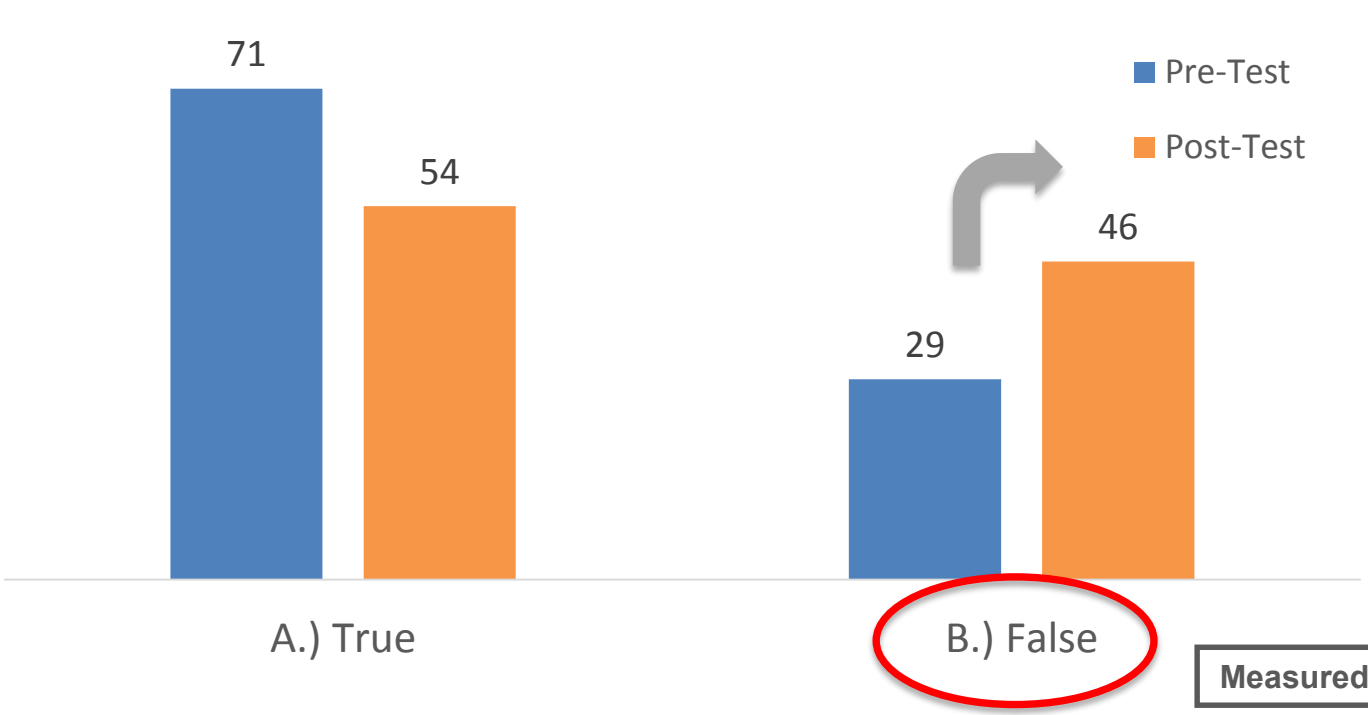
Average relative knowledge gain pre- to post-activity:

26%

Best Answer: B (A significant number of patients may have onset of AD after 18 years of age) ***In one study > 50% of patients had onset of AD after age 18 years. Even patients with mild-moderate AD can have persistent disease. Patients with AD can develop ACD. Patients with relapsing disease should be treated in a proactive manner.***

Pre/Post Test Comparison:(Addresses COPD (New Approaches) Learning Objective #1)

In order to diagnose COPD a patient with a history of heavy smoking must have an FEV1/FVC ratio that is less than 0.7.



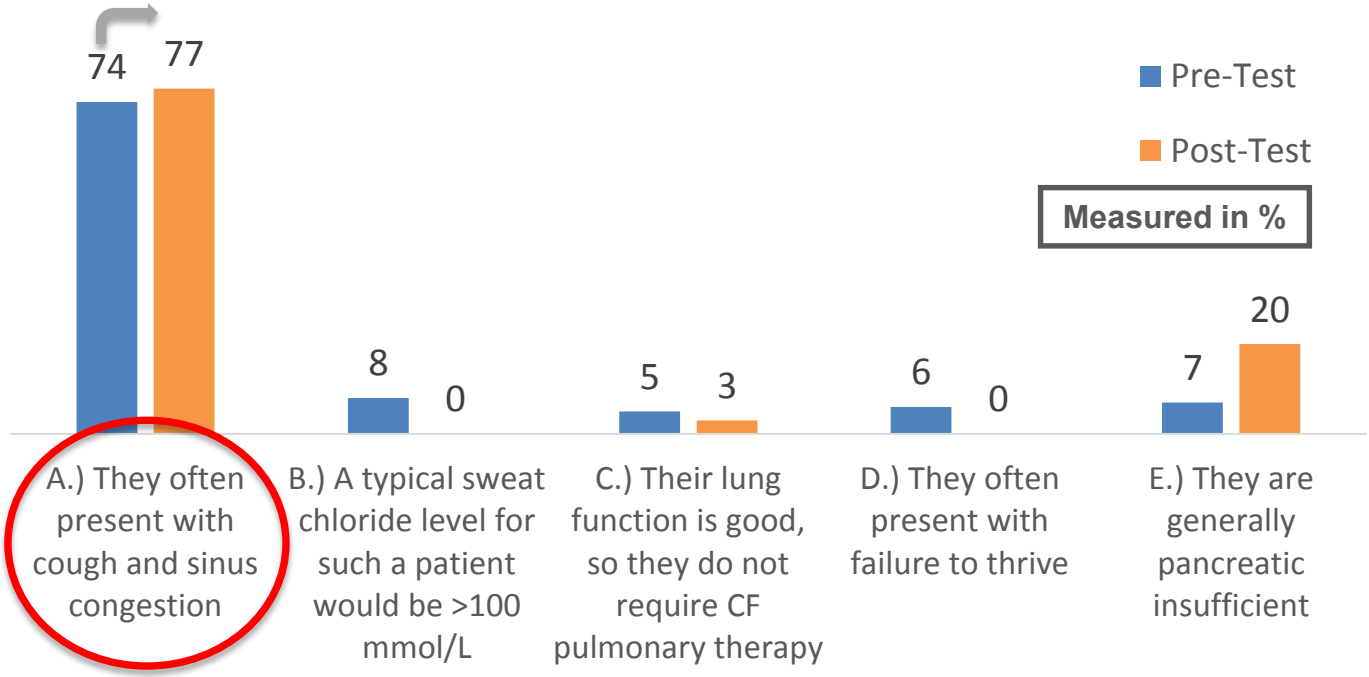
Average relative knowledge gain pre- to post-activity:

59%

Best Answer: B (False) *Many studies, including COPDGene, show that up to half of heavy smokers develop radiographic and clinical signs of COPD long before the FVC/FEV1 ratio falls below 0.7. The use of this ratio to diagnose COPD misses about half of the cases and leads to many of the problems we have now in controlling the COPD epidemic.*

Pre/Post Test Comparison:(Addresses CF Learning Objective #1)

Which of the following statements is true regarding patients who are diagnosed later in life?



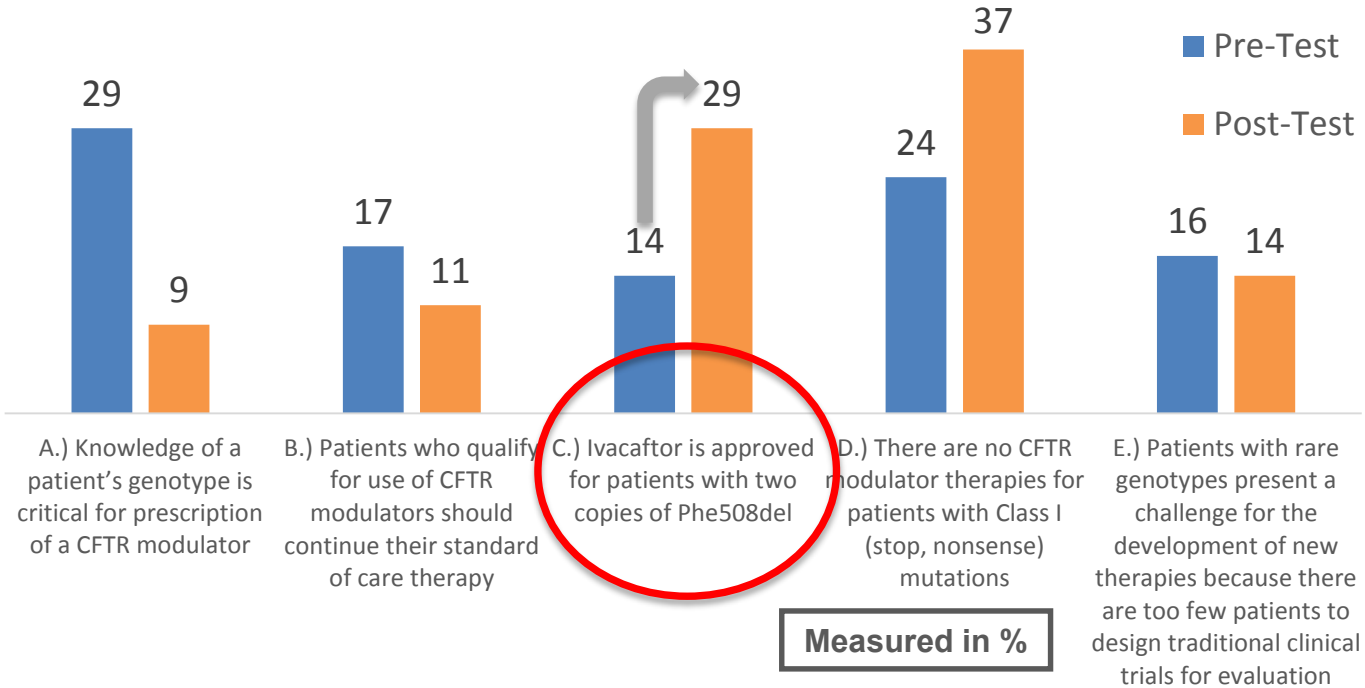
Average relative knowledge gain pre- to post-activity:

4%

Best Answer: A (They often present with cough and sinus congestion) ***Patients diagnosed later in life are almost always pancreatic sufficient so they do not present with FTT, but rather with pulmonary manifestations such as cough and sinus congestion. Because they have lung disease, even if relatively mild, they still require treatment and data shows that their outcomes are improved if they are treated for their pulmonary disease. Because they usually have more "mild" mutations, e.g. those that confer residual function of the CFTR protein, their sweat chlorides are generally in the indeterminate range of 40 to 60 mmmol/L (or even lower), rather than in the positive range (>60 mmol/L).***

Pre/Post Test Comparison:(Addresses CF Learning Objective #2)

Which of the following statements is false regarding use of CFTR modulators in CF?



Average relative knowledge gain pre- to post-activity:

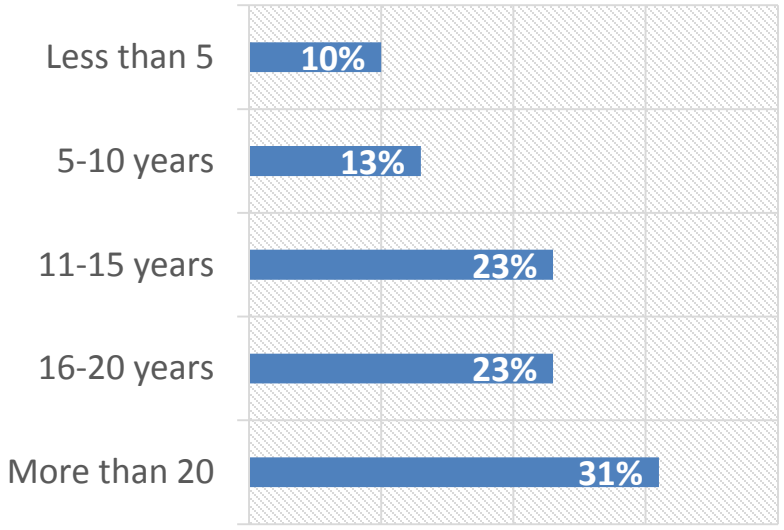
107%

Best Answer: C (Ivacaftor is approved for patients with two copies of Phe508del). Current therapies are for specific genotypes, so knowing a patient's genotype is essential for prescribing it. All of the current modulator therapies have been tested while patients are on standard of care therapy, so should be prescribed in addition to standard of care therapy. Ivacaftor is not approved for patients who have two copies of Phe508del (the combination of lumacaftor plus ivacaftor is approved for patients homozygous for Phe508del). It is true that there are no approved CFTR modulator therapies for patients with class I mutations, and it is also true that patients with rare genotypes are of insufficient numbers for traditional clinical research trial conduct.

Level 4 Outcomes: Competence

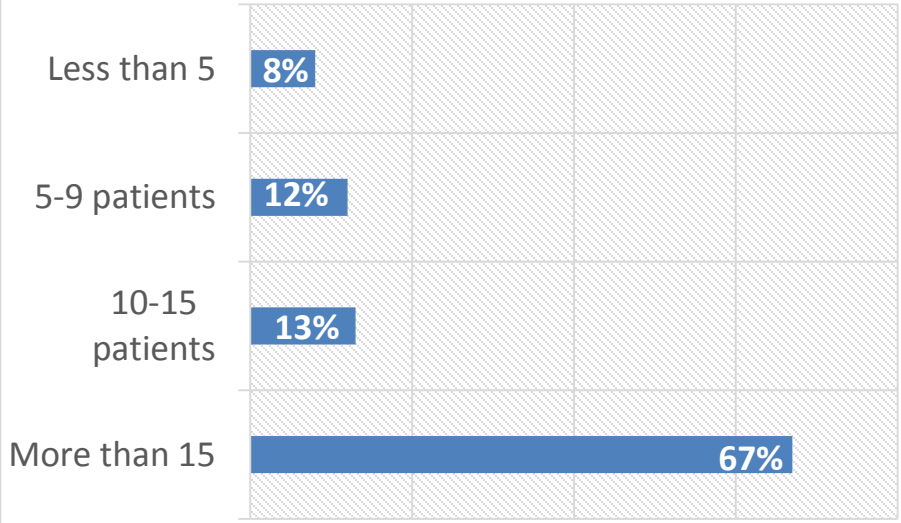
N=48

Learners' Average Years in practice



Average number of years in practice: **15**

Average # of patients learner treats per week with conditions discussed in this activity

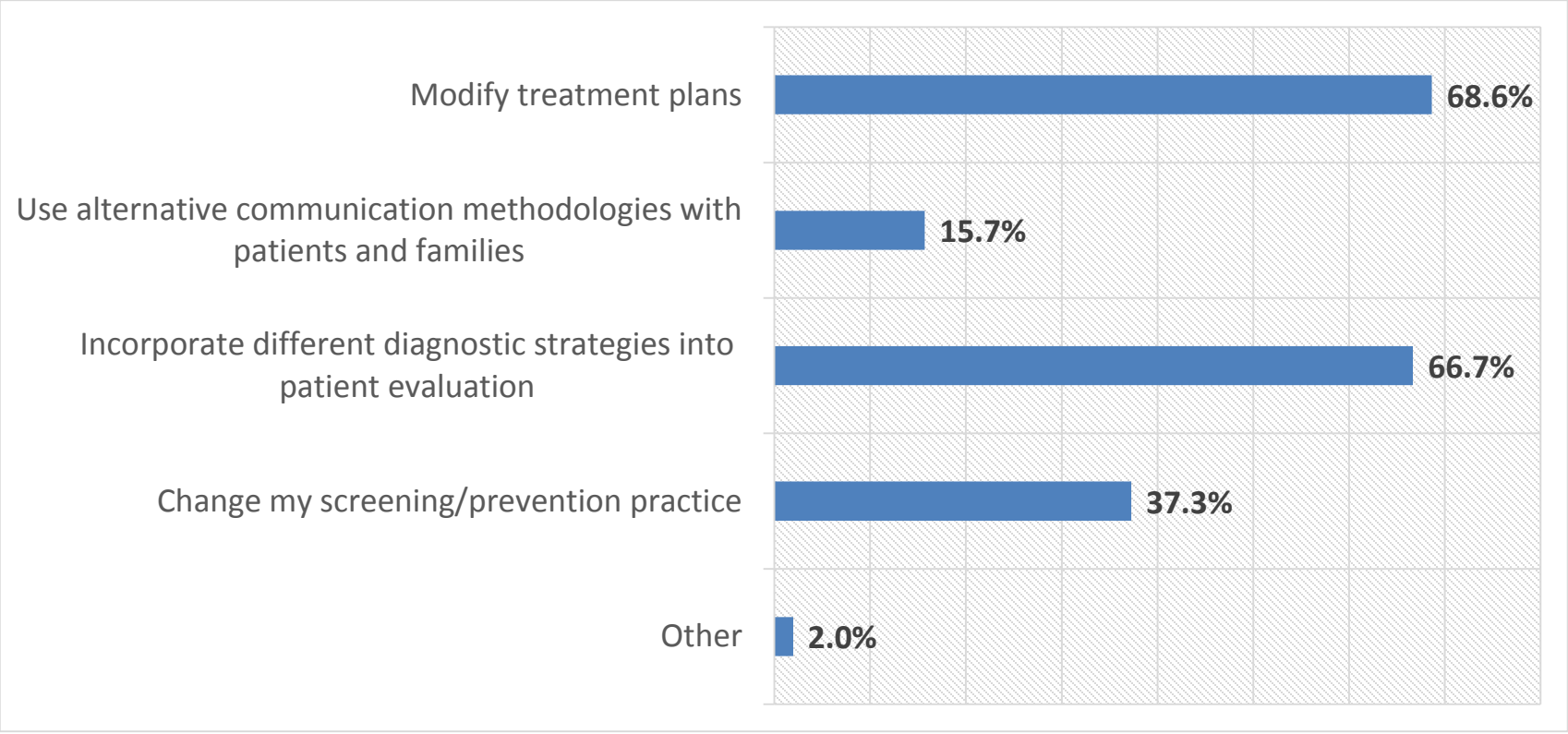


Estimated number of patients impacted per month: **2500+**

Level 4 Outcomes: Competence

N=48

100% of respondents report they **intend to make changes to practice** as a result of the activity. The changes **I intend to make** in my practice include:



*Other: Modify education materials, web content and class content

Evaluation Results

N=51

- **100%** of respondents report the content was **evidence based and clinically relevant**
- **100%** of respondents report they **intend to make changes to practice** as a result of the activity
- **94%** of respondents report the activity **addressed strategies for overcoming barriers** to optimal patient care
- **98%** of respondents report that the information presented **reinforced and/or improved their current skills**
- **96%** of respondents report that the educational activity **improved their ability to treat or manage patients**

Overall Activity Impact

Based on the educational content delivered at the *Pulmonary and Allergy Update*, participants demonstrated a **24% increase in knowledge and competence**. Additionally, participants report that they have **changed their screening and prevention practices (24%),** have **incorporated different diagnostic strategies into patient evaluation (62%),** have **modified treatment plans** (**55%**) and are **using alternative communication** methods (**17%**) with their pulmonary, allergy, and immunology patients as a result of the activity.

The *Pulmonary and Allergy Update* fulfills National Quality Strategy Priorities in making care safer for patients with rheumatoid arthritis, atopic dermatitis, asthma, COPD and other pulmonary and allergy conditions, as well as promoting the most effective treatment and prevention practices for these disease states.

Executive Summary: Certification

National Jewish Health is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians and by the California Board of Registered Nursing to provide nursing contact hours for nurses.

National Jewish Health designated this live activity for a maximum of 14.75 *AMA PRA Category 1 Credits™* and a maximum of 15 nursing contact hours.

About **National Jewish Health**

✓Largest pulmonary division in the world and the only hospital whose principal focus is respiratory and related diseases.

✓#1 or #2 ranking in Pulmonology category by U.S. News & World Report (since category was added in 1997).

✓Top 8 percent of institutions funded by the National Institutes of Health, an extraordinary achievement for an institution of NJH's size.

✓Designated as a Specialized Center of Research for ILD by The National Institute of Health.

✓30 doctors named to "America's Top Doctors" in 2015.

✓The NJH COPD clinic is the largest single COPD clinic in the nation and was recently recognized by U.S. News and World Report for its expertise in treating COPD, receiving a "high-performing" designation.