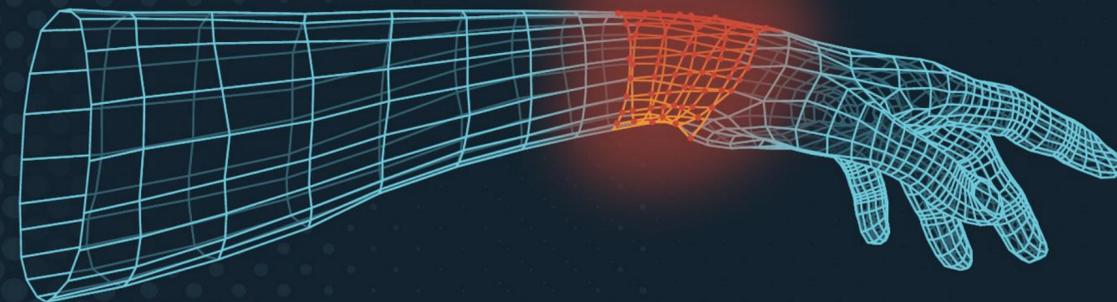




**MODERATE OR SEVERE AD?
IMPROVING ASSESSMENT OF
ATOPIC DERMATITIS SEVEREITY**

THE KEY TO OPTIMAL TREATMENT



This program was supported by an educational grant from Pfizer



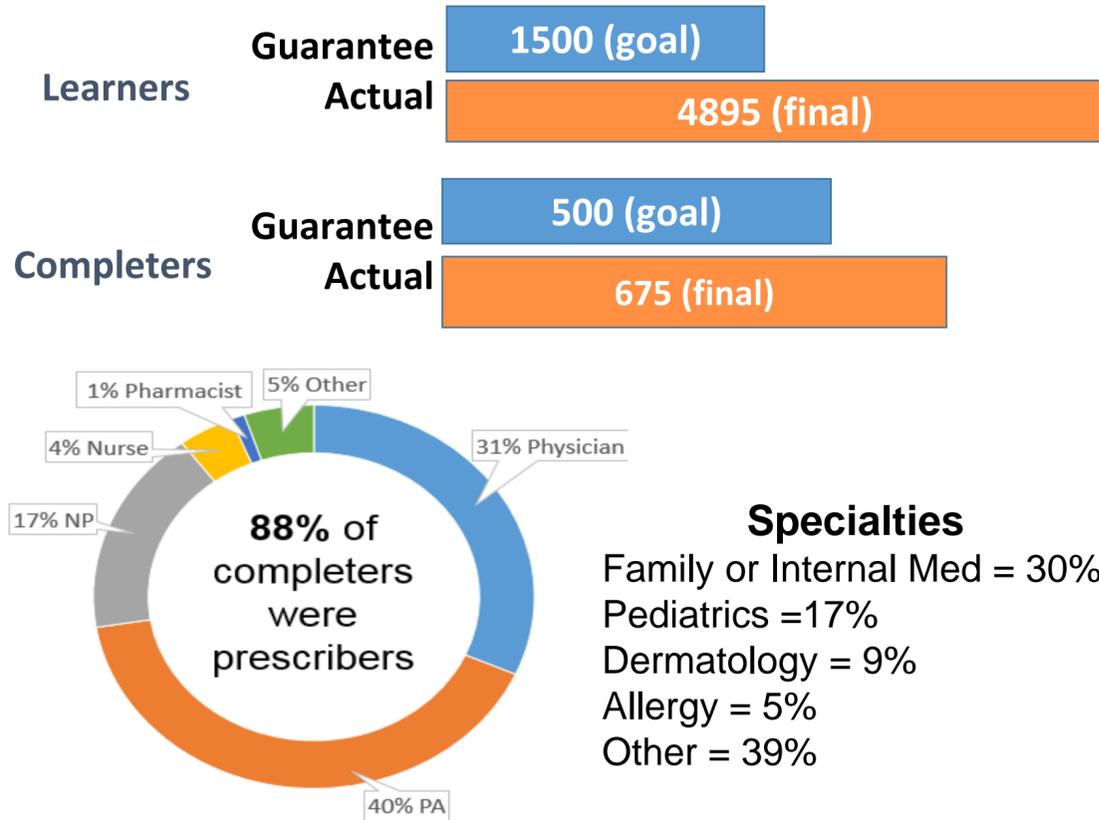


THE KEY TO OPTIMIZING TREATMENT OF ATOPIC DERMATITIS (AD)

Final Report: Online Enduring Activity



Participation



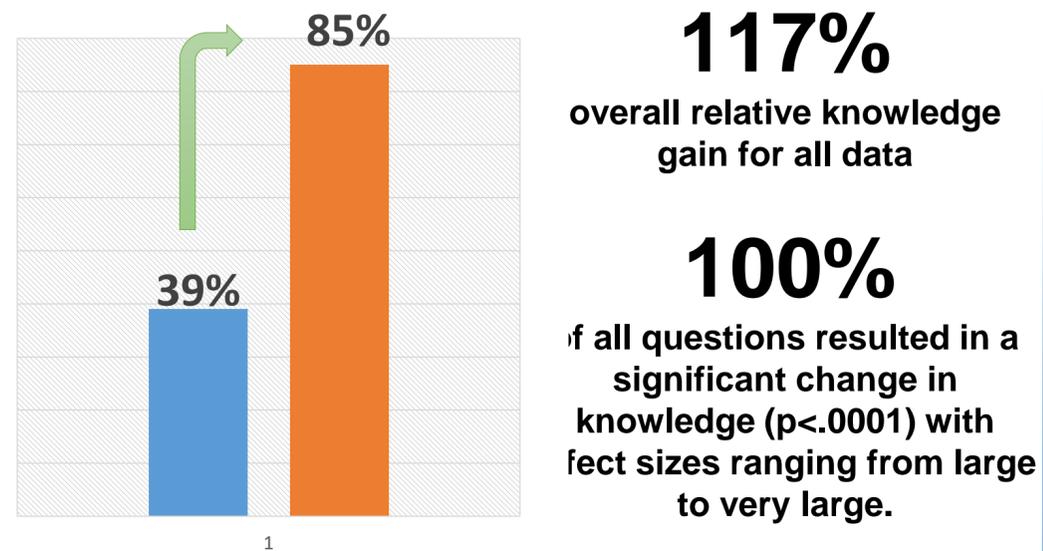
Satisfaction

96% of respondents indicated that the activity:

- Met their educational needs
- Reinforced or improved current skills

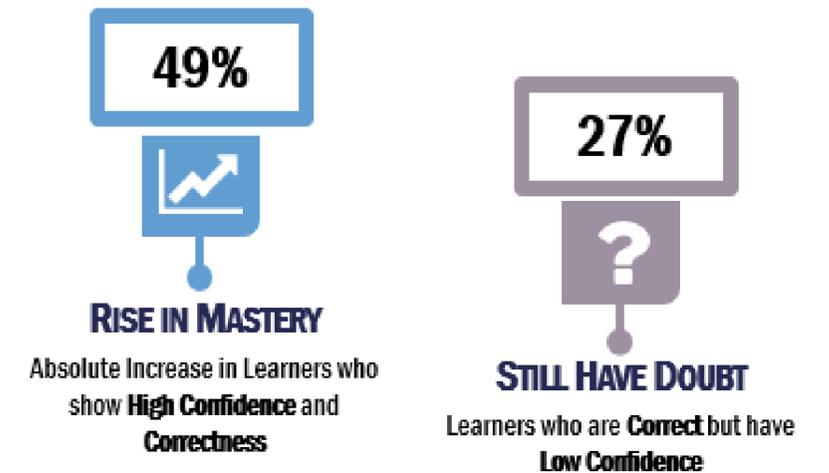
“[This activity gave me a] better understanding of step-wise approach to therapy for moderate to severe cases of AD” – online participant

Educational Impact

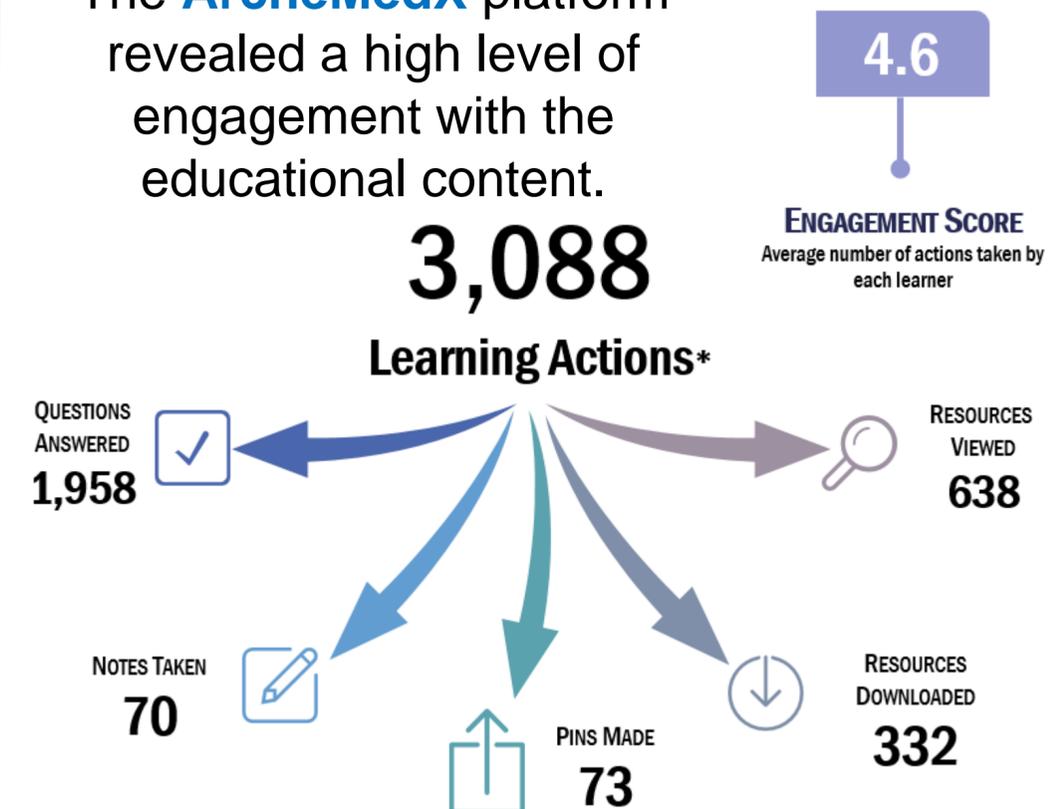


Engagement and Effectiveness

Confidence-based Assessment (CBA)



The **ArcheMedX** platform revealed a high level of engagement with the educational content.





Launch Date: January 25, 2019

Background:

This online educational initiative was designed to improve the clinical skills of allergists, dermatologists, and advanced practice providers (APPs) in those specialty areas in recognizing, assessing, and selecting treatment for patients with atopic dermatitis. The platform utilized created a personalized and intelligent learning experience that drives learners to more deeply engage in content, increase their competence and retain knowledge longer over time compared with traditional forms of online passive learning.

Target Learner Audience

This curriculum is designed for specialists including allergists and dermatologists. The secondary target audience includes APPs, such as nurse practitioners and physician assistants, participating in the care of patients with atopic dermatitis.

Learning Objectives:

1. Identify appropriate assessment tools to distinguish severity of AD based on clinical profiles
2. Select appropriate treatments for patients with mild-to-moderate AD based on current research, guidelines and mechanisms of action
3. Select appropriate treatments for patients with severe AD based on current research, guidelines and mechanisms of action

Faculty:

Kanwaljit K. Brar, MD (Chair)

Assistant Professor
Division of Pediatric Allergy &
Clinical Immunology
National Jewish Health



Mark Boguniewicz, MD

Professor
Division of Pediatric Allergy &
Clinical Immunology
National Jewish Health



Noreen Heer Nicol, PhD, RN, FNP

Associate Professor
University of Colorado,
College of Nursing





THE KEY TO OPTIMIZING TREATMENT OF ATOPIC DERMATITIS (AD)



Clinical Reference Aid: Infographic

THE KEY TO OPTIMIZING TREATMENT OF ATOPIC DERMATITIS (AD)

ASSESSMENT: PATIENT MEETS CRITERIA FOR DIAGNOSIS OF AD

- Review prior history of AD including steroid usage/history of infections
- Measure body area surface affected
- Address patient and caregiver concerns (E.g.: POEM - Patient Oriented Eczema Measure, DLQI - Dermatology Life Quality Index)

Assess Symptoms

- Erythema
- Induration/Papulation/Edema
- Oozing/Crusting
- Lichenification
- Dryness
- Excoriation

CLASSIFY SEVERITY OF AD

SIGNS OF AD		
MILD	MODERATE	SEVERE
●	●●	●●●
Pink to Red Mild Papulation and Induration No Oozing/Crusting No Lichenification	Du Red Moderate Papulation and Induration Mild Lichenification Oozing/Crusting May Be Present	Deep, Dark, or Fiery Bright Red Severe Papulation and Induration Thick Lichenification Oozing/Crusting Present

BASIC MANAGEMENT OF AD

1. Skin Care

- Soak and Seal – Warm baths or showers using gentle cleanser followed by moisturizer (even on clear areas)
- Frequent, liberal moisturizer use throughout the day

2. Antiseptic Measures

3. Trigger Avoidance

- Avoid irritants and known allergens

4. Address Psychosocial Stressors

- Treat Anxiety/Depression
- Identify Bullying
- Behavior Modification

STEP CARE MANAGEMENT OF AD

MILD	MODERATE	SEVERE
BASIC MANAGEMENT + STEP 1 Use Low to Mid-Potency Topical Corticosteroids STEP 2 Pimecrolimus Cream*, OR Crisabarole Ointment* +/- Sedating Antihistamines	BASIC MANAGEMENT + STEP 1 Use Mid to High-Potency Topical Corticosteroids STEP 2 Pimecrolimus Cream*, OR Tacrolimus Ointment*, OR Crisabarole Ointment* STEP 3 If not improved, consult with AD specialist Consider Wet Wrap Therapy Consider Dupilumab†	STEP 2 "Rescue" Treatment with Wet Wrap Therapy Short Term Hospitalization STEP 3 If not improved, consult with AD specialist Consider Dupilumab†, Phototherapy‡, Systemic Immunosuppressive Therapy

*FDA Approval for > 2 years, † FDA Approval for > 18 years, ‡ FDA Approval for > 12 years

1 Boguniewicz M, et al. Ann Allergy Asthma Immunol. 2018;120:10-22 | 2 Akdis CA, et al. J Allergy Clin Immunol. 2006;112:152-169 | 3 EASI Evaluator Group; Exp Dermatol. 2001 Feb;10(1):11-8 | 4 Brar, K.K., Nicol, N.H., & Boguniewicz, M. (2018) Strategies for Successful Management of Severe Atopic Dermatitis The Journal of Allergy and Clinical Immunology: In Practice: In press

This activity was supported by an educational grant from Pfizer. © 2018 National Jewish Health.

National Jewish Health
Breathing Science is Life.

92% of participants indicated they would use the additional resources provided (including the infographic) in their practice.



THE KEY TO OPTIMIZING TREATMENT OF ATOPIC DERMATITIS (AD)



ArcheMedX's Intelligent Learning Platform (ILP) creates a personalized and intelligent learning experience that drives learners to more deeply engage in content, increase their competence and retain knowledge longer over time compared with traditional forms of online passive learning.

THE KEY TO OPTIMAL TREATMENT OF AD

Atopic Dermatitis Yardstick: Practical recommendations for an evolving therapeutic landscape

Scoring system	Description	Severity rating
Validated SCORAD ^{45,46}	3 components: (A) extent—sites affected are shaded on a body drawing and scored by percentage (head and neck 9%; upper and lower limbs 9% each; anterior trunk 18%; back 18%; maximum 100%); (B) intensity score (0 = little or none to 3 = severe) for redness, swelling, crusting or oozing, skin thickening (lichenification), dryness, scratch marks (maximum 18); (C) subjective score (VAS, 0 = none to 10 = worst imaginable) for sleeplessness and itch (maximum 20); SCORAD total score = A/5 + 7B/2 + C (maximum 103)	Mild <25, moderate >25 to <50, severe >50
Eczema Area and Severity Index (EASI) ^{48,50,51}	2 components: (1) area score (percentage of skin affected) recorded for 4 regions (head and neck; trunk and genitals; upper limbs; lower limbs and buttocks); 0 = none; 1 = 1–9%; 2 = 10–29%; 3 = 30–49%; 4 = 50–69%; 5 = 70–89%; 6 = 90–100%; (2) severity score for each region calculated based on intensity (0 = none to 3 = severe) of redness, thickness or swelling, scratching, lichenification (maximum 12 for each region) Calculation of total regional scores: head and neck: severity score × area score × 0.1 (in children 0–7 y, × 0.2) trunk: severity score × area score × 0.3 upper limbs: severity score × area score × 0.2 lower limbs: severity score × area score × 0.4 (in children 0–7 y, × 0.3) EASI total score = sum of total regional scores (maximum 72)	Mild 11–21, moderate 21–41, severe 41–72
Patient-Oriented SCORAD (PO-SCORAD) ^{52,53}	Adaptation of SCORAD for patients and available as an app online (to be shared with the clinician)—similar scoring as SCORAD ⁴⁵ : extent of affected areas, severity of dry skin outside affected areas, symptom intensity of affected areas, severity of itching, and sleep disturbance; shown to be correlated with SCORAD	Mild <25, moderate >25 to <50, severe >50
Patient-Oriented Eczema Measure (POEM) ⁵⁴	7 symptoms scored over past week: 0 = no days; 1 = 1–2 d; 2 = 3–4 d; 3 = 5–6 d; 4 = every day (query: Over the last week, on how many days has your skin been itchy, red, bleeding, weeping or oozing, clear fluid, cracked, flaking, felt dry or rough because of your eczema?); maximum score 28	Clear or almost clear 0–2, mild 3–7, moderate 8–16, severe 17–24, very severe 25–28
Dermatology Life Quality Index (DLQI) ^{55,57}	10-question validated questionnaire providing patient's perception of the impact of AD on quality of life in past week; questions include effect of disease and treatment on physical, psychological, and social well-being	Each question is answered according to ratings: 0 = not at all, 1 = a little, 2 = a lot, 3 = very much; maximum 30
Not validated Investigator Global Assessment (IGA) score, aka Investigator Static Global Assessment (ISGA) score ⁵⁷	FDA categorization of AD severity based on investigator's subjective assessment of a representative lesion according to erythema, induration or papulation, and/or oozing or crusting.	0 = clear to 4 = severe
Six Signs Six Areas Atopic Dermatitis (SASSAD) score ^{58,59}	Subjective evaluation of extent of body surface area involved based on 6 signs (erythema, exudation, excoriation, dryness, cracking, lichenification) at each of 6 sites (arms, hands, legs, feet, head and neck, trunk)	Each sign at each site is assessed using a scale: 0 = absent, 1 = mild, 2 = moderate, 3 = severe

The Yardstick for AD - Atopic dermatitis yardstick: Practical recommendations for an evolving therapeutic landscape

[View Resource](#) [Add Note](#)

Downloadable resources appear at key learning moments

AWARD WINNING

ArcheViewer

E-LEARNING & ANALYTICS PLATFORM

CLINICIAN **EDUCATOR**

Question 5 (required)

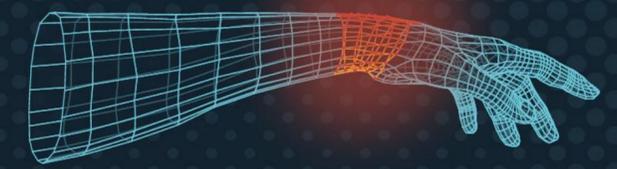
Which of the following validated provider scoring tools uses xerosis as a provider-assessed symptom of severity?

- A: EASI
- B: SCORAD
- C: POEM
- D: IGA

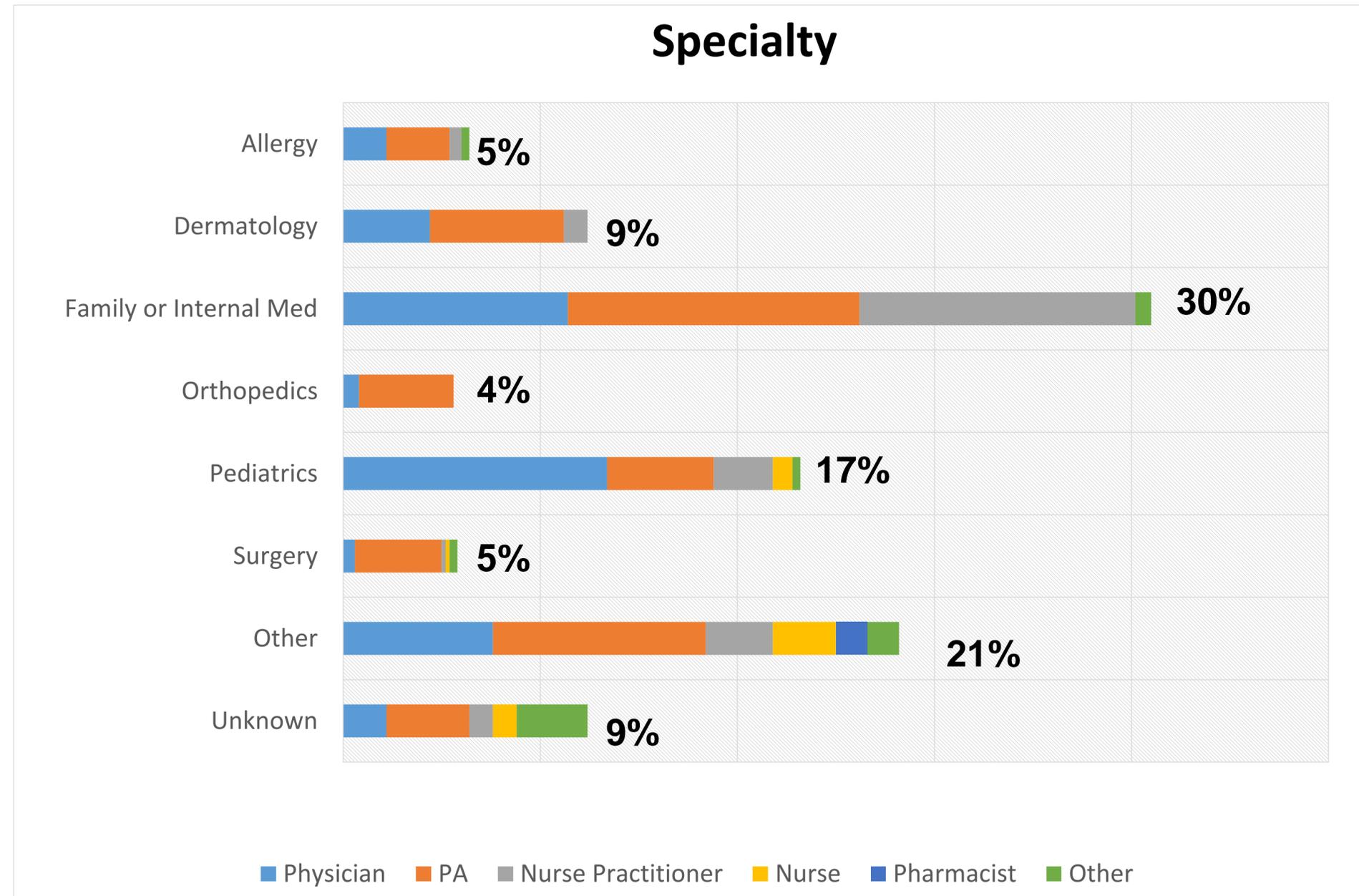
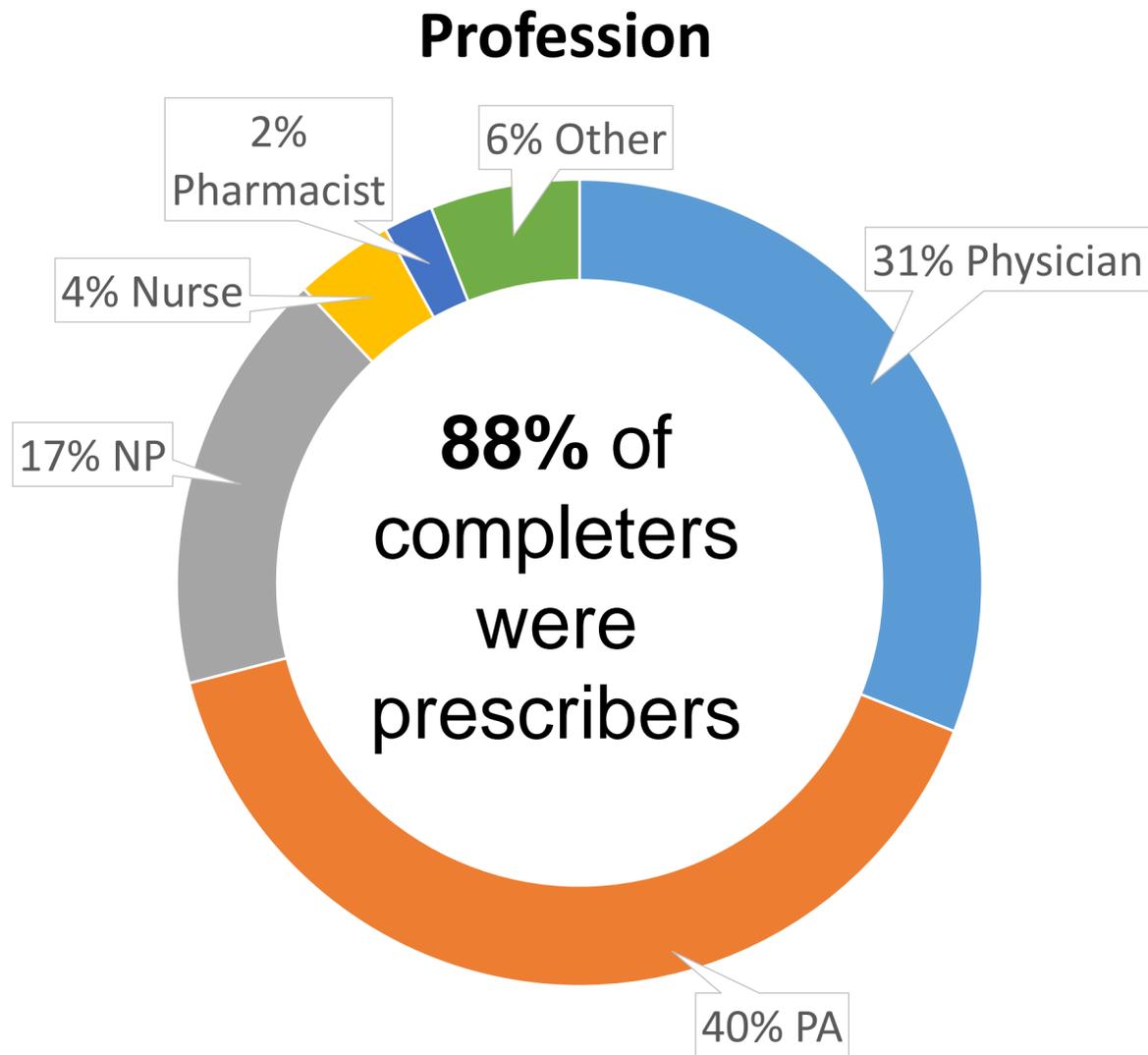
How confident are you in your answer?

-
-
-

Confidence-based Assessment strategies measure mastery

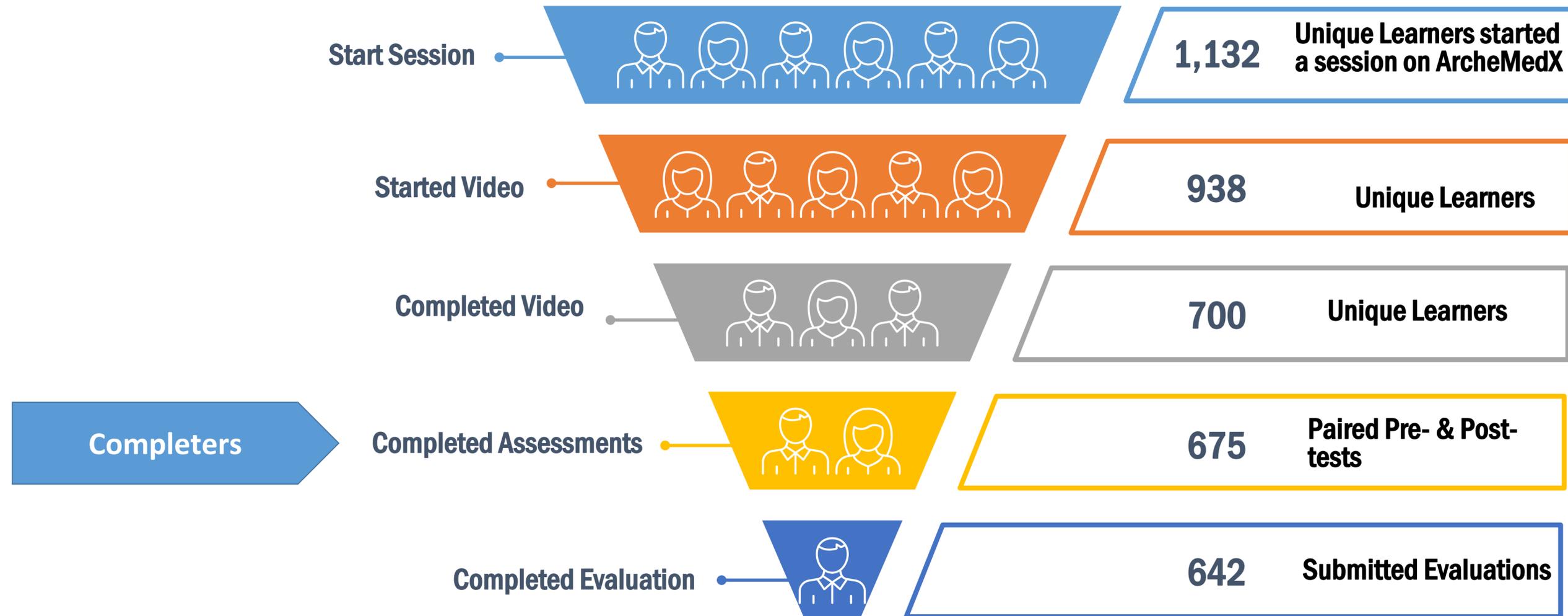


Level 1 Outcomes: Participation



N = 675

Participation Funnel



31%
Of all Learners



Mobile Use
Learners who accessed the curriculum via a mobile device

62%
Of all Learners



Time Watching Video
Learners who watched a portion of every minute of the video

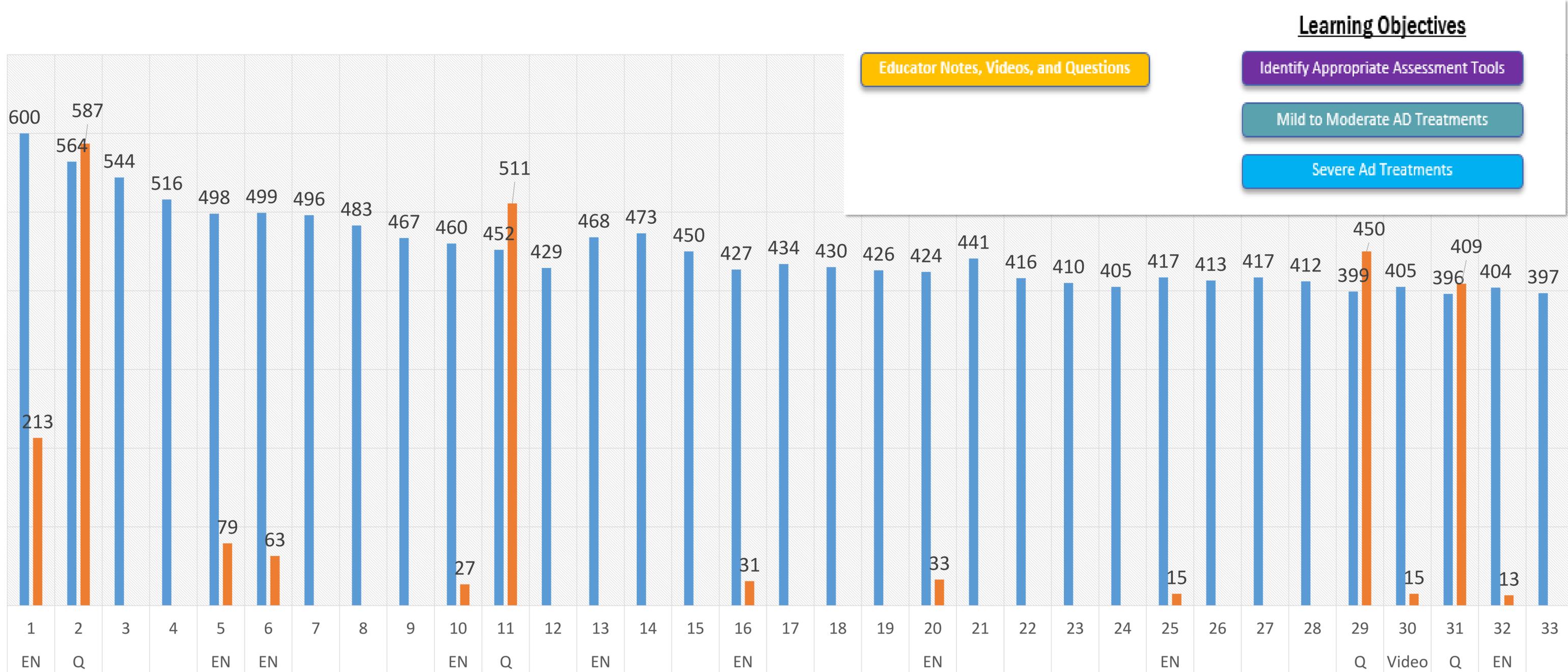
3,970
Per Week



Estimated Patient Visits Impacted



ArcheMedX Insights: Minute by Minute Video Analysis by Learning Objective



Note: Counts per minute indicate number of learners who watched at least 95% (57 seconds) of the applicable minute



ArcheMedx Insights: Engagement

3,088

Learning Actions*

QUESTIONS ANSWERED
1,958



RESOURCES VIEWED
638



NOTES TAKEN
70



PINS MADE
73

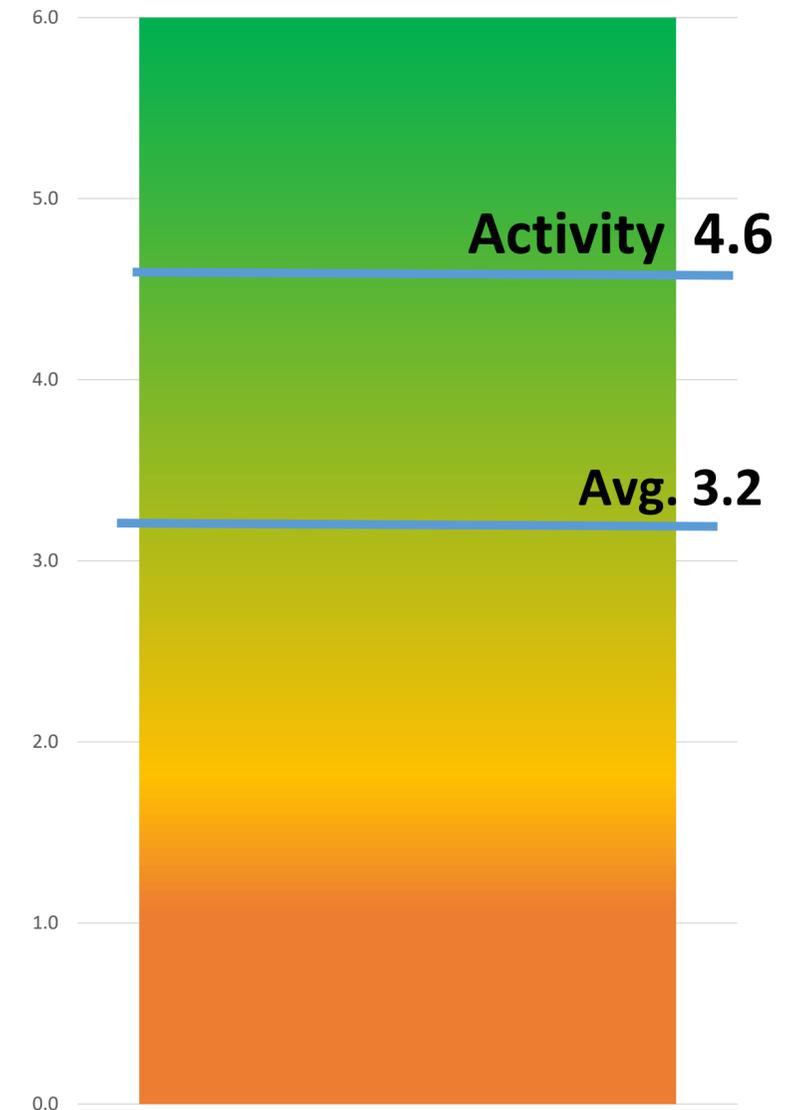


RESOURCES DOWNLOADED
332



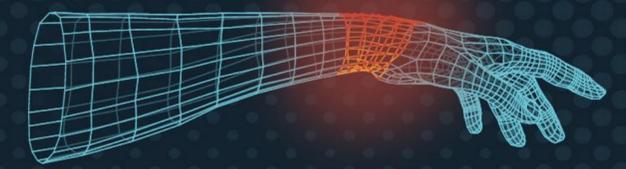
The engagement score for the activity shows the average number of actions taken by the learner while in the activity. This activity achieved an engagement score of 4.6 which is 30% higher than the average ArcheMedX engagement score.

Engagement Score 4.6

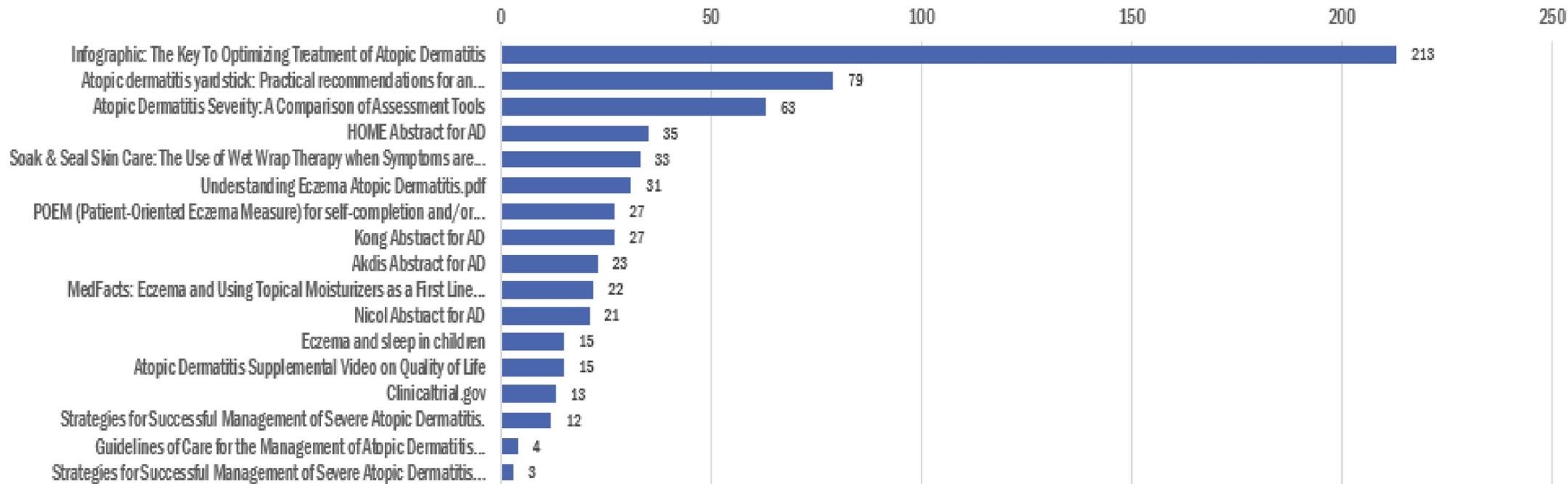




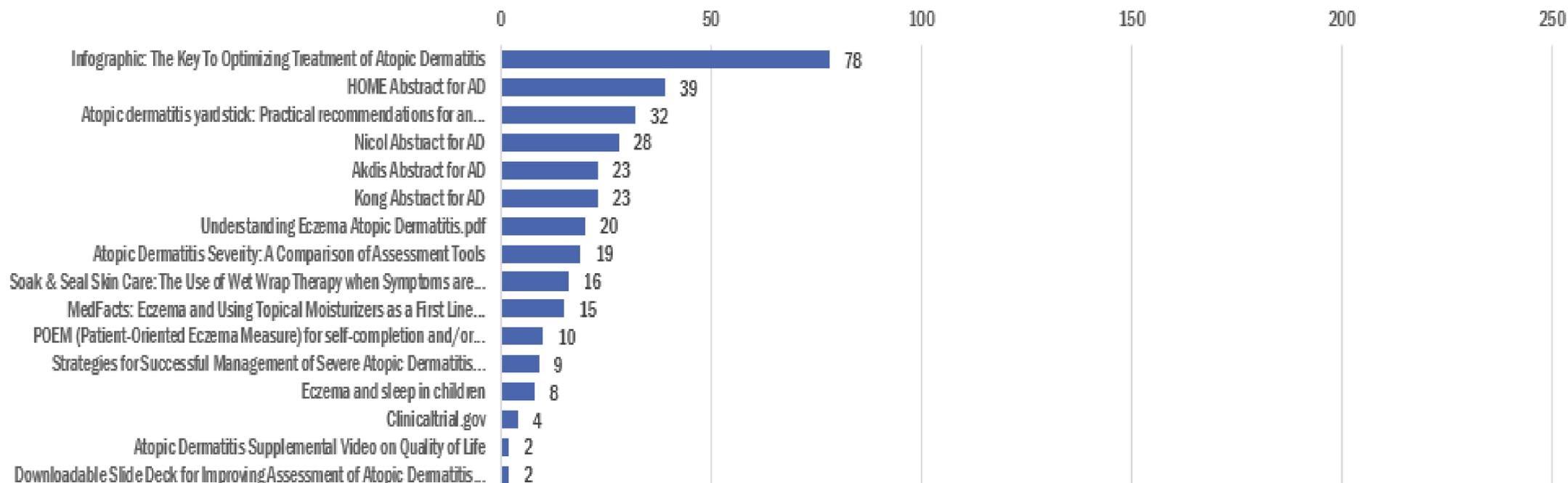
THE KEY TO OPTIMIZING TREATMENT OF ATOPIC DERMATITIS (AD)



RESOURCE VIEWS



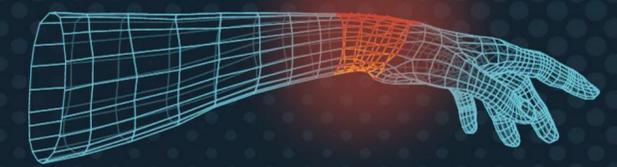
RESOURCE DOWNLOADS



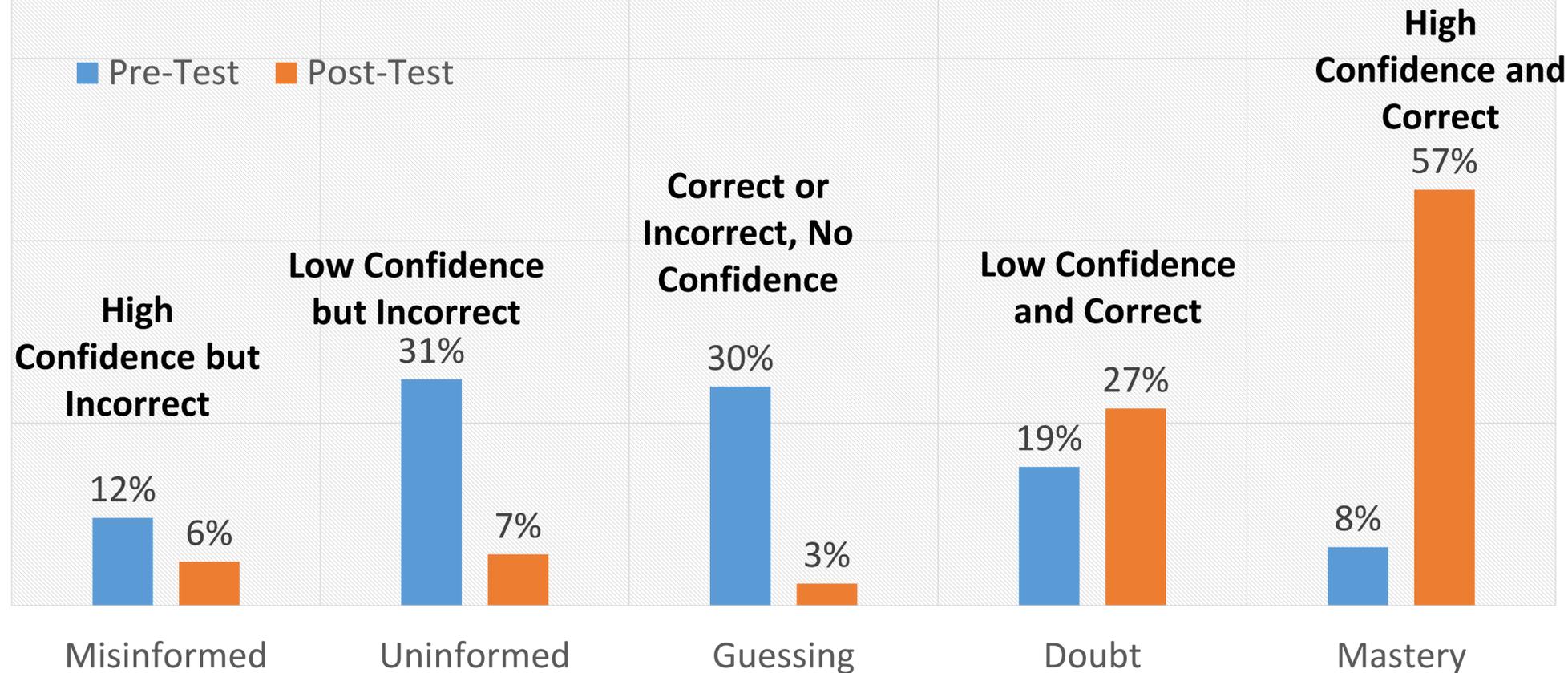
ArcheMedX Insights: Resource Utilization

Learning Actions / Moments Review

The current activity is showing impact on learners with **675** learners actively engaging in the education. More than **3050** total learning actions have been taken, including **1958** responses to intra-activity questions and **332** resource downloads.



Confidence Based Assessment – All Modules



27%

STILL HAVE DOUBT
Learners who are Correct but have Low Confidence



49%

RISE IN MASTERY
Absolute Increase in Learners who show High Confidence and Correctness

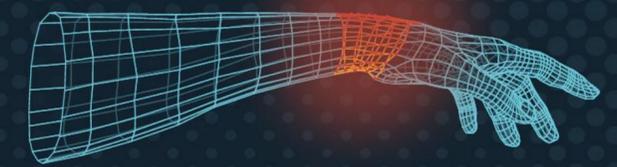
n=675

“Research has shown that CBA assessments provide a more comprehensive measurement of a person’s knowledge, increases the retainability of learned material and identified topics in which people are misinformed.” – Novacek, 2013

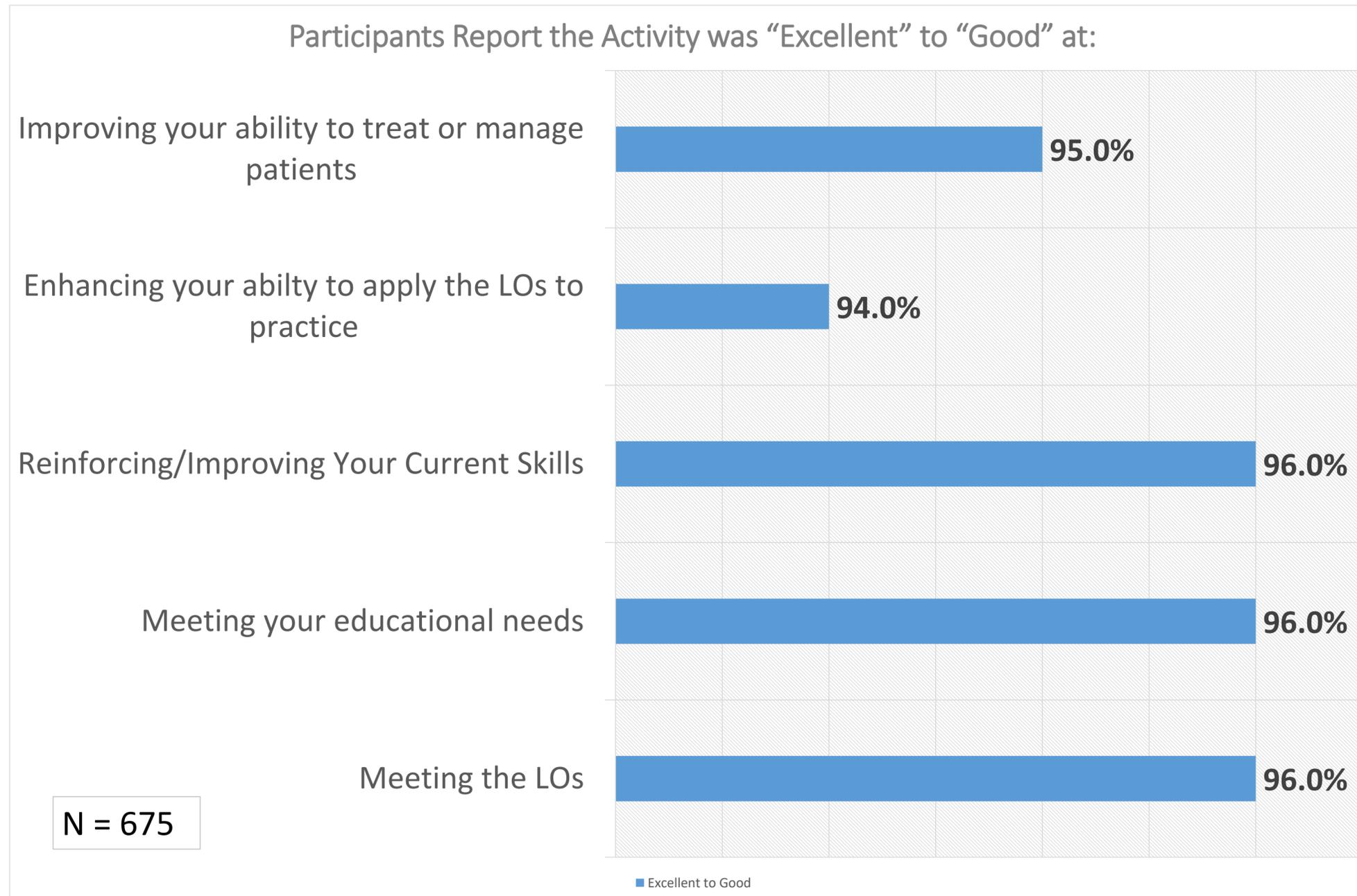
Confidence Based Assessment (CBA) Definitions

- Mastery: Learner indicates High Confidence with Correct Answer
- Doubt: Learner indicates Low Confidence with Correct Answer
- Guessing: Learner indicates Guessing. Correctness does not matter
- Uninformed: Learner indicates Low Confidence with Incorrect Answer
- Misinformed: Learner indicates High Confidence with Incorrect Answer

Confidence-based Assessment goes beyond measuring correctness and dive’s deep into understanding a learner’s belief (confidence) in their knowledge and competence, specifically looking at each question and requiring the learner to indicate the confidence in their answers.



Level 2 Outcomes: Satisfaction (Updated through 1/27/2020)

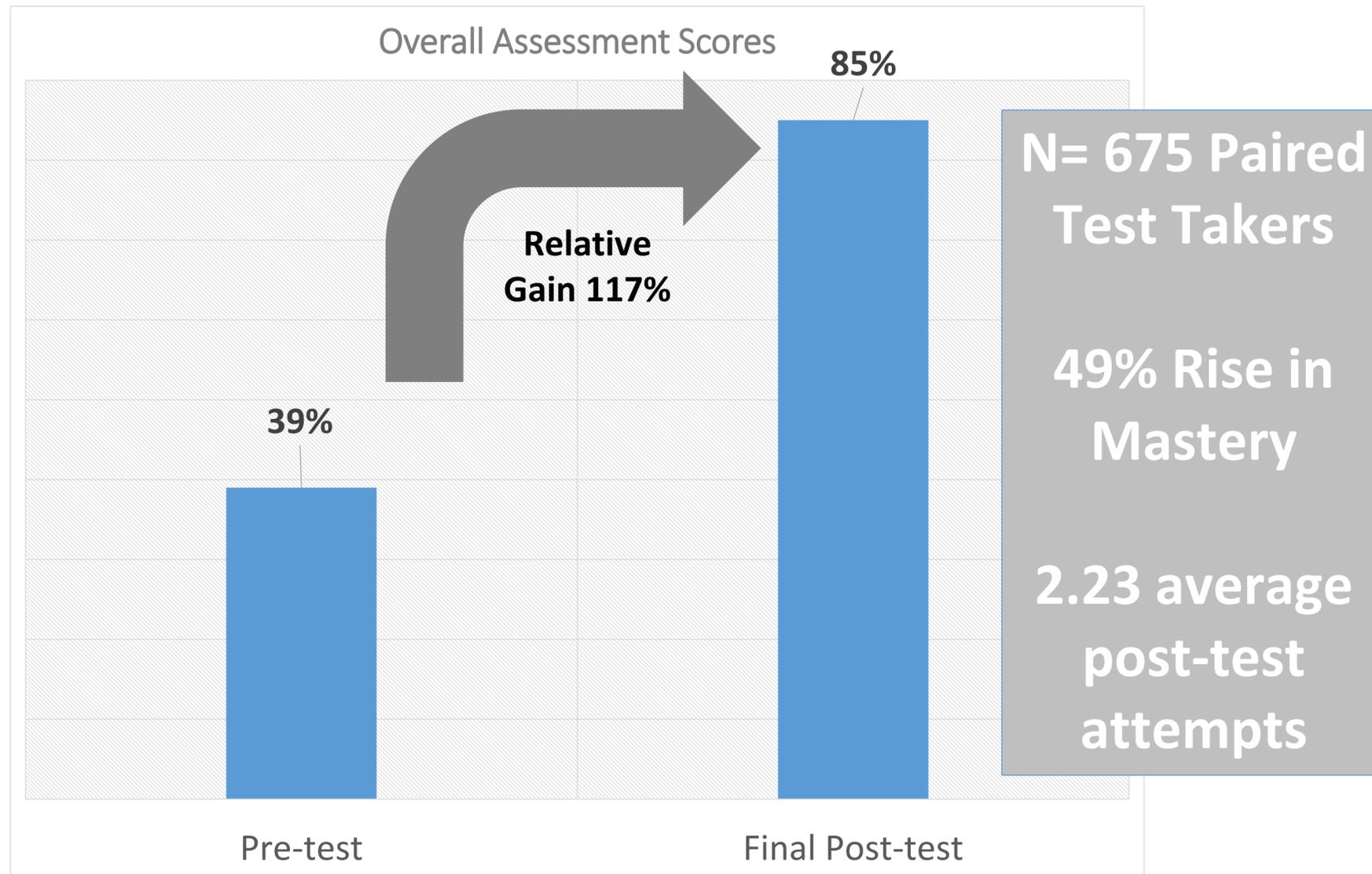


98% of participants indicated the material was presented in an objective manner and free of commercial bias and the content presented was evidence-based and clinically relevant

95% of participants indicated the activity addressed strategies for overcoming barriers to optimal patient care.



Level 3 Outcomes: Knowledge



117%



RELATIVE CHANGE – PRE-TO POST-TEST

100%

of the questions posed for this activity were educationally significant* demonstrating increases in knowledge with effect sizes ranging from small to large.*

The ArcheMedX platform utilizes paired learners to validate the knowledge gains and customize each learner's experience

*Effect size as reflected by Cohen's *d* detects the standardized difference between two means:

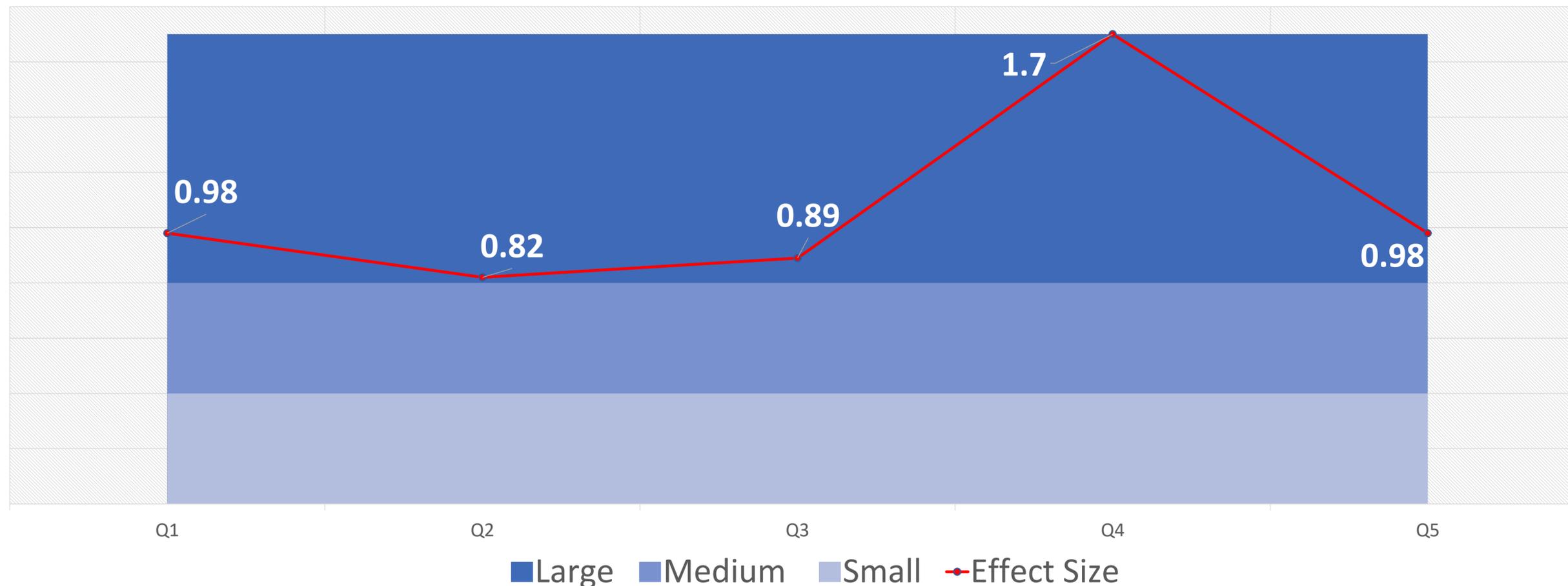
Cohen (1988) .2=small, .5=medium, .8=large

Wolf (1966) >0.25=educationally significant



Level 3 & 4 Outcomes: Magnitude of Effect

Effect size quantifies the magnitude of the difference between two groups. Cohen's d was calculated for each of the questions in this activity. The graph below demonstrates a medium to large effect size as compared to established benchmarks (Cohen, 1988). In addition, statistically significant p values indicate that the differences between groups are not merely attributable to chance but a result of the education provided.



The majority of questions revealed large to very large effect sizes

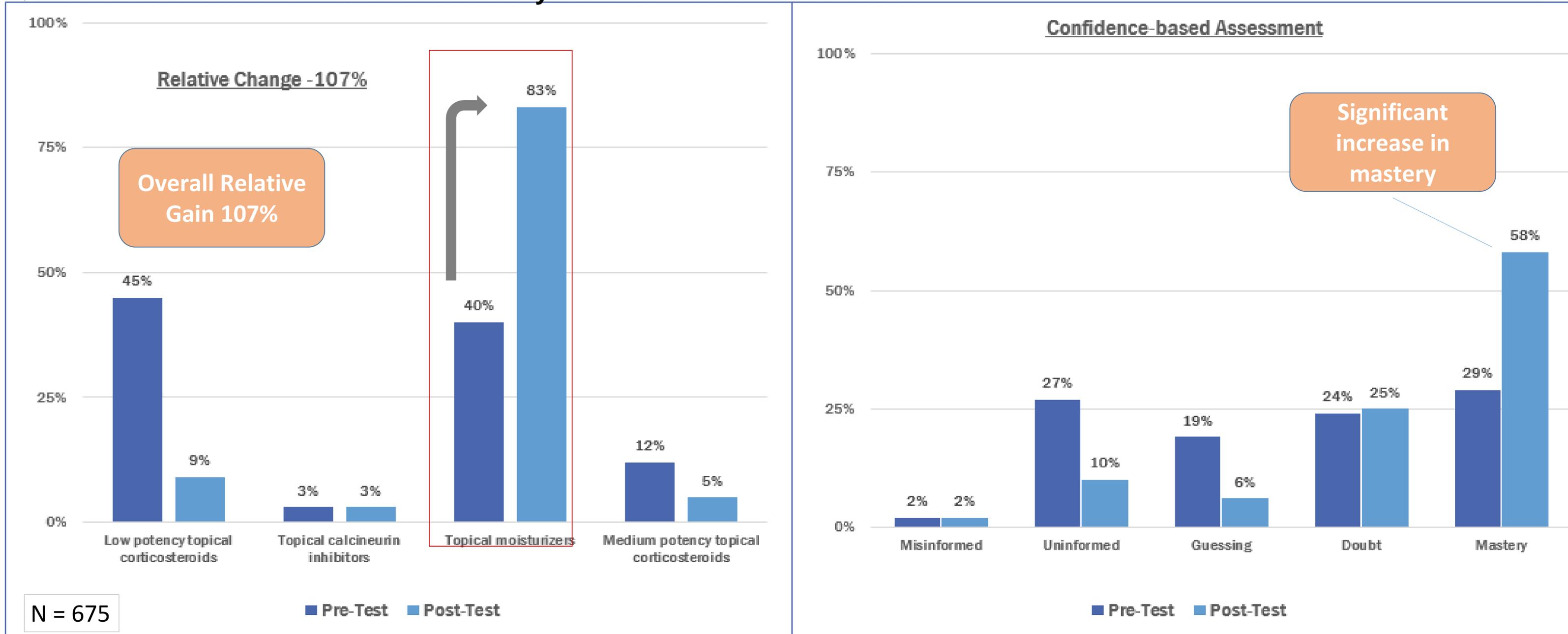
$P < .0001$



Level 3 Outcomes: Knowledge - Question 1 (Updated through 1/27/2020)

Learning Objective: *Select appropriate treatments for patients with mild-to-moderate AD based on current research, guidelines and mechanisms of action*

Q1 – Which treatment is indicated for daily use in mild to moderate AD?

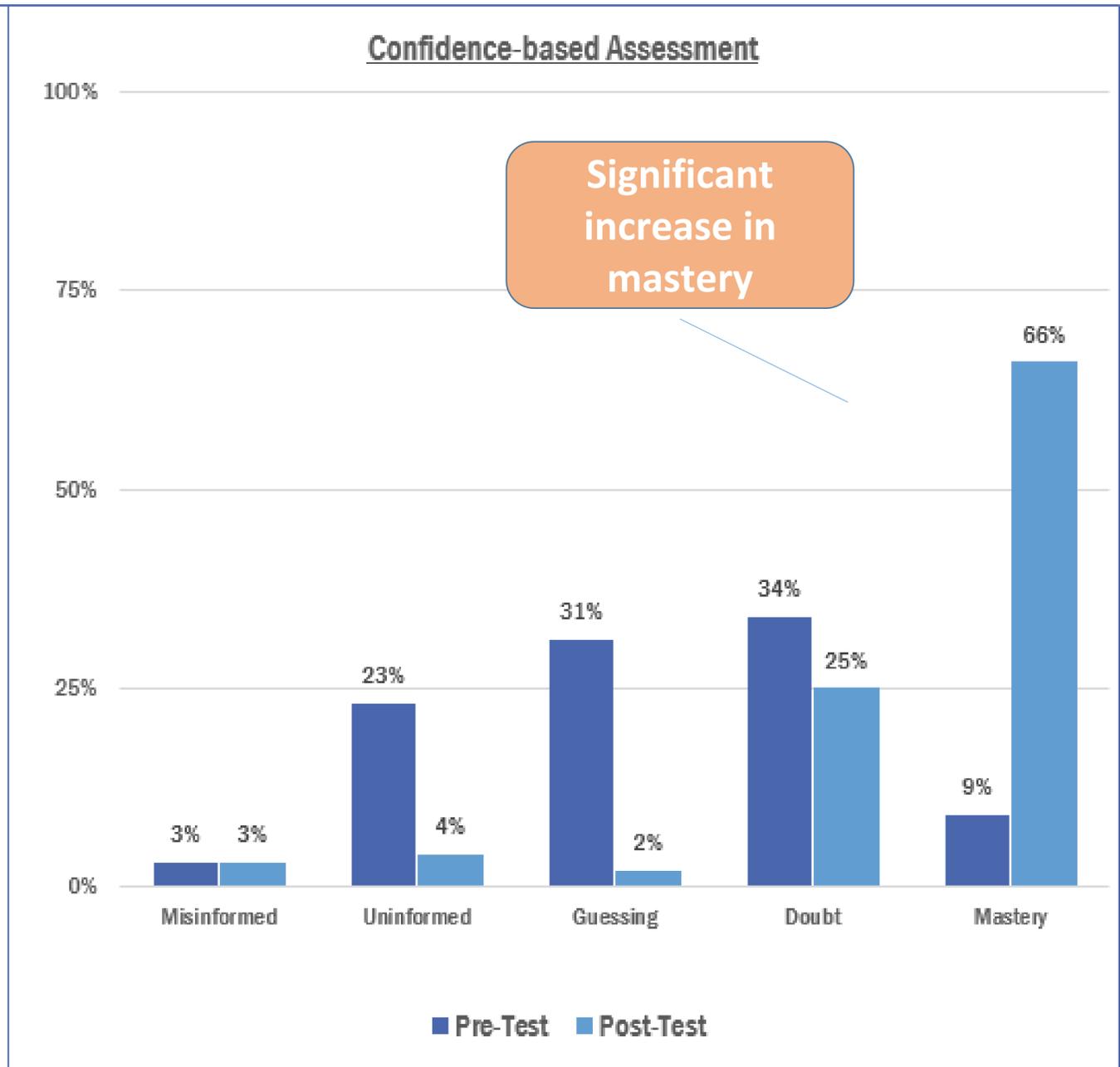
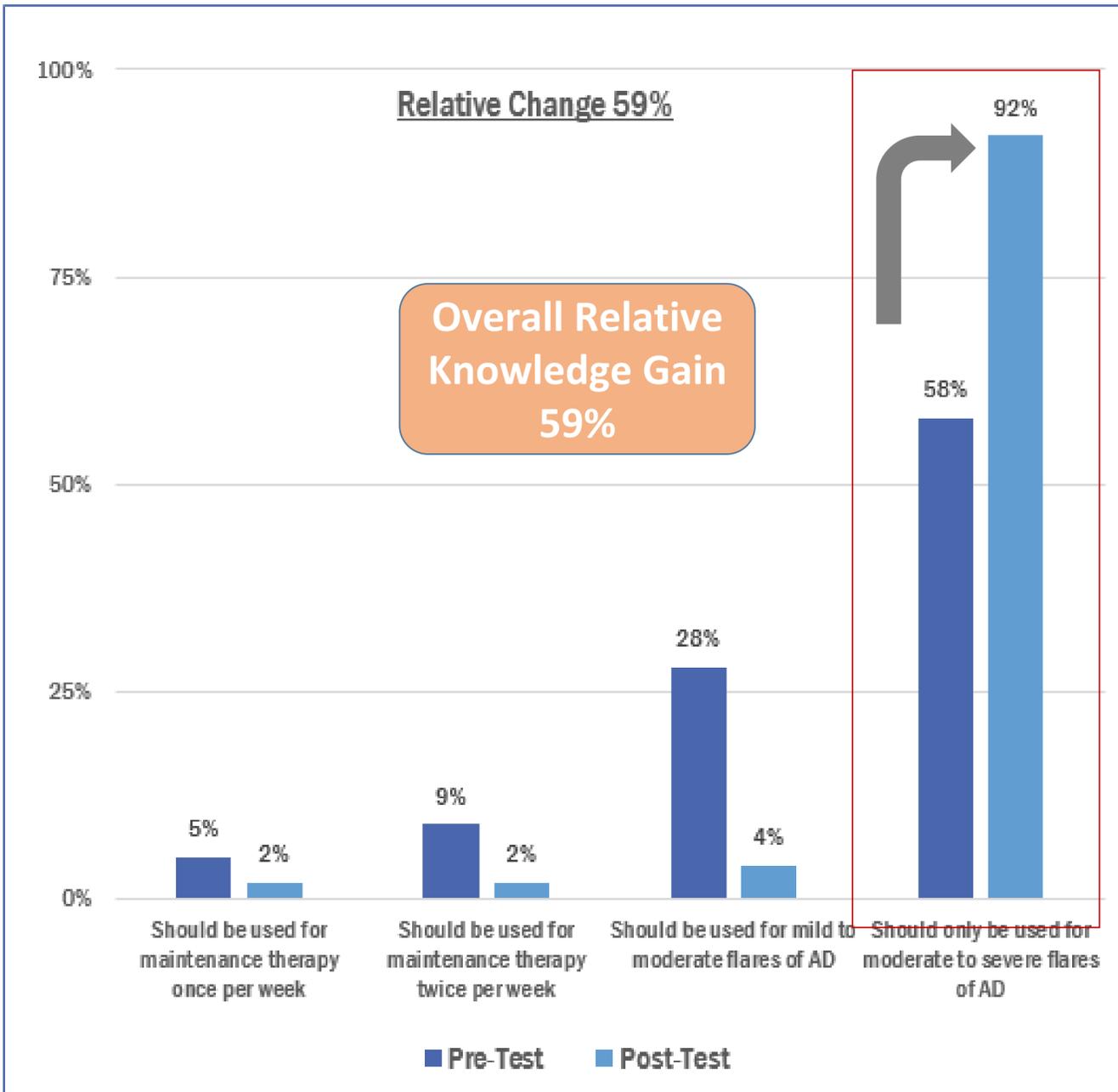




Level 3 Outcomes: Knowledge - Question 2 (Updated through 1/27/2020)

Learning Objective: *Select appropriate treatments for patients with severe AD based on current research, guidelines and mechanisms of action*

Q2 – When is wet wrap therapy indicated in the AD management plan?



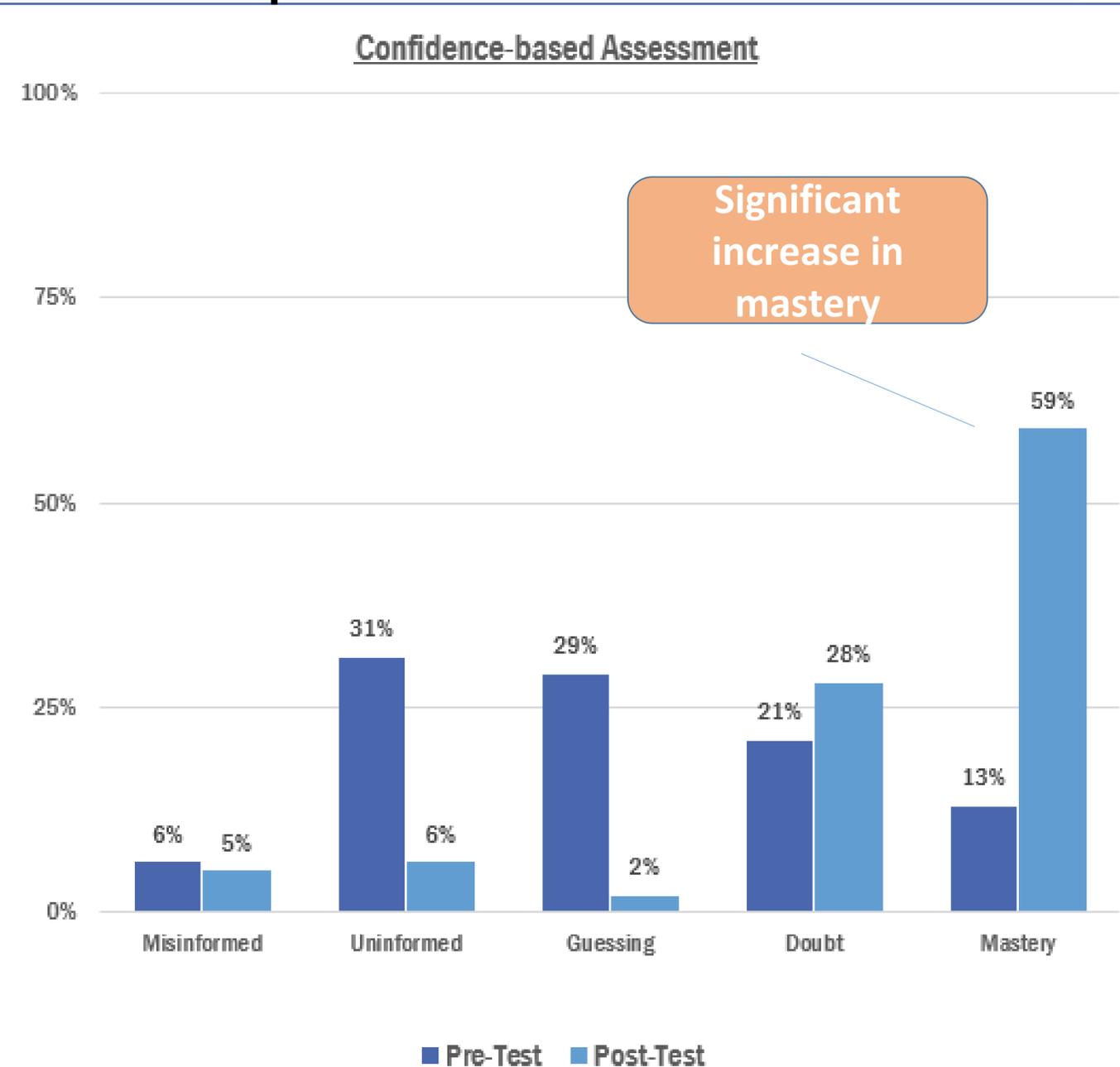
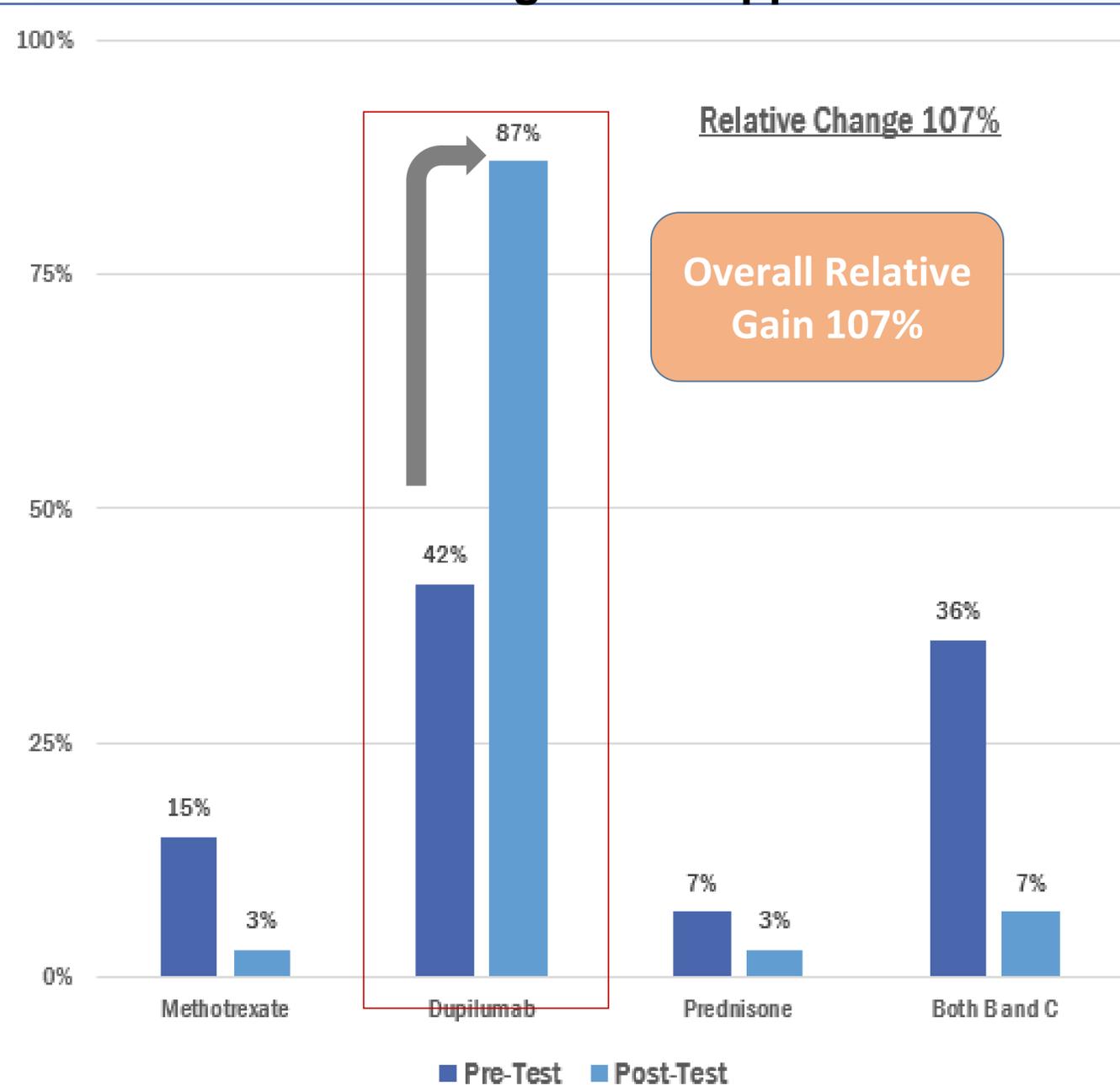
N = 675



Level 3 Outcomes: Knowledge - Question 3 (Updated through 1/27/2020)

Learning Objective: *Select appropriate treatments for patients with severe AD based on current research, guidelines and mechanisms of action*

Q3 - Which of the following is FDA approved for the treatment of atopic dermatitis?



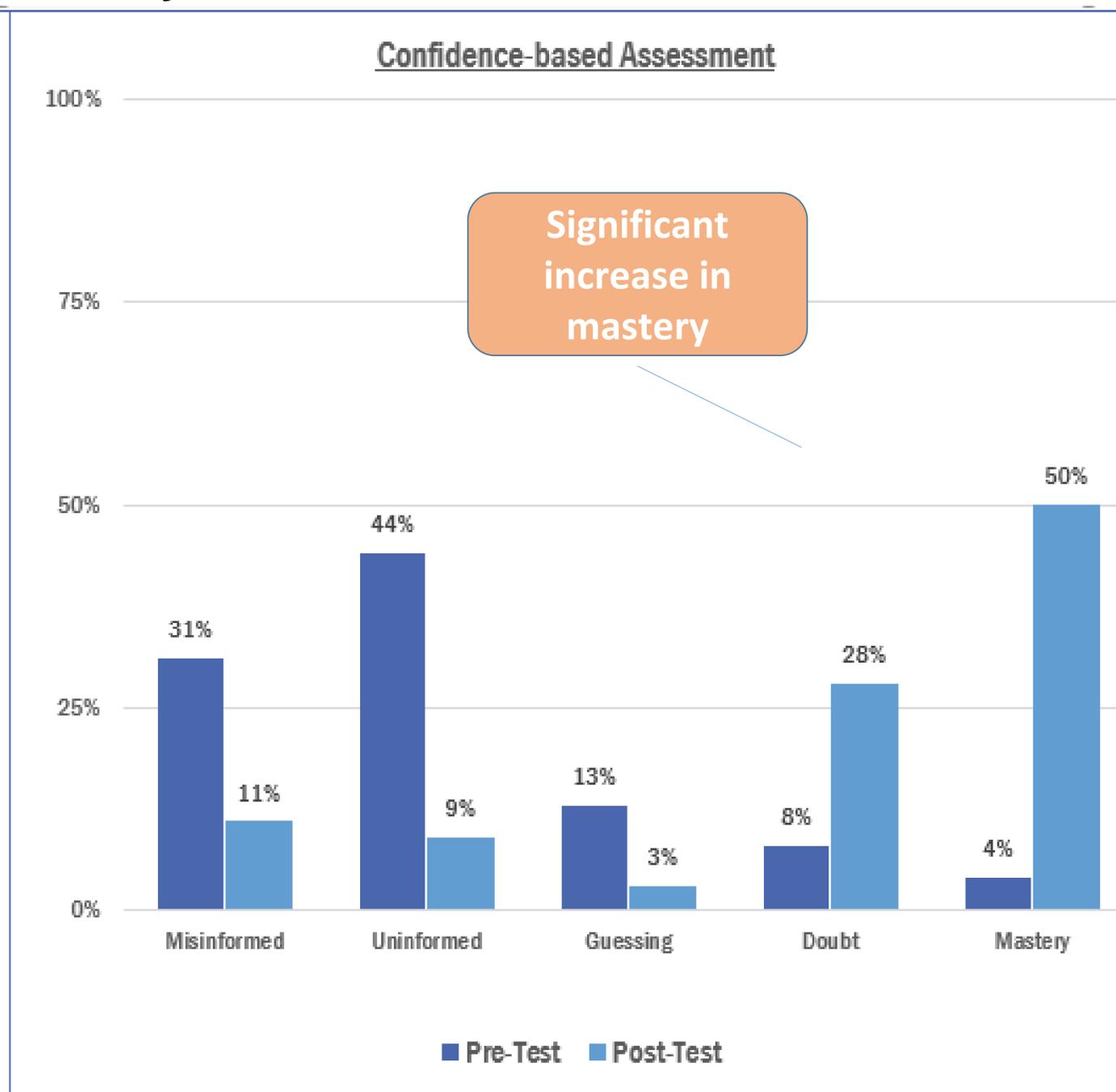
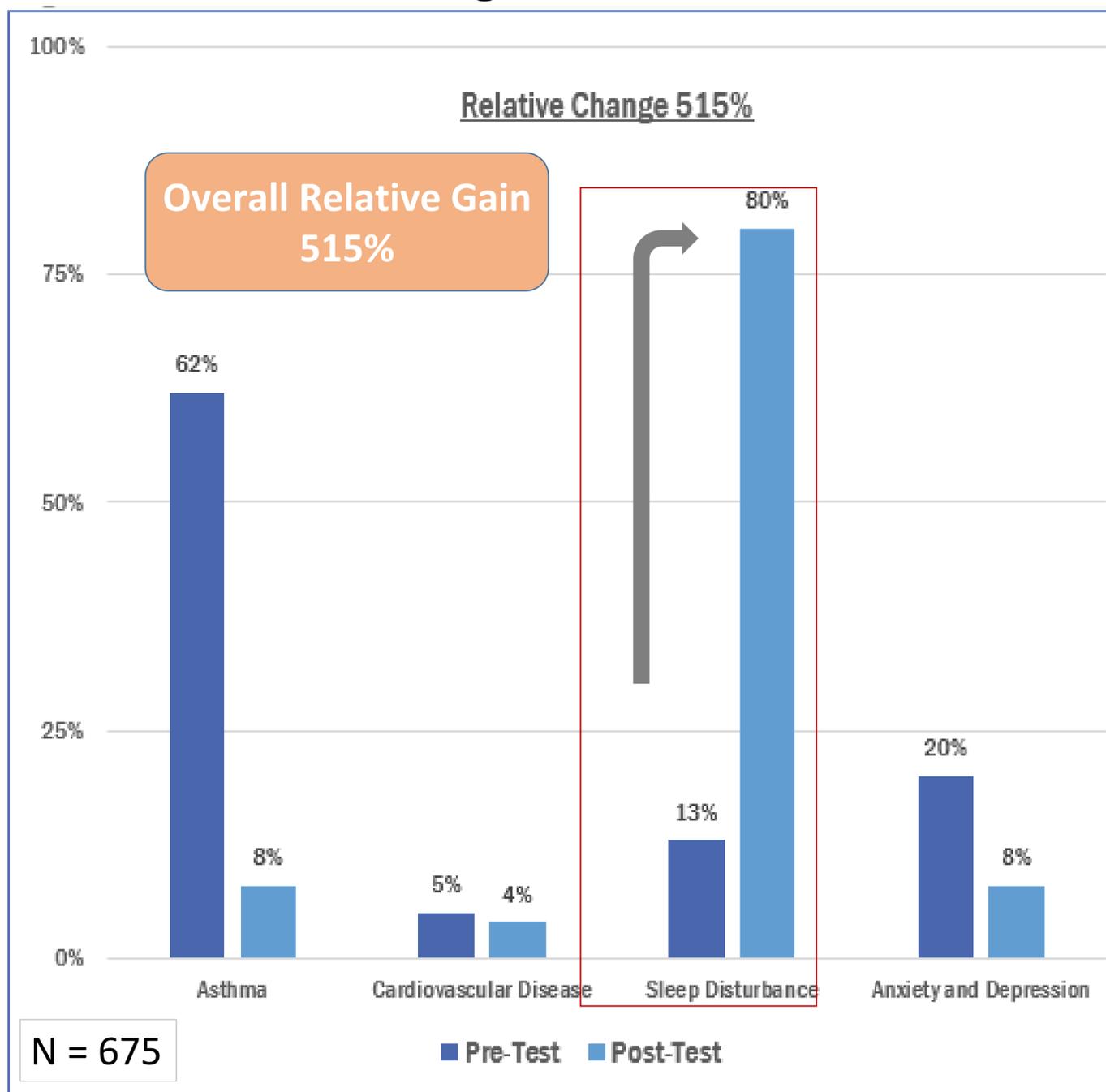
N = 675



Level 3 Outcomes: Knowledge - Question 4 (Updated through 1/27/2020)

Learning Objective: *Identify appropriate assessment tools to distinguish severity of AD based on clinical profiles*

Q4 - Which of the following comorbidities correlates with severity of AD?

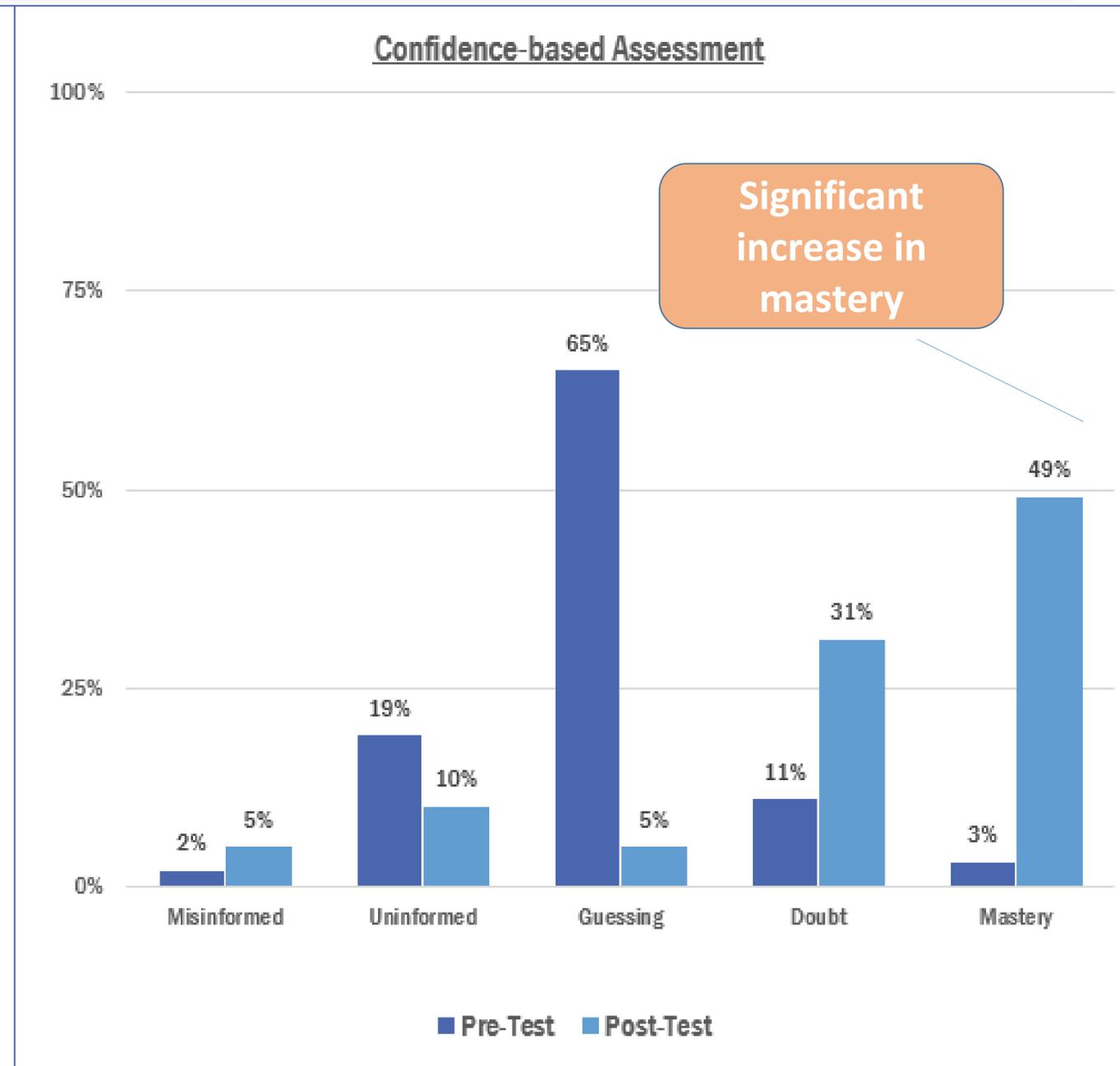
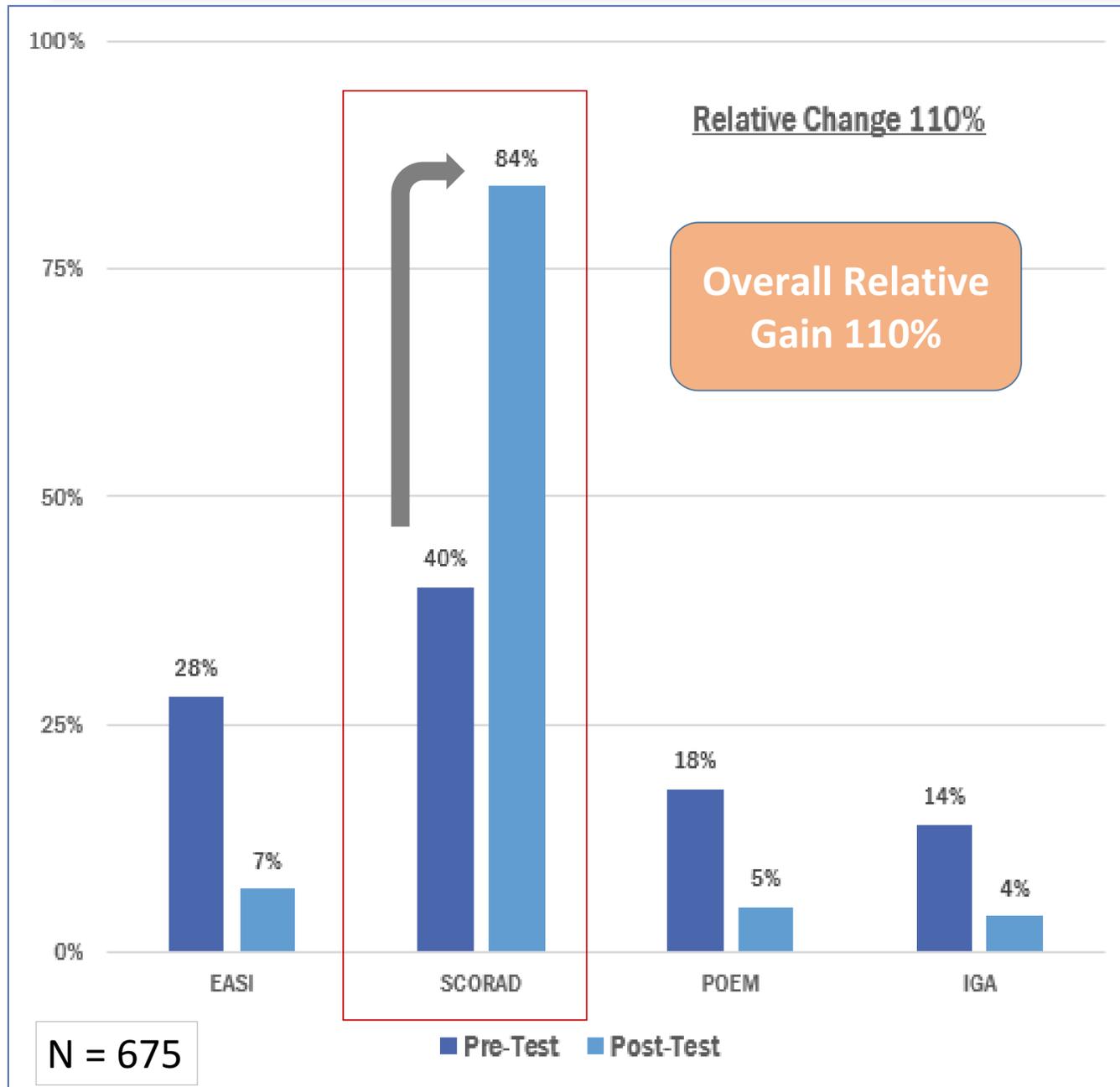


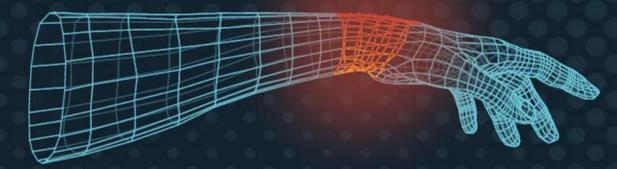


Level 3 Outcomes: Knowledge - Question 5 (Updated through 1/27/2020)

Learning Objective: *Identify appropriate assessment tools to distinguish severity of AD based on clinical profiles*

Q5 - Which of the following validated provider scoring tools uses xerosis as a provider-assessed symptom of severity?

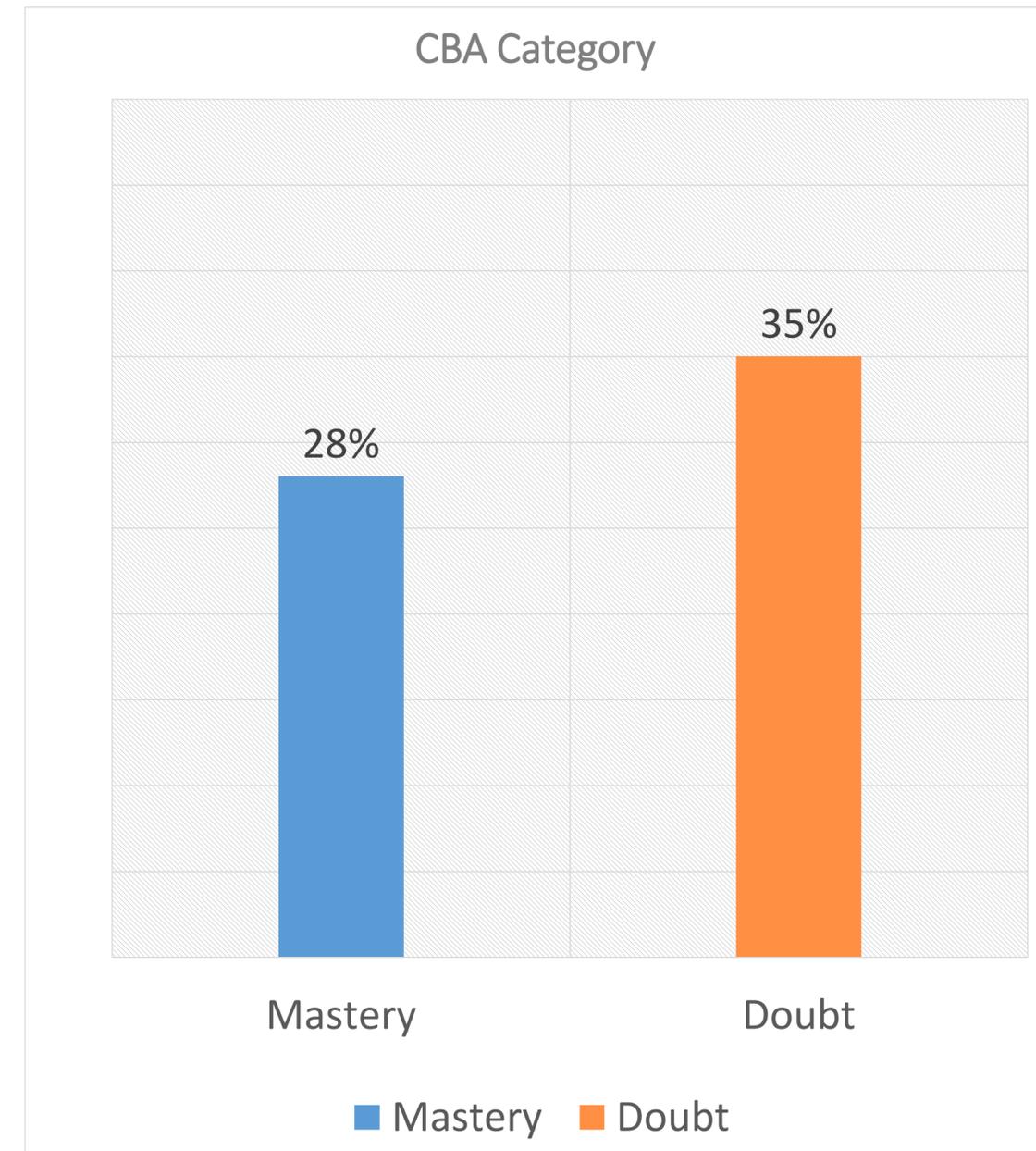
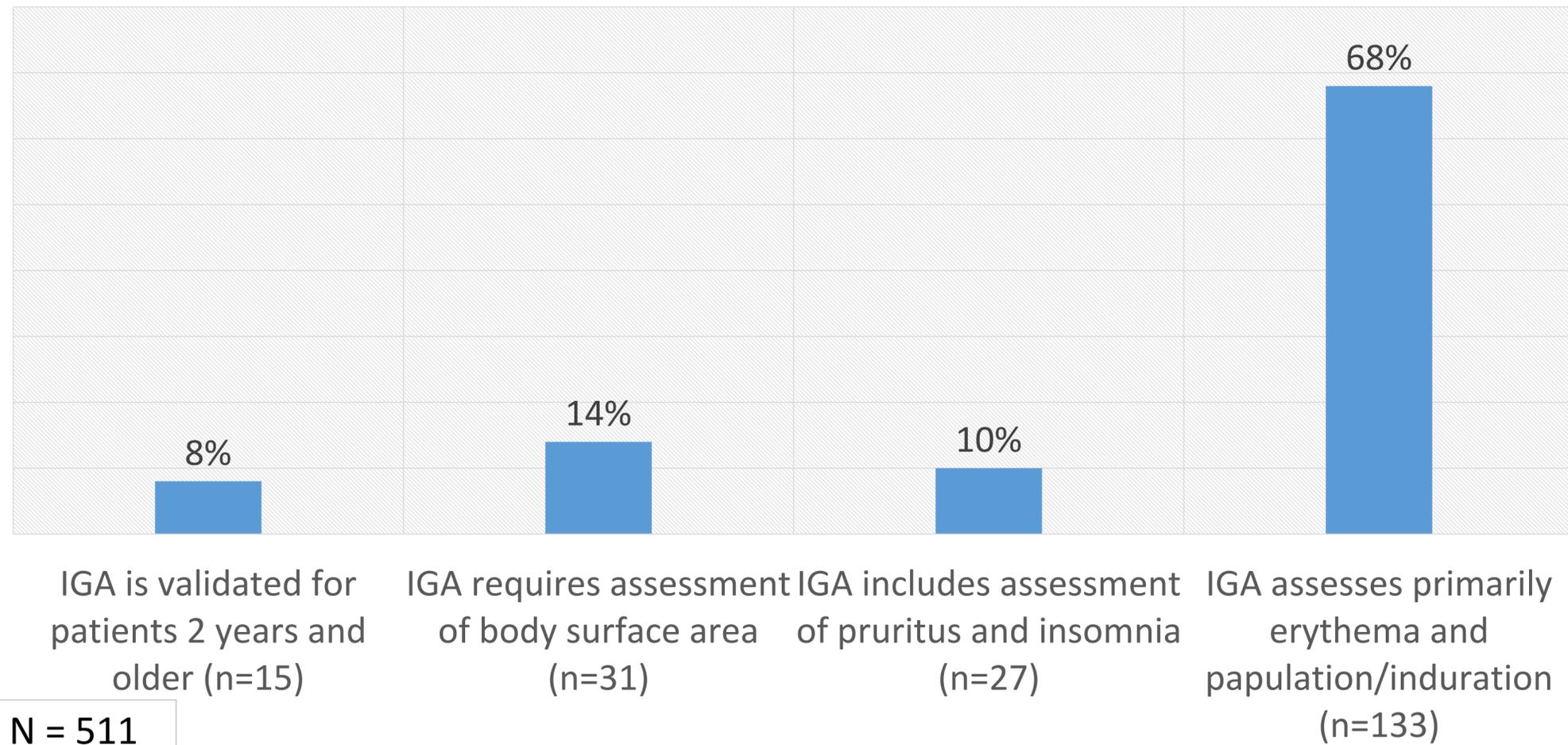


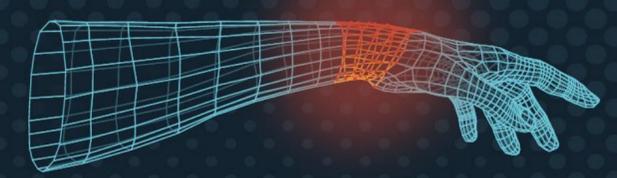


Level 3 Outcomes: Knowledge – Polling Question 1

Learning Objective: *Identify appropriate assessment tools to distinguish severity of AD based on clinical profiles*

Polling Q1: You diagnose a 4 year old boy with pruritic rash involving cheeks and popliteal fossae since 6 months of age with atopic dermatitis and assess disease severity as moderate using IGA. Which of the following is true regarding IGA?

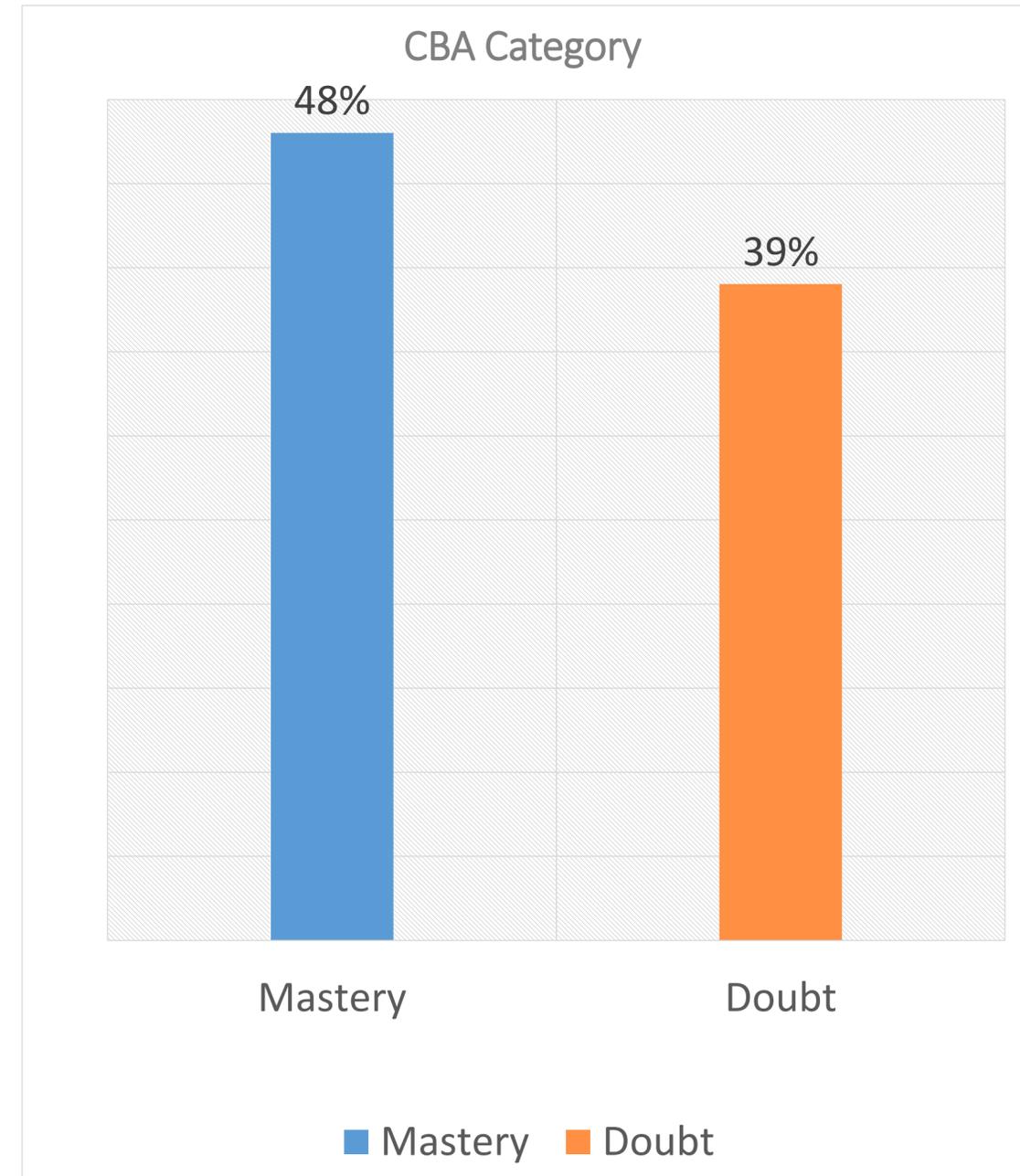
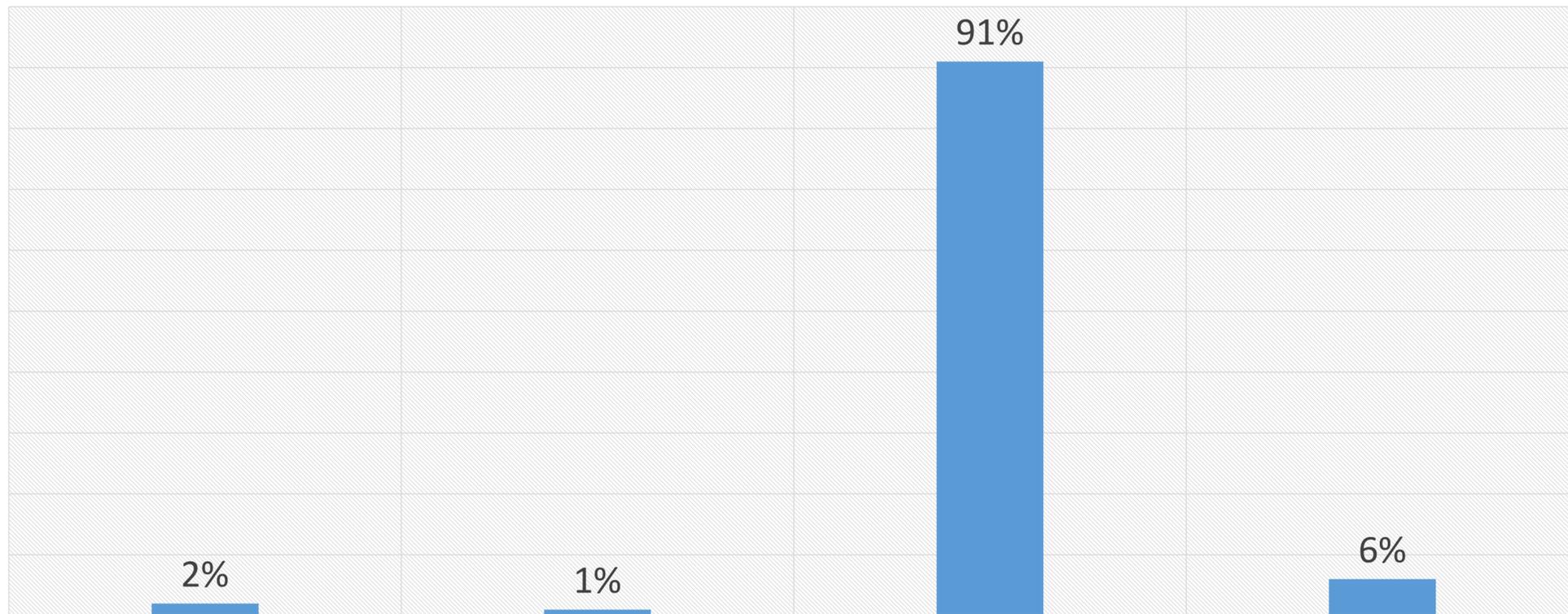




Level 3 Outcomes: Knowledge – Polling Question 2 (Updated through 1/27/2020)

Learning Objective: *Identify appropriate assessment tools to distinguish severity of AD based on clinical profiles*

Polling Q2: In evaluating a 23 year old female with pruritic eczematous rash, which of the following is a correct statement?



N = 451

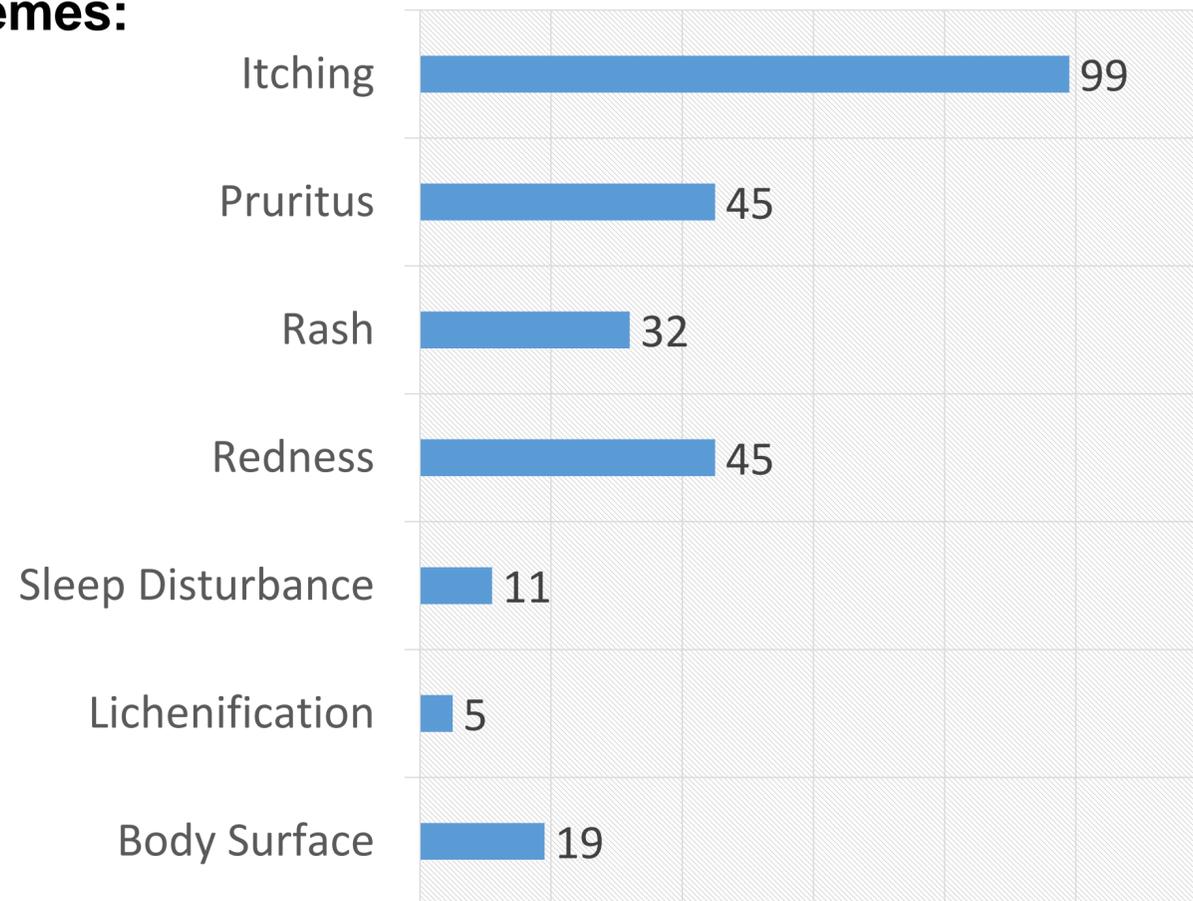


Level 3 Outcomes: Knowledge – Open ended response questions (Updated through 1/27/2020)

Learning Objective: *Identify appropriate assessment tools to distinguish severity of AD based on clinical profiles*

What symptoms do you use to distinguish severity of AD?

General themes:



N = 543

“Severity of itching, total body surface affected, history of skin infections.”

“Redness, dryness, itching, lichenification.”

“Pruritus, scaliness, fissures, erythema, patient's level of discomfort.”

“Non response to low to mid potency topical steroid medications.”

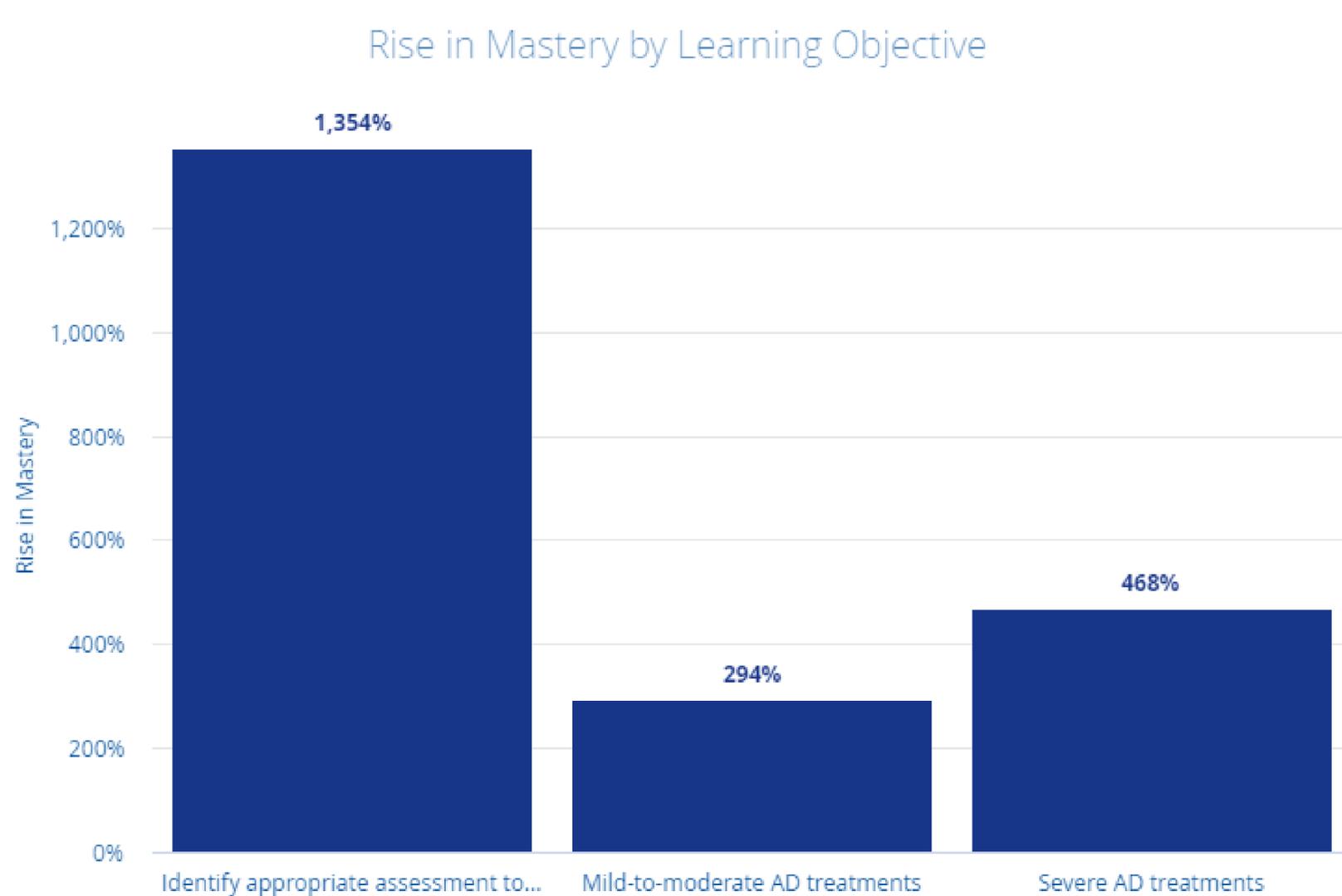
“How long it has been present, location, how often it itches, and what interventions have been tried so far.”



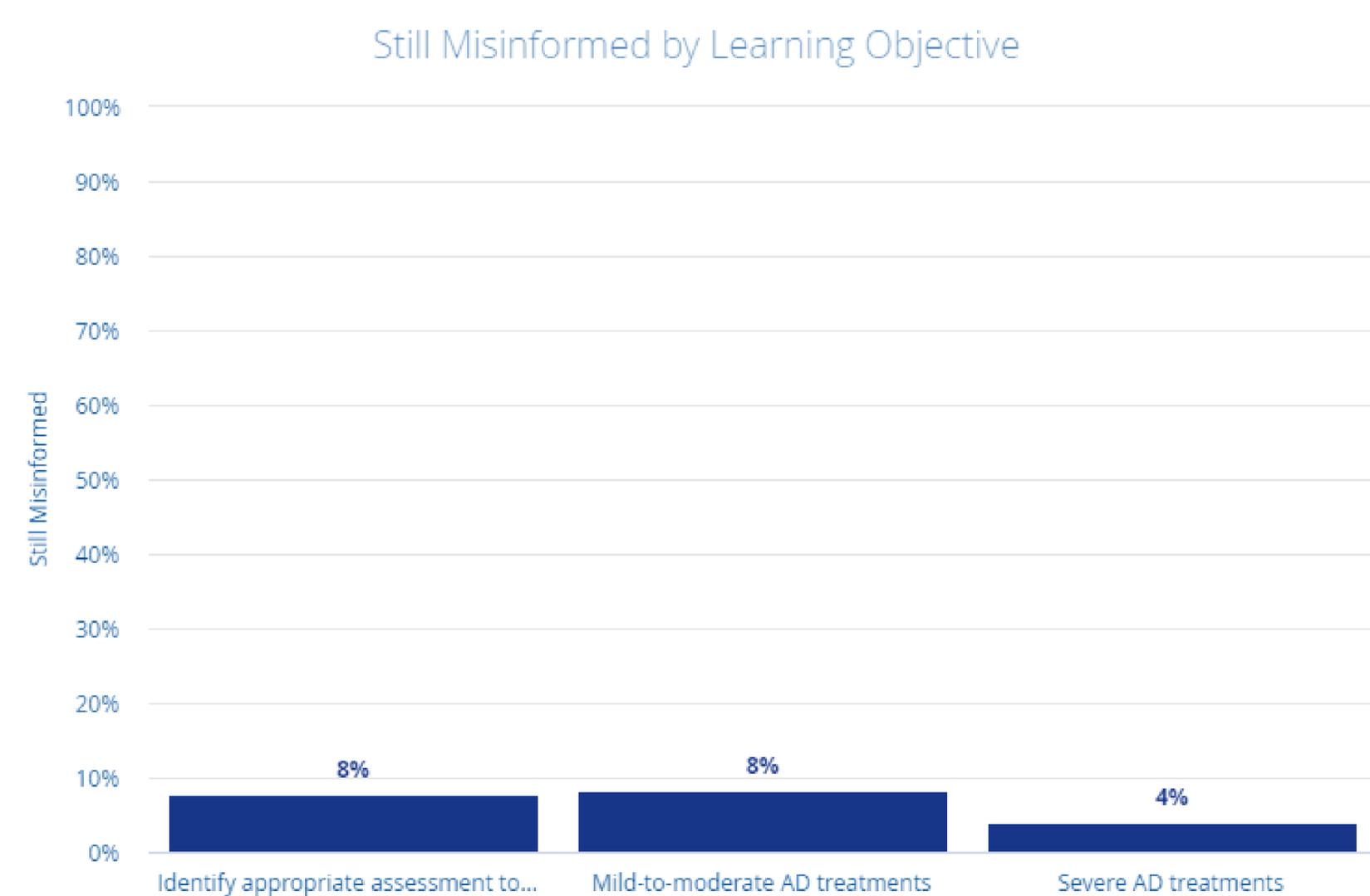
Level 4 Outcomes: Competence by Learning Objective

Learning Objectives by Mastery vs. Misinformed

Rise in Mastery by Learning Objective



Still Misinformed by Learning Objective

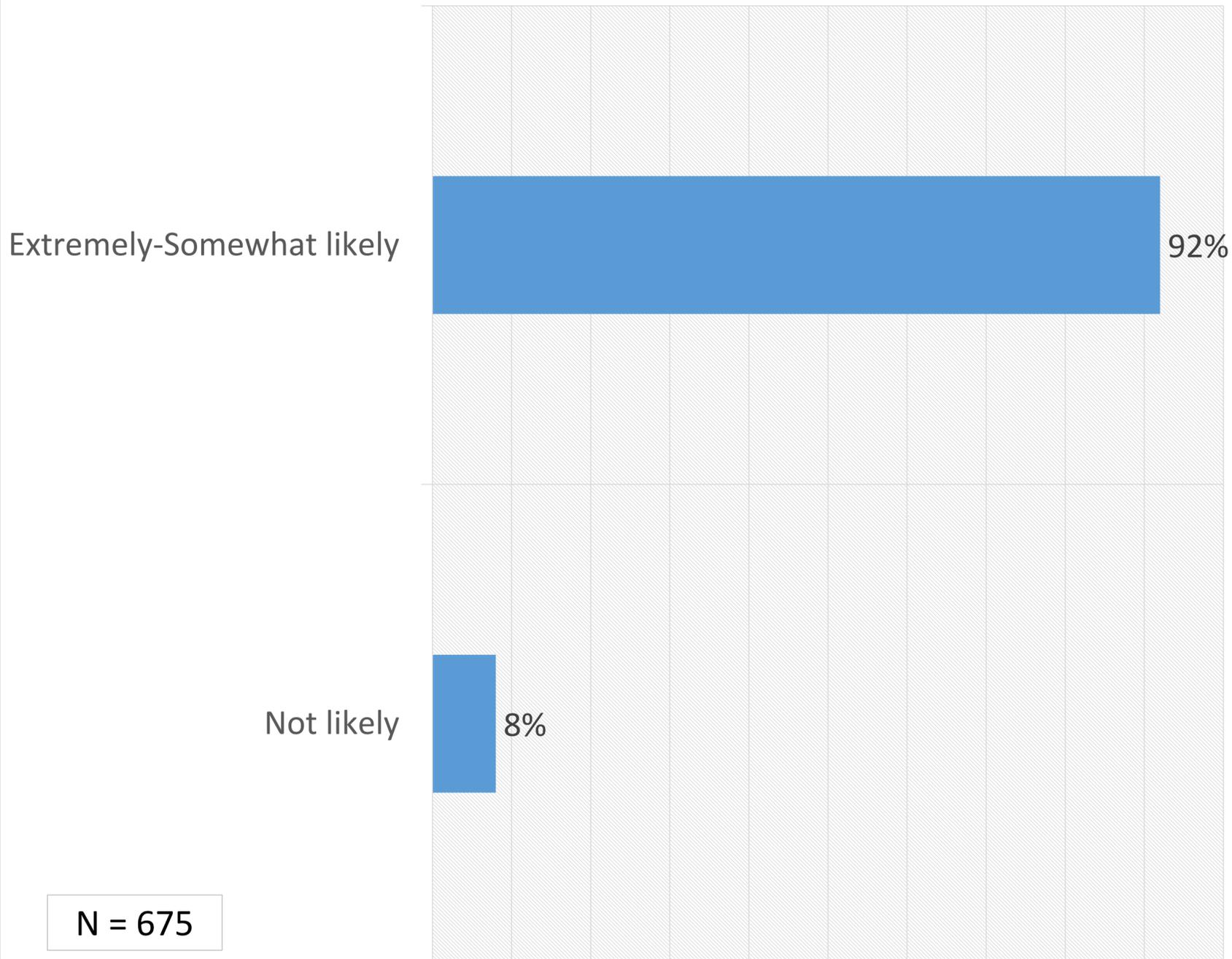


Overall, this activity was effective at increasing mastery of the content for each of the three learning objectives, with the first learning objective seeing extremely large gains with very few learners remaining uninformed.

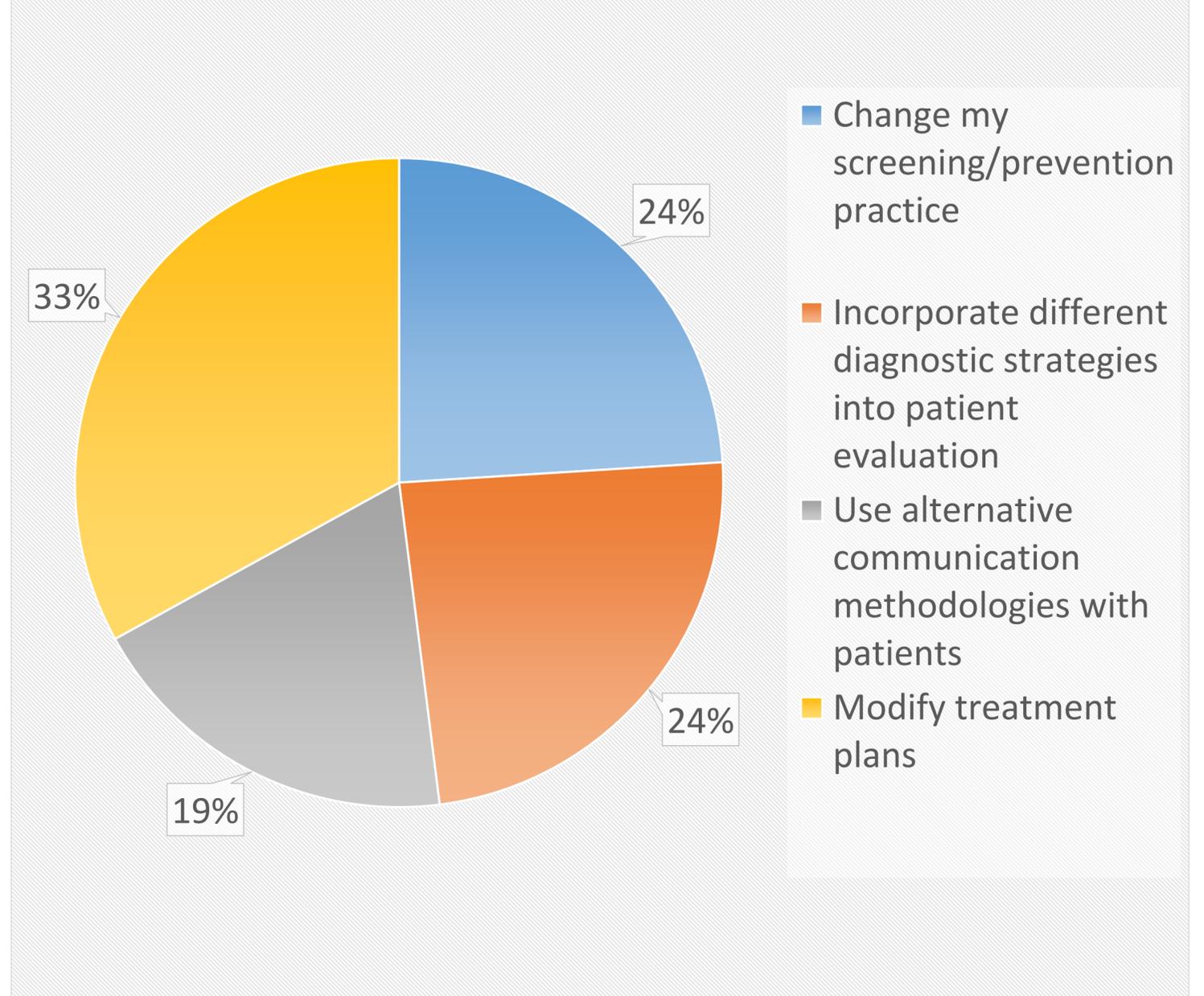


Level 4 Outcomes: Competence

As a result of what I learned, I intend to make changes in my practice:



What change will you incorporate into your practice as a result of the knowledge acquired?





Participation Feedback

“[This activity gave me a] better understanding of step-wise approach to therapy for moderate to severe cases of AD.”

“Excellent and very interesting, relevant faculty.”

“Excellent presentation and information provided was clear and thorough.”



“What measures do you take to improve your patient’s quality of life?”

“Educational handouts that include lifestyle modifications with achievable goals.”

“Moisturizers, tepid soaking baths, antihistamines.”

“Monitor amount of medication and side effects of medication prescribed.”

“Educating on management, consistent follow up.”

“I ask patients to fill out a survey on their quality of life at each visit so I can keep up on how the disease is resolving or worsening over time.”

“Address associated symptoms that affect daily living such as pruritis, appearance (psychosocial factors), etc.”

“Listen to patient and make changes.”

Key Take-Aways

“Sleep disturbance is associated with atopic dermatitis.”

“The scoring system and the treatment flow for AD.”

“Utilize more robust screening tools in order to make decisions on treatment plan.”

“Use of steroids and emerging therapies.”

“Learning to step therapy approach.”

“Use wet wraps for severe disease only.”

“Refer when treatment is not effective.”



Poster Presentation at Alliance for Continuing Education in the Health Professions (ACEhp) Annual Meeting 2020

Agile Education and Engaging Learners Throughout the Life of the Activity

Stephanie Corder, ND, RN, CHCP¹; R. Michelle Tyner Skidmore, MS²; Kenny Cox, CHCP²

¹National Jewish Health and ²ArcheMedX, Inc.

Background

Formative assessment is a process that uses learning objectives as a primary focus and provides the opportunity to evaluate the current educational activity and make needed adjustments to ensure that the learning objectives are met. Using formative data of an educational activity allows the educators to get real-time feedback from the learners. As professionals in continuing education, significant time for content development is given, naturally, to the subject matter experts. However, learners are an integral part of the education process. If an educational activity is not meeting the needs of the learners and achieving the defined learning objectives, adjustments should be made in order to address the identified needs and to improve the education and meet the identified learning objectives for subsequent learners. Formative (interim) assessment is an under-utilized tool in CEhp activities due in part to the nature of the planning and launching process. However, when formative data is incorporated as an agile educational design strategy, subsequent learners are able to greatly benefit from the adjustments based on these data sets.

Learning Objectives

1. Identify strategies for incorporating an agile approach into educational design.
2. Examine ways to continuously evaluate engagement data to improve or maintain learner engagement throughout an activity.

NLC Curricular Domains

Educational Design – Design, develop and implement CEhp activities/interventions to address healthcare professionals' practice gaps and underlying learning needs (NLC 2.1)

Measurement and Evaluation – Use evaluation and outcomes data to assess and determine the educational outcomes/results of the CEhp activities/interventions on participants' attitudes, knowledge levels, skills, performance and/or patient outcomes, unmet learning needs and the quality and effectiveness of the activities (NLC 3.1)

Formative Assessment – The Key to Agile Education

Formative assessment is a process that uses learning objectives as a primary focus and provides the opportunity to evaluate the current educational activity and make needed adjustments to ensure that the learning objectives are met. Using formative data of an educational activity allows the educators to get real-time feedback from the learners. As professionals in continuing education, significant time for content development is given, naturally, to the subject matter experts. However, learners are an integral part of the education process. If an educational activity is not meeting the needs of the learners and achieving the defined learning objectives, adjustments should be made in order to address the identified needs and to improve the education and meet the identified learning objectives for subsequent learners.

The educational activity, *Moderate or Severe AD? Improving Assessment of Atopic Dermatitis Severity - The Key to Optimal Treatment*, launched on January 25, 2019. For this educational initiative, there were challenges that arose. First, it was determined that one of the questions in the pre/post assessment was not addressing the assigned learning objective (Figure 1). Prior to being revised, the correct answer (dupilumab) was only selected by 27% (N=81) of learners when completing the post-test for the first time. Upon review of the question, it was determined that the question was vague and missing key elements to help the learner identify the correct answer. Upon recommendations from the faculty for the education, the question was revised to provide more specificity, adding "long-term" treatment and "severe" atopic dermatitis. Assessing the impact of these adjustments showed a 100% relative change increase in the number of learners choosing the correct answer: 54% correct responses on first post-test (Figure 2).

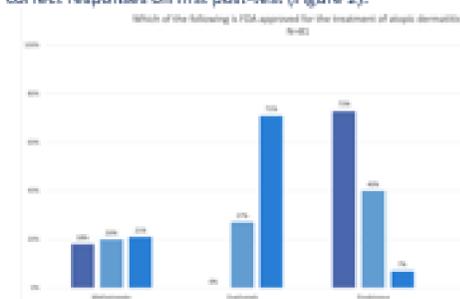


Figure 1

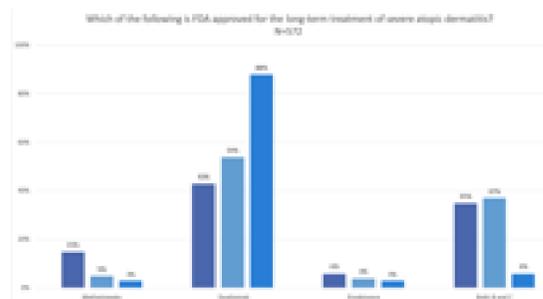


Figure 2

Further formative data assessment identified another issue with question results and the assigned learning objective (Figure 3). For this instance, it was determined that the question was valid and that additional resources specifically addressing the learning objective and associated gap would benefit the learner. Working with the faculty, it was decided to create a specific moment in the education (a Learning Moment) that would emphasize the additional resources. While the impact of the Learning Moment is not seen in the First Post-Test comparisons (32% to 33%), there was an increase seen with the Final Post-Test (72% to 81%) after the addition of the learning moment. Learners were given the opportunity to go return to the Learning Moment to get additional information specifically provided by the resources that addressed the comorbidities associated with the severity of the patient's atopic dermatitis.

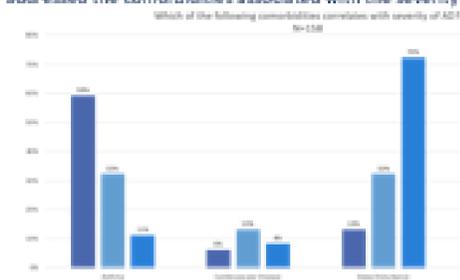


Figure 3

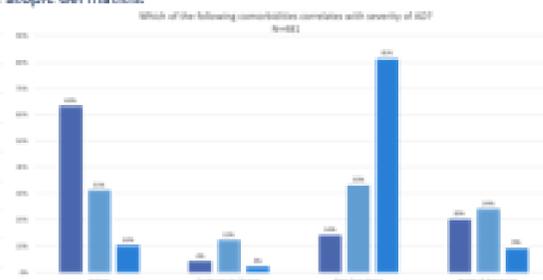


Figure 4

Conclusions

Understanding that education should not be stagnant but is a fluid process that can be modified to address the needs of learners is a critical shift in medical education. By incorporating formative assessment data, educators are able to make informed adjustments to improve the education for future learners. The adjustments made to the atopic dermatitis educational initiative improved the effectiveness of the education to meet the specified learning objectives, as identified by subsequent assessment of both pre- and post-test data and learner engagement data.

The development of educational activities should be a continuous process of assessing not only the learners' mastery of the content and skills but also of how we as educators develop questions for assessing effectiveness and the information presented.

Activity Highlights



Contact Information

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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 the online enduring program for a maximum of 0.5 *AMA PRA Category 1 Credit(s)*[™] and 0.5 ABIM MOC Points.





THE KEY TO OPTIMIZING TREATMENT OF ATOPIC DERMATITIS (AD)



Thank you for your support of this educational initiative!

