



Final Live Activity Outcomes Report



Addressing Unmet Needs in Herpes Zoster: Sharing Strategies to Improve Care

GlaxoSmithKline • Grant ID: MED-VAC-30982

April 9, 2020



Participation

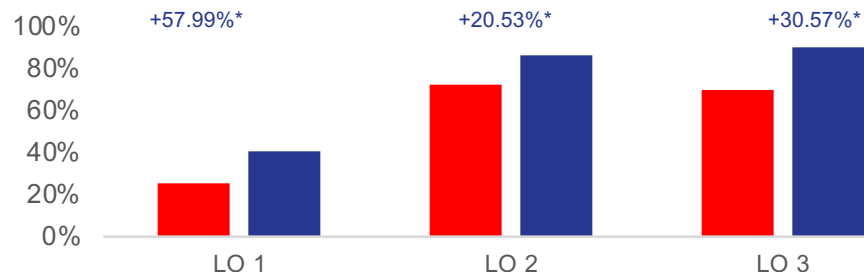


This education has the potential to impact **6,476,502** patients on an annual basis.

112,093 – 137,003 Patients Weekly

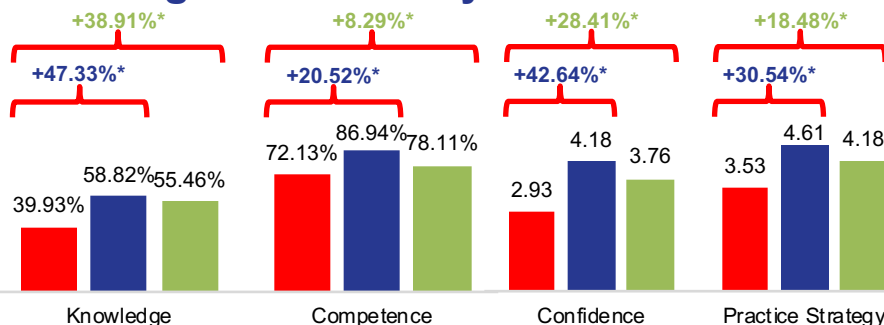
2019 Meeting/Simulcast	Date	Attendees
Orlando, FL	9/7/19	171
Charlotte, NC	9/14/19	105
White Plains, NY	9/21/19	129
Phoenix, AZ	9/28/19	129
Seattle, WA	10/5/19	55
Miami, FL	10/12/19	108
Anaheim, CA	10/19/19	103
Anaheim simulcast	10/19/19	522
Valley Forge, PA	10/26/19	93
Dallas, TX	11/2/19	214
Virtual Symposium	11/9/19	969
Total		2,598

Learning Gains Across Objectives



- ❖ **LO 1:** Assess the clinical impact of herpes zoster and postherpetic neuralgia
- ❖ **LO 2:** Evaluate the efficacy, safety, and tolerability of available vaccines to prevent herpes zoster
- ❖ **LO 3:** Develop effective strategies to promote adherence to national vaccine guidelines

Learning Domain Analysis



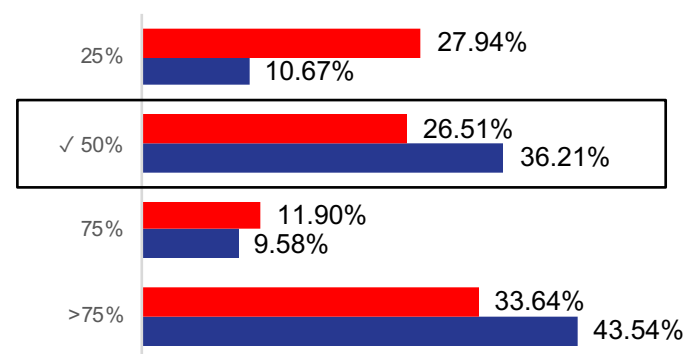
- ❖ Curriculum learners achieved substantial and significant gains in average score in all learning domains, from Pre- to Post-Test
 - ❖ Low Pre- and Post-Test scores in Knowledge were driven by items related to demography of herpes zoster in unvaccinated patients and postherpetic neuralgia
 - ❖ Pre- and Post-Test scores were similar on both Competence items, which presented cases of patients in need of herpes zoster vaccines
- ❖ Learner ratings in Confidence increased to high values (4.18 and 4.61) at Post-Test, suggesting learners may lack awareness of their gaps in Knowledge

Persistent Learning Gaps/Needs

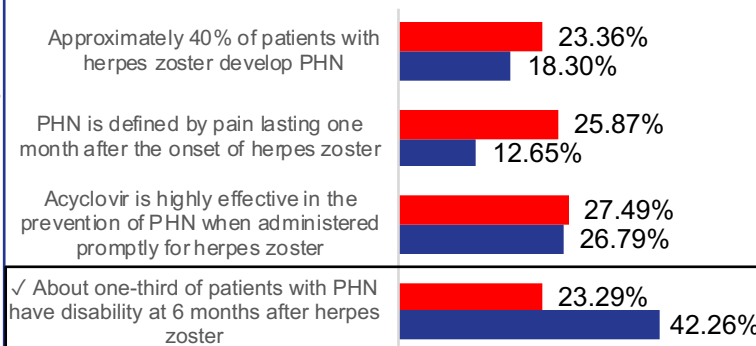
Prevalence of herpes zoster and its impact on quality of life

Despite improvements in score on two Knowledge items covering the rate of occurrence of herpes zoster and disability following postherpetic neuralgia, learners remained challenged at Post-Test.

Approximately what proportion of unvaccinated adults develop acute herpes zoster by age 85 years?



Which of the following statements about postherpetic neuralgia (PHN) is most accurate?



Curriculum Patient Impact

In the evaluation, learners (N = 1,341) were asked to report how many patients they see in any clinical setting per week by selecting a range. The resulting distribution of learner responses was then extrapolated to reflect the total number of learners who attended the onsite and online meetings.

The findings reveal that this education has the potential to impact

6,476,502
patients on an annual basis.

112,093 – 137,003 patients on a weekly basis

112,093 –
137,003

Course Director

Charles Vega, MD

Professor, Family Medicine

Director, UC Irvine Program in Medical Education for the

Latino Community (PRIME-LC), Family Medicine

School of Medicine Associate Dean for Diversity and Inclusion

School of Medicine

Irvine, CA

Activity Planning Committee

Sandy Bihlmeyer, MEd

Michelle Frisch, MPH

Victor B. Hatcher, PhD (CME Reviewer)

Daniela Hiedra, BA

Cedric Nazareth, Medical Writer

Deborah Paschal, CRNP

Gregg Sherman, MD

Barry S. Zingman, MD (Peer Reviewer)

Faculty

Laura Hurley, MD

Associate Professor

Department of Medicine

University of Colorado

Denver, CO

Donald B. Middleton, MD

Professor of Family Medicine

UPMC St. Margaret

University of Pittsburgh School of Medicine

Pittsburgh, PA

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Community (PRIME-LC), Family Medicine

School of Medicine Associate Dean for Diversity and Inclusion

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Clinical Updates for Nurse Practitioners and Physician Assistants: 2019

Commercial Support

The Clinical Updates for Nurse Practitioners and Physician Assistants: 2019 series of CME activities were supported through educational grants or donations from the following companies:

- ❖ Boehringer Ingelheim Pharmaceuticals, Inc.
- ❖ Genentech, Inc.
- ❖ GlaxoSmithKline
- ❖ Grifols
- ❖ Lilly USA, LLC
- ❖ Novo Nordisk, Inc.
- ❖ Sanofi US and Regeneron Pharmaceuticals

Overview

Learning Objectives

- ❖ Assess the clinical impact of herpes zoster and postherpetic neuralgia
- ❖ Evaluate the efficacy, safety, and tolerability of available vaccines to prevent herpes zoster
- ❖ Develop effective strategies to promote adherence to national vaccine guidelines



Curriculum Overview

9 Accredited Live Regional Symposia
September 7, 2019 – November 9, 2019



1 Accredited Live Virtual Symposium:
November 9, 2019



Podcast

The NACE Clinical Highlights Show



Addressing Unmet Needs in Herpes Zoster: Charles Vega, MD



Enduring Activity

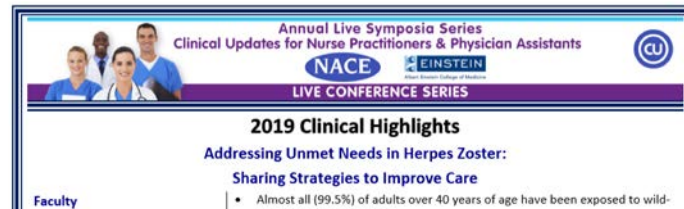
Addressing Unmet Needs in Herpes Zoster: Sharing Strategies to Improve Care



Faculty
Charles Vega, MD
Professor, Family Medicine
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COURSE SUMMARY
Cost: Free
Start Date: 12/15/19
Expiration Date: 12/14/2020
Target Audience: Primary Care Providers
Format: Monograph
Estimated Time To Complete CME Activity: 1.0 hour
Credit(s): 1.0 AMA PRA Category 1 Credit™ 1.0 AANP Contact Hour which includes 0.75 pharmacology hours
Hardware/Software Requirements: Any web browser

Clinical Highlights eMonograph
eMonograph, containing key teaching points from the CME activity, was distributed 1 week after the meeting to all attendees.



Outcomes Methodology

Learning outcomes were measured using matched Pre-Test and Post-Test scores for Knowledge, Performance, Confidence, and practice strategy and across all of the curriculum's Learning Objectives.

Outcomes Metric	Definition	Application
Percentage change	This is how the score changes resulting from the education are measured. The change is analyzed as a relative percentage difference by taking into account the magnitude of the Pre-Test average.	Differences between Pre-Test, Post-Test, and PCA score averages
P value (p)	This is the measure of the statistical significance of a difference in scores. It is calculated using dependent or independent samples t-tests to assess the difference between scores, taking into account sample size and score dispersion. Differences are considered significant for when $p \leq .05$.	Significance of differences between Pre-Test, Post-Test, and PCA scores and among cohorts
Effect size (d)	This is a measure of the strength/magnitude of the change in scores (irrespective of sample size). It is calculated using Cohen's d formula, with the most common ranges of d from 0-1: $d < .2$ is a small effect, $d = .2-.8$ is a medium effect, and $d > .8$ is a large effect.	Differences between Pre-Test and Post-Test score averages
Power	This is the probability (from 0 to 1) that the "null hypothesis" (no change) will be appropriately rejected. It is the probability of detecting a difference (not seeing a false negative) when there is an effect that is dependent on the significance (p), effect size (d), and sample size (N).	Differences between Pre-Test and Post-Test score averages
Percentage non-overlap	This is the percentage of data points at the end of an intervention that surpass the highest scores prior to the intervention. In this report, it will reflect the percentage of learners at Post-Test who exceed the highest Pre-Test scores.	Differences between Pre-Test and Post-Test score averages

Participation

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Total		2,598



Participation



2,598*
Total Attendees



9 Cities



1,107*
On Site

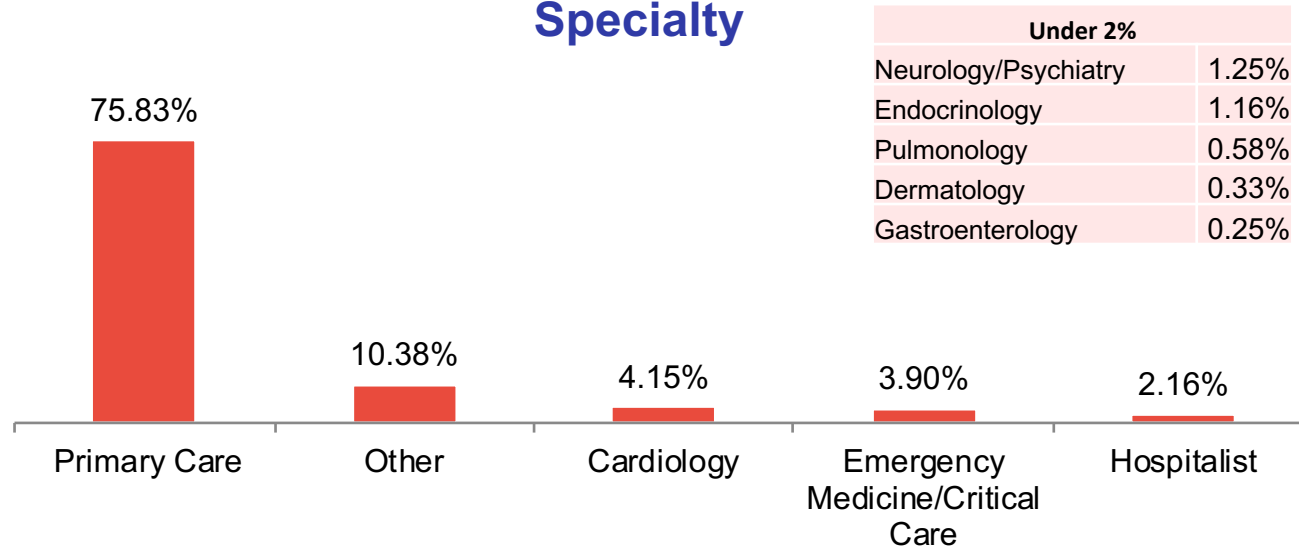


1,491*
Simulcast / Virtual
Symposium

*These numbers represent the total number of attendees, irrespective of assessment participation

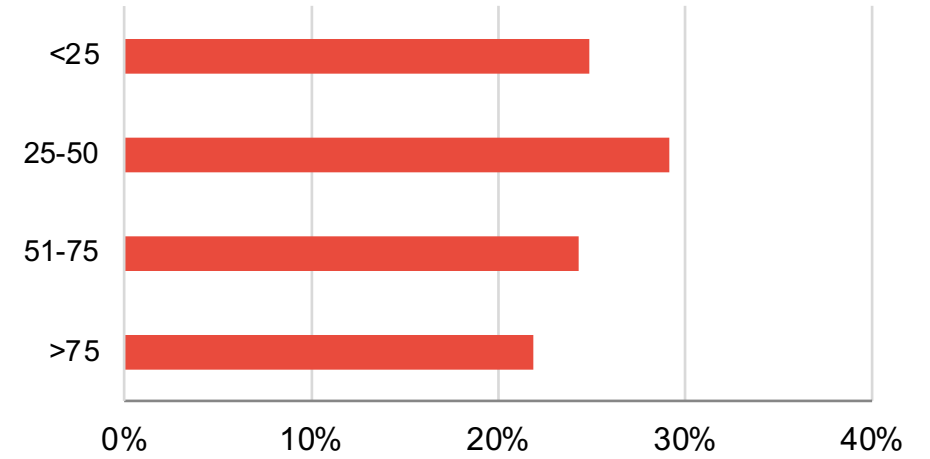
Level 1: Demographics and Patient Reach

Specialty



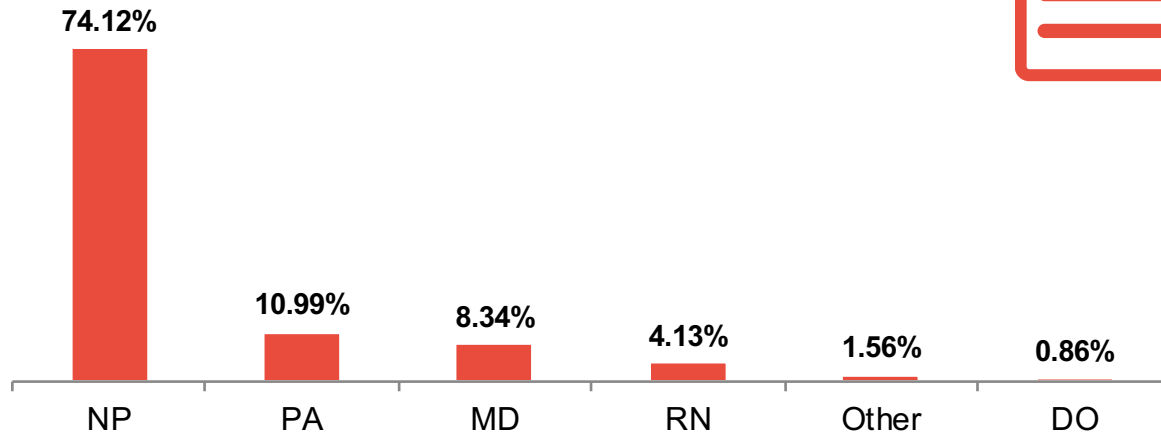
Patient Care Focus: 94%

Patients seen each week, in any clinical setting:

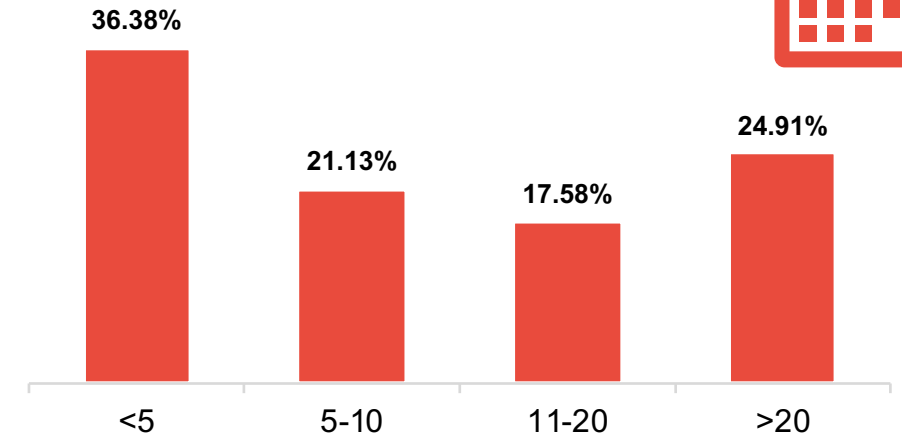


Average number of patients seen each week, per clinician: 51

Profession



Years in Practice

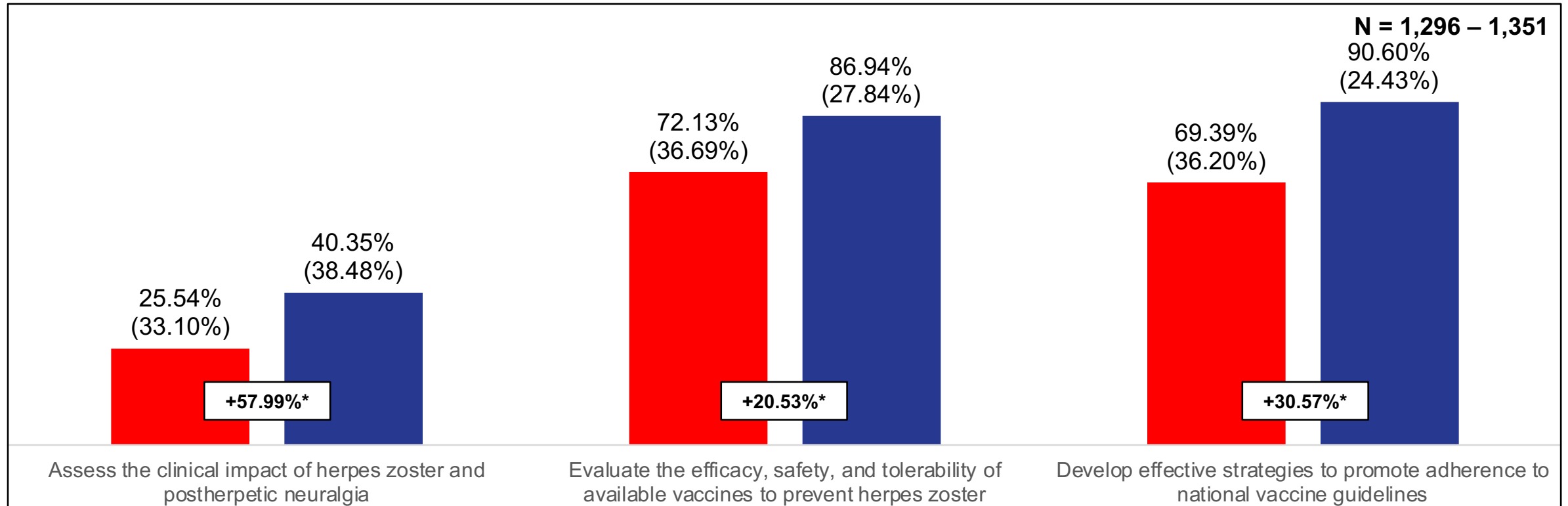




**Level 2-5:
Outcomes Metrics**

Learning Objective Analysis

Pre-Test
Post-Test

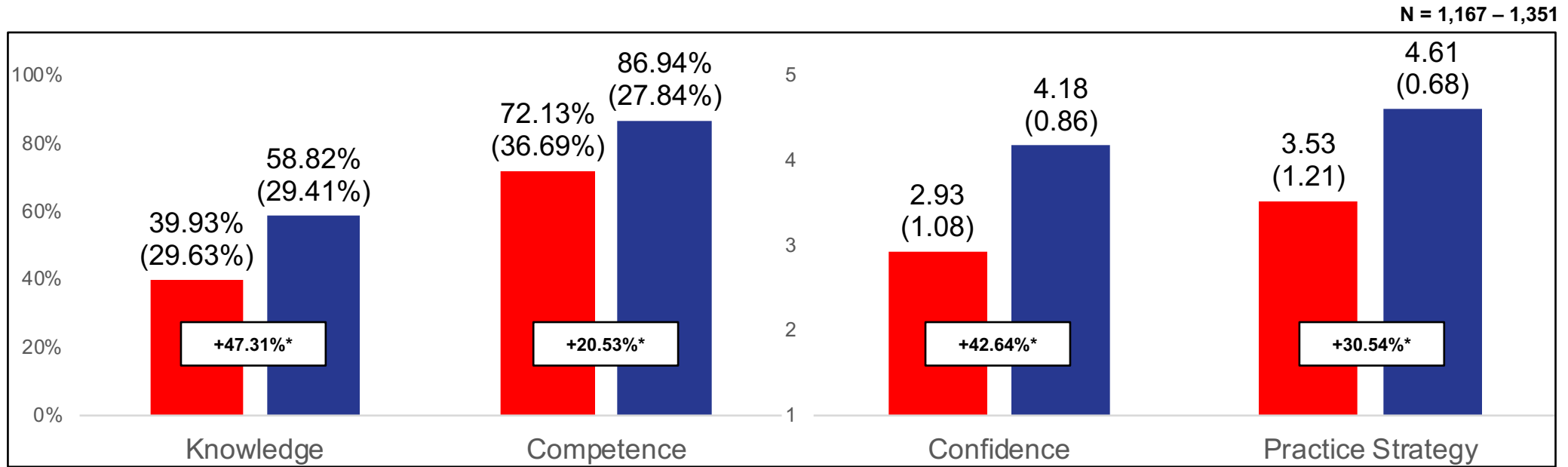


- ❖ Learners achieved substantial and significant improvements on all three curriculum Learning Objectives, Pre-Test to Post-Test
- ❖ The greatest improvement (+58%), but lowest Pre- and Post-Test scores (26% and 40%, respectively), were measured on assessing the clinical impact of herpes zoster and postherpetic neuralgia
 - ❖ Low scores on this Objective were shared by both associated items, addressing herpes zoster demography and postherpetic neuralgia
- ❖ On the other two Objectives, high Post-Test scores (87% and 91%) were achieved following moderate Pre-Test scores (72% and 69%)

Note: data are matched.
* indicates significance, $p < 0.05$.

Learning Domain Analysis

Pre-Test
Post-Test



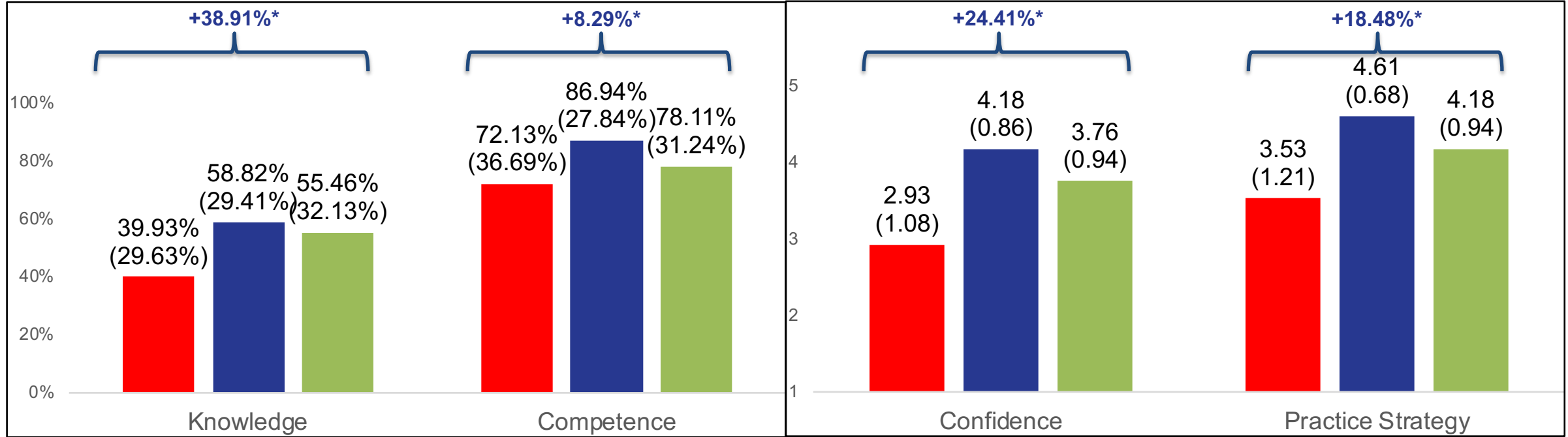
- ❖ Curriculum learners achieved substantial and significant gains in average score in Knowledge, Competence, Confidence, and practice strategy, from Pre- to Post-Test measurements
 - ❖ Low Pre- and Post-Test scores in Knowledge were driven by items related to demography of herpes zoster in unvaccinated patients and postherpetic neuralgia
 - ❖ Pre- and Post-Test scores were similar on both Competence items, which presented cases of patients in need of herpes zoster vaccines
- ❖ Learner ratings in Confidence and practice strategy increased to high values (4.18 and 4.61) at Post-Test, suggesting learners may lack awareness of their gaps in Knowledge

Note: data are matched.
* indicates significance, $p < 0.05$.

4-Week Retention Analysis

Pre-Test Post-Test PCA

(N = 571 – 1,351)



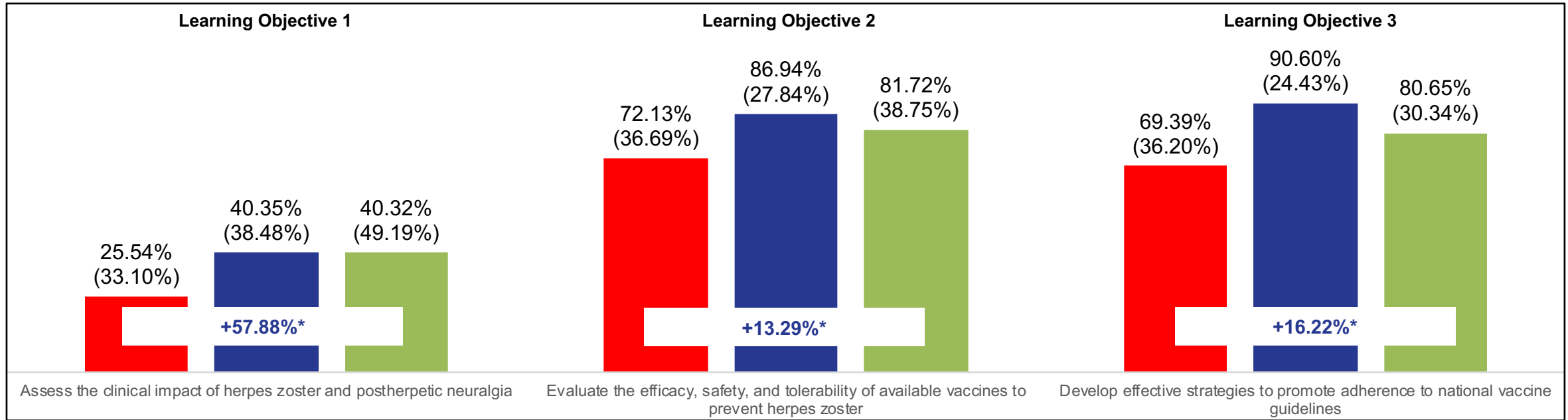
- ❖ The Post Curriculum Assessment (PCA) repeated questions from all four curriculum learning domains
- ❖ Statistically significant net gains were measured from Pre-Test to PCA in Knowledge, Competence, Confidence, and practice strategy
- ❖ Some reduction in score from Pre-Test to low values on the PCA was measured in all domains, reflecting a need for further reinforcement on this topic

Note: pre- and post-test data are matched; PCA responses are not.
* indicates significance, $p < 0.05$.

4-Week Retention Analysis: Learning Objectives

Pre-Test Post-Test PCA

(N = 571 – 1,351)



- ❖ Significant net improvements in score between Pre-Test and PCA observations were measured for all three curriculum Learning Objectives
- ❖ Score slippage from Post-Test to the PCA was small for all three curriculum Learning Objectives, reflecting the ability of the curriculum to impact well retained Knowledge and Competence

Note: pre- and post-test data are matched; PCA responses are not.
* indicates significance, $p < 0.05$.

Learning Objective Analysis: Onsite vs. Online Audience

- “Live onsite learners” include only those attending in-person meetings
- “Live online learners” include those from both the simulcast and virtual symposium

Learning Objective	Live onsite learners				Live online learners			
	N	Pre-Test	Post-Test	Change	N	Pre-Test	Post-Test	Change
Assess the clinical impact of herpes zoster and postherpetic neuralgia	813	34.13% (35.43%)	51.11% (39.66%)	+49.75%*	483	11.08% (22.21%)	22.26% (28.35%)	+100.90%*
Evaluate the efficacy, safety, and tolerability of available vaccines to prevent herpes zoster	824	75.18% (34.92%)	89.62% (24.48%)	+19.21%*	527	67.36% (38.81%)	82.73% (31.95%)	+22.82%*
Develop effective strategies to promote adherence to national vaccine guidelines	848	70.52% (35.65%)	93.51% (20.30%)	+32.60%*	498	67.47% (37.03%)	85.64% (29.55%)	+26.93%*

- ❖ Onsite and online learners independently achieved substantial and significant improvements, from Pre- to Post-Test, on all three curriculum Learning Objectives
- ❖ Onsite learners had higher Pre- and Post-Test scores compared to online learners, but online learners achieved greater improvements in assessment of the clinical impact of herpes zoster and the efficacy, safety, and tolerability of available vaccines

Note: data are matched.

* indicates significance, $p < 0.05$.

Learning Objective Analysis: Comparison by Profession

Learning Objective	Nurse Practitioners				Physicians			
	N	Pre-Test	Post-Test	Change	N	Pre-Test	Post-Test	Change
Assess the clinical impact of herpes zoster and postherpetic neuralgia	541	29.67% (34.03%)	46.67% (39.03%)	+57.30%*	51	33.33% (36.60%)	44.12% (37.89%)	+32.37%*
Evaluate the efficacy, safety, and tolerability of available vaccines to prevent herpes zoster	558	74.19% (34.87%)	88.71% (25.71%)	+19.57%*	53	68.87% (33.96%)	84.91% (28.46%)	+23.29%*
Develop effective strategies to promote adherence to national vaccine guidelines	564	71.10% (33.53%)	91.49% (23.60%)	+28.68%*	51	77.45% (33.30%)	88.24% (27.28%)	+13.93%*

- ❖ Nurse practitioners and physicians both achieved substantial and significant improvements on all three curriculum Learning Objectives, from Pre- to Post-Test
- ❖ Compared to physicians, nurse practitioners had stronger improvements from lower Pre-Test scores to higher Post-Test scores, on the clinical impact of herpes zoster and strategies to promote adherence to vaccine guidelines
- ❖ On the efficacy, safety, and tolerability of available vaccines, nurse practitioners had higher Pre- and Post-Test scores, but physicians had stronger improvements

Note: data are matched.
* indicates significance, $p < 0.05$.

Learning Objective Analysis: Comparison by Profession

Learning Domain	Nurse Practitioners				Physicians			
	N	Pre-Test	Post-Test	Change	N	Pre-Test	Post-Test	Change
Knowledge	554	43.02% (29.32%)	63.03% (28.66%)	+46.51%*	52	48.72% (30.11%)	60.90% (29.76%)	+25.00%*
Competence	558	74.19% (34.87%)	88.71% (25.71%)	+19.57%*	53	68.87% (33.96%)	84.91% (28.46%)	+23.29%*

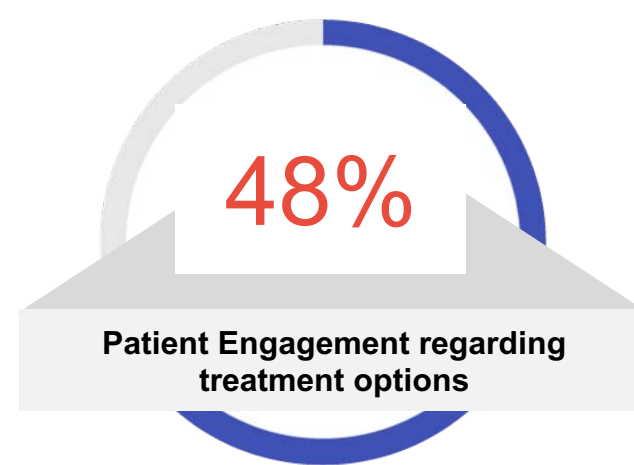
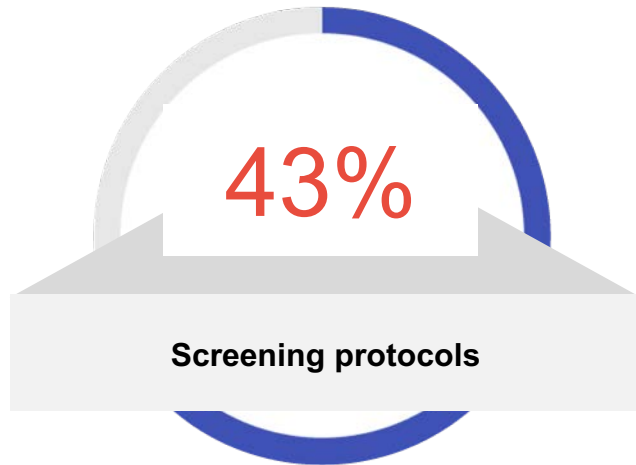
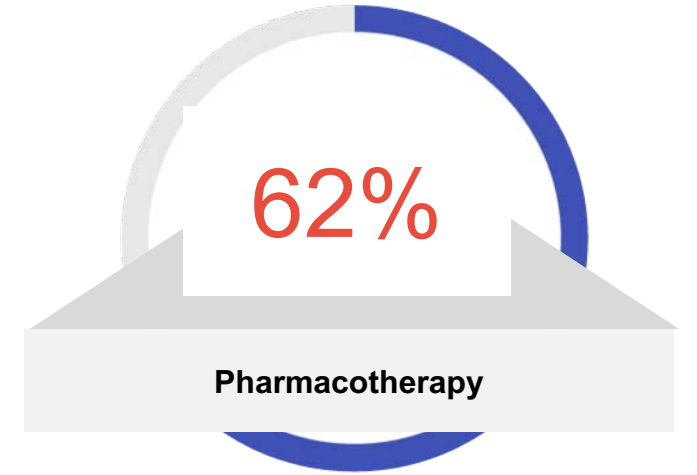
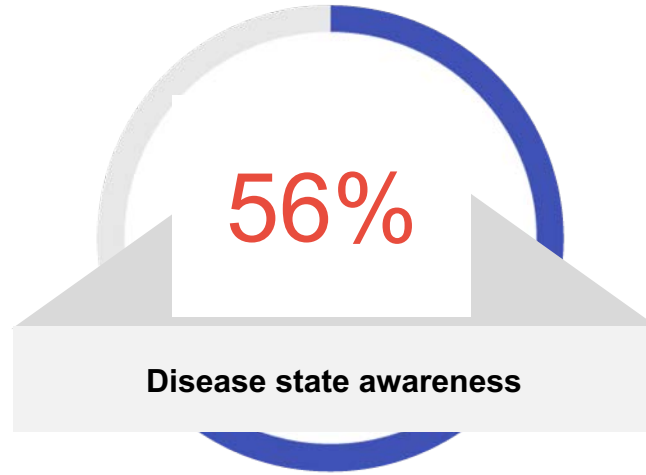
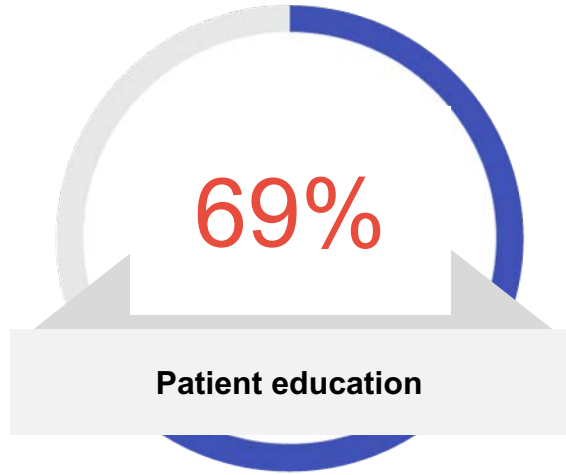
- ❖ Nurse practitioners and physicians both achieved substantial and significant improvements in both Knowledge and Competence, from Pre- to Post-Test
- ❖ Nurse practitioners had greater gains in Knowledge from Pre- to Post-Test compared to physicians, while physicians had greater gains in Competence
 - ❖ Nurse practitioners had higher Post-Test scores in both Knowledge and Competence, compared to physicians

Note: data are matched.
* indicates significance, $p < 0.05$.

(4-week Post Assessment)

Please select the specific areas of *skills, or practice behaviors*, you have improved regarding the treatment of patients with herpes zoster since this CME activity. (Select all that apply.)

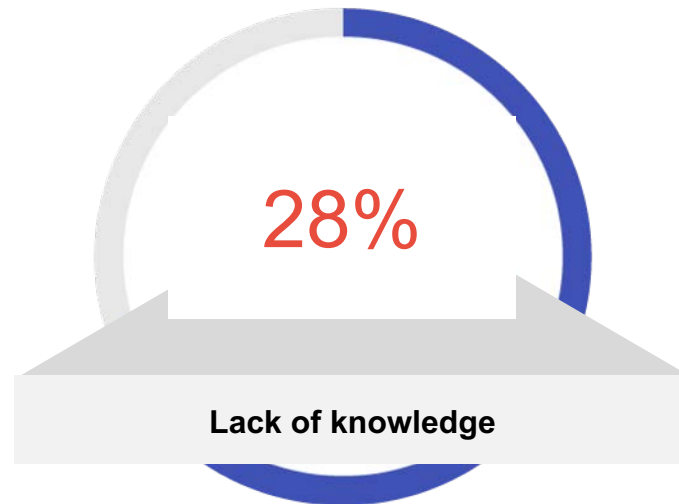
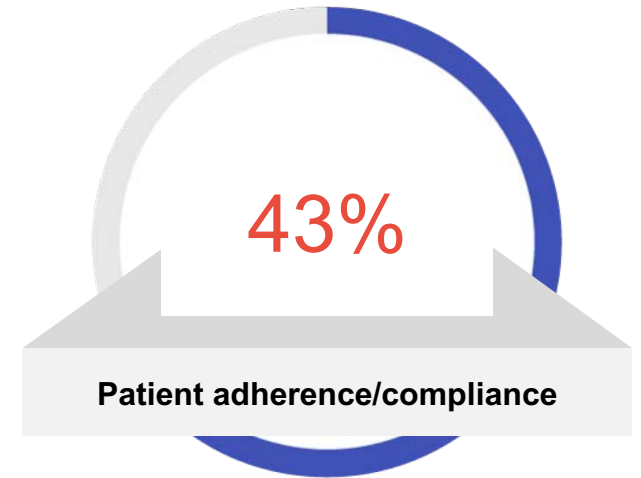
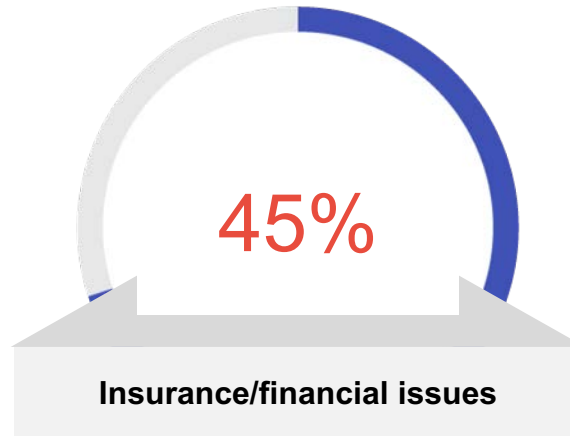
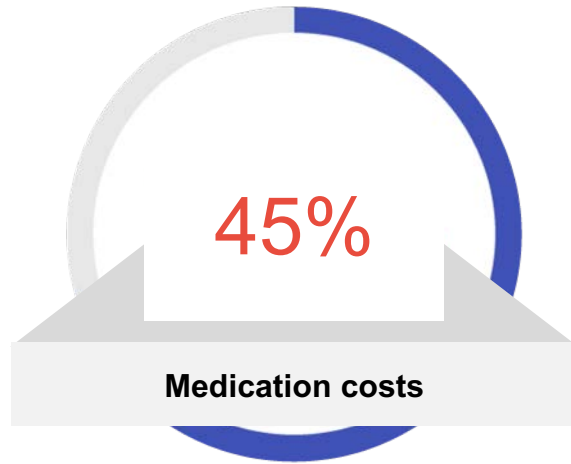
N=571



(4-week Post Assessment)

What specific *barriers* have you encountered that may have prevented you from successfully implementing strategies for patients with herpes zoster since this CME activity? (Select all that apply.)

N=571



Identified Learning Gap:

Prevalence of herpes zoster and its impact on quality of life

Despite improvements in score on two Knowledge items covering the rate of occurrence of herpes zoster and disability following postherpetic neuralgia, learners remained challenged at Post-Test.

Approximately what proportion of unvaccinated adults develop acute herpes zoster by age 85 years?

Results:

- At Post-Test, 36% of learners correctly answered: “50%”

Which of the following statements about postherpetic neuralgia (PHN) is most accurate?

Results:

- At Post-Test, 42% of learners correctly answered: “About one-third of patients with PHN have disability at 6 months after herpes zoster”

Overall Educational Impact

- ❖ Significant improvements in score of seen in Knowledge, Competence, Confidence, and practice strategy, from Pre- to Post-Test
 - These increases were stronger for live online learners compared to live onsite learners, for two of the three curriculum Learning Objectives
 - On a follow-up assessment, significant net gains were retained in all learning domains
 - Post-Test ratings in confidence in overcoming barriers to herpes zoster vaccination, and in intent to recommend herpes zoster vaccination, were high (4.18 and 4.61 out of 5)
- ❖ Significant gains ranging from 72% to 129% were measured across all four Learning Objectives. The greatest improvement, but lowest Pre- and Post-Test scores, was measured on assessment of the clinical impact of herpes zoster and postherpetic neuralgia
 - On the other two Objectives, gains to high Post-Test scores (87% and 91%) were measured on the efficacy, safety, and tolerability of available vaccines, and on effective strategies to promote adherence
- ❖ The analysis of the Knowledge and Competence domains identified a **persistent learning gap related to prevalence of herpes zoster and its impact on quality of life**
 - This gap is supported by two low scoring Knowledge items, addressing the proportion of unvaccinated adults who develop acute herpes, and the rate of disability in patients with postherpetic neuralgia

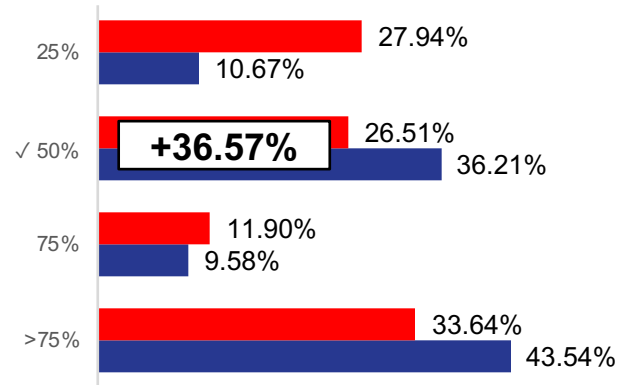
Appendix

Knowledge Items

Pre-Test
Post-Test

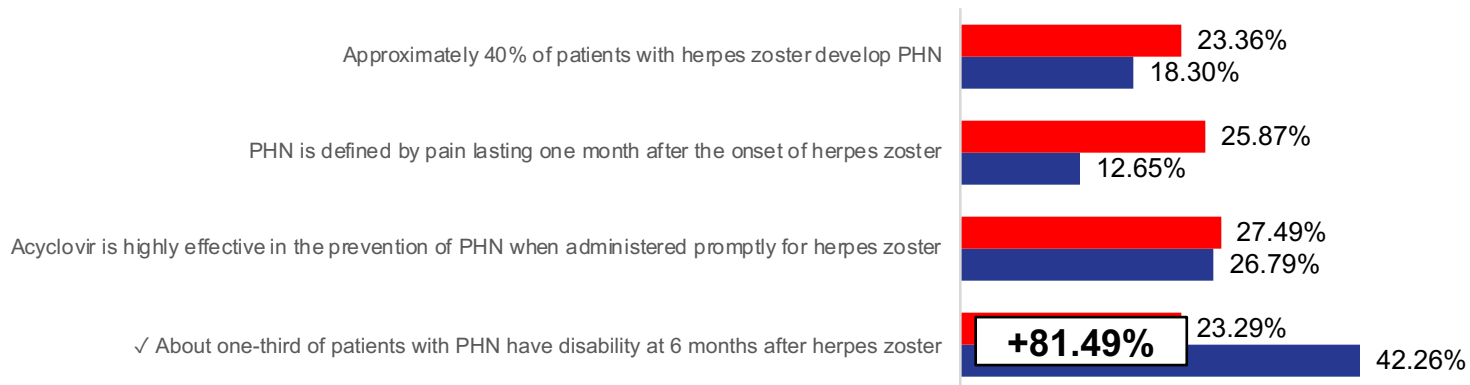
Approximately what proportion of unvaccinated adults develop acute herpes zoster by age 85 years?

N = 1,378 – 1,403



Which of the following statements about postherpetic neuralgia (PHN) is most accurate?

N = 1,344 – 1,357



Note: data are matched.
Correct answer is designated by a ✓.

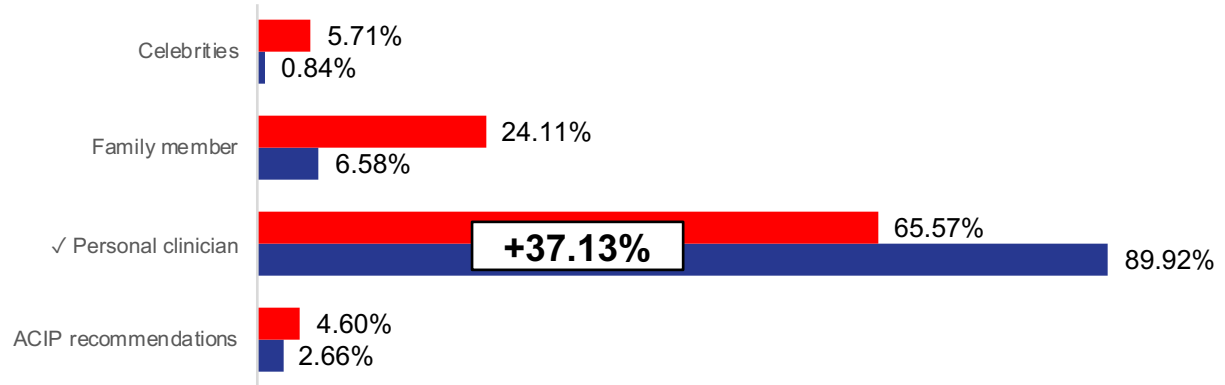


Knowledge Items

Pre-Test
Post-Test

Which of the following has the greatest influence on an adult's decision to get immunized?

N = 1,429 – 1,435



Note: data are matched.
Correct answer is designated by a ✓.

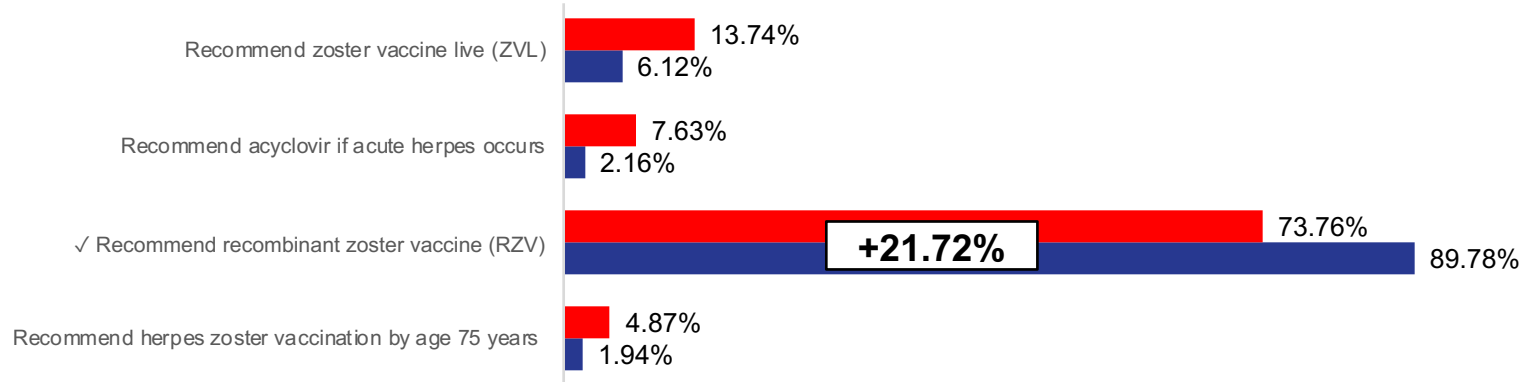


Competence Items

Pre-Test
Post-Test

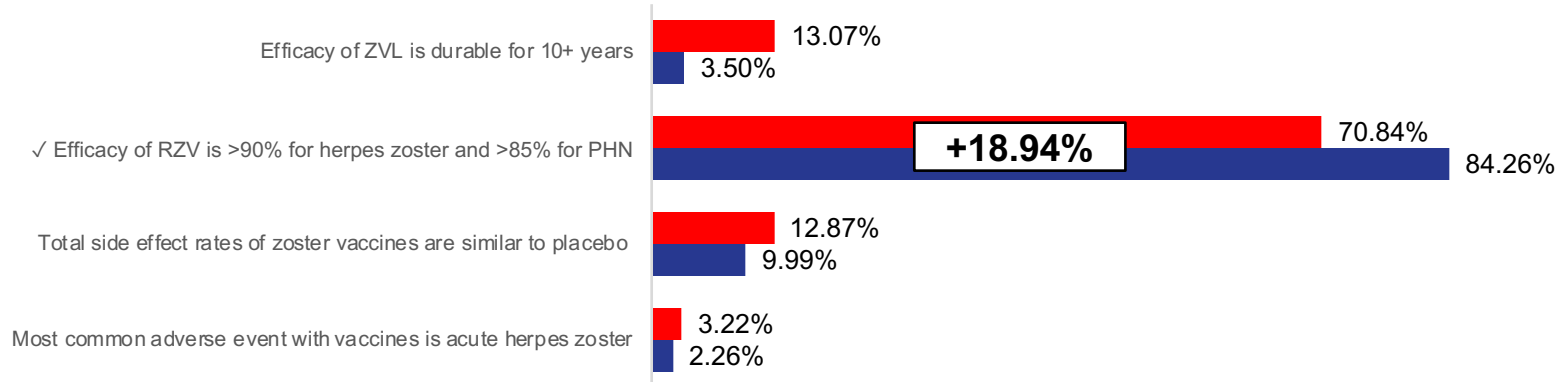
64 y/o overweight woman with 15-year history of T2D. Family history of herpes zoster and postherpetic neuralgia (PHN) in mother and sister. Which of the following would be consistent with current evidence and ACIP recommendations?

N = 1,376 – 1,390



A 75-y/o man presents for regular checkup. History of well-controlled asthma, treated with an inhaled corticosteroid/long-acting beta agonist. You recommend herpes zoster vaccine, but he says he's heard they don't work well or are not safe. Which message might be appropriate for this patient?

N = 1,372 – 1,461



Note: data are matched.
Correct answer is designated by a ✓.

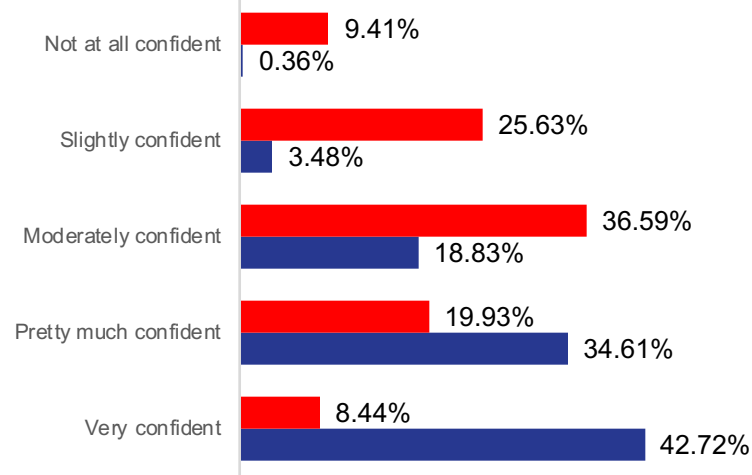


Confidence and Practice Strategy Items

Pre-Test
Post-Test

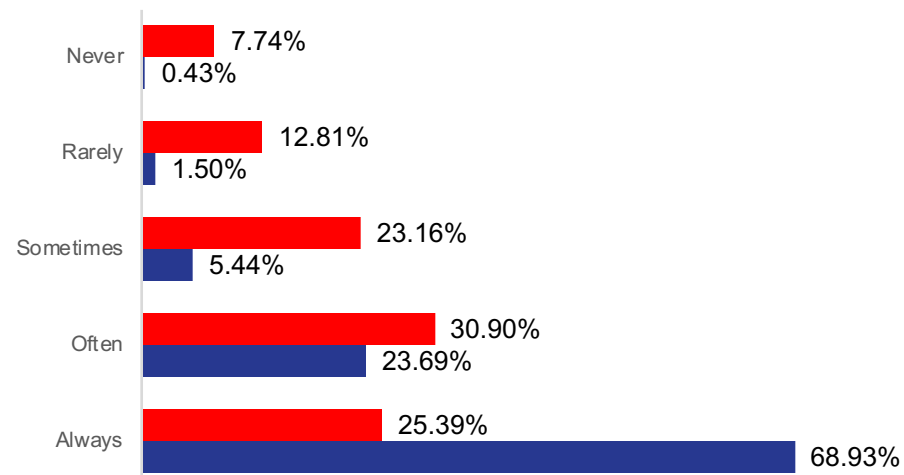
Please rate your confidence in your ability to overcome barriers to herpes zoster vaccination for appropriate patients:

N = 1,350 – 1,381



How often do you recommend herpes zoster vaccination for adult patients >50 years of age who do not have a contraindication?

N = 1,343 – 1,397



Note: data are matched.
Correct answer is designated by a ✓.

