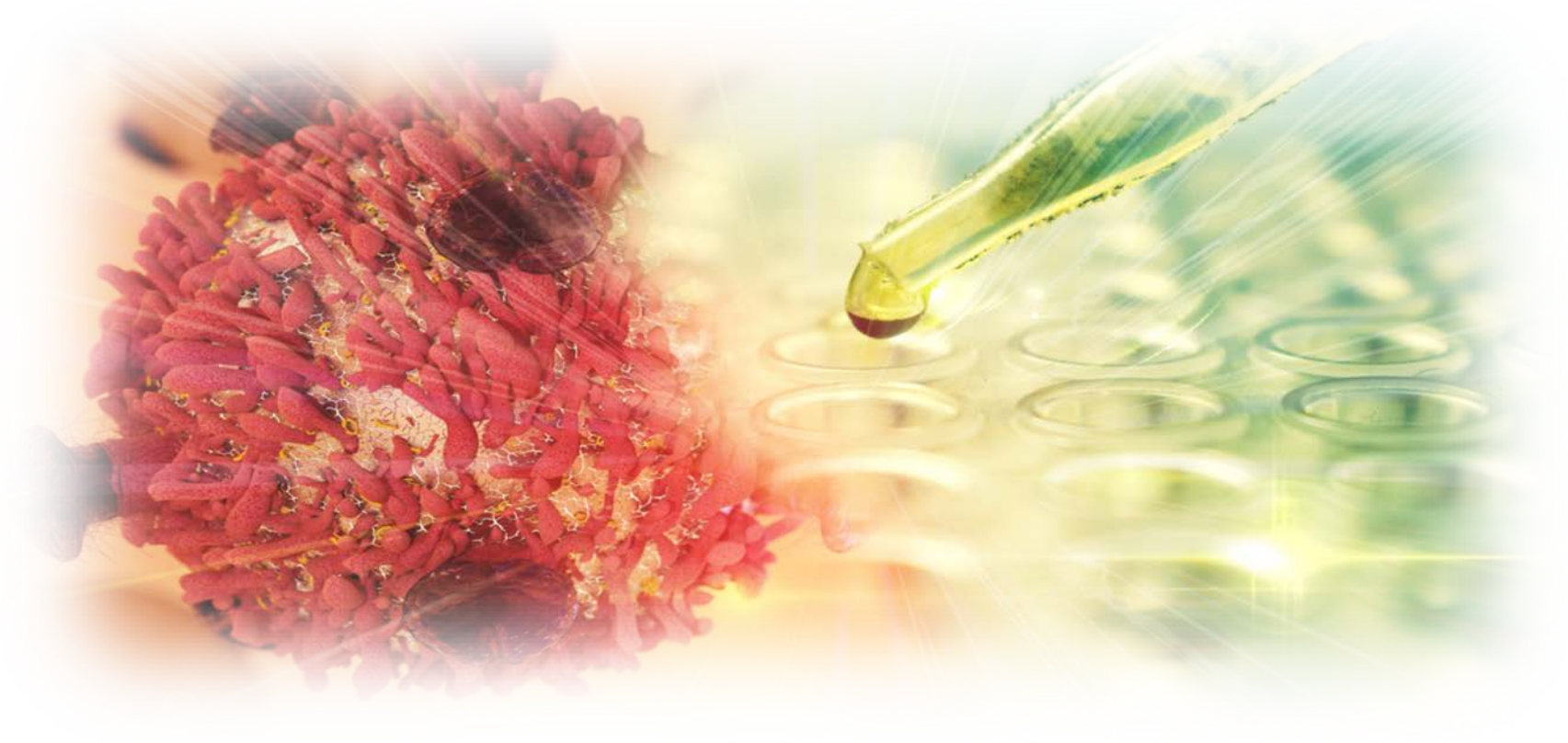


Targeting Epidermal Growth Factor Receptor in Non-Small Cell Lung Cancer: Advances in Treatment

Outcome Report: Grant # ME201823557

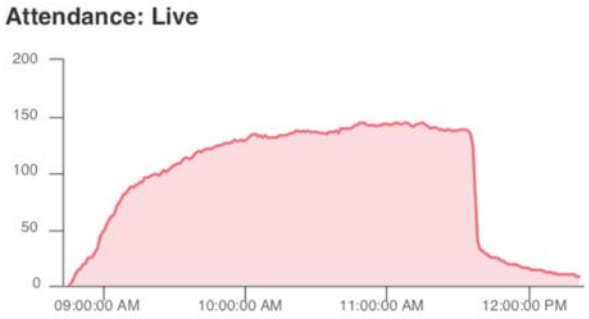
August 13, 2019

Einstein Montefiore | Center for Continuing Medical Education

Executive Summary

194

Total Attendees



Event Summary

Event Duration: 159 min

Avg. Live Duration: 124 min

# of Poll Responses: 1031

Outcomes Summary

Participants made the following educational gains after the program that persisted after 4 weeks:

- Significant improvement in: awareness of the impact of tyrosine kinase inhibitors in the management of NSCLC, recognition of how EGFR mutations convey resistance to certain medications, and insight into the comparative equivalence of plasma ctDNA testing to biopsy tissue analysis
- Significant improvement in competence in ability to select appropriate therapy for a patient with a T790M mutation that developed disease progression on initial TKI pharmacotherapy and 33% improvement on managing adverse effects of TKI

Persistent Gaps

At 4 weeks Follow-up, learners reported the following changes in their confidence and practice patterns:

- Increased use of ctDNA testing in appropriate patients with NSCLC
- Increased confidence in selecting targeted therapy for patients with NSCLC based on EGFR mutations and managing adverse effects of EGFR-targeted therapies

Future education should focus on identified persistent learning gaps:

- Evidence supporting TKI therapy compared to chemotherapy, the role of ctDNA testing, assessment and impact of EGFR mutations when selecting pharmacotherapy, and managing adverse effects

Curriculum Overview

- Certified Live Online Symposia, Date: May 18, 2019.
- Non-certified “Clinical Highlights” - The program content was reinforced to participants with a document containing key teaching points from the program and was distributed 1 week after the meeting.

Course Director & Moderator

Rasim A. Gucalp, MD, FACP
Professor, Department of Medicine (Oncology)
Albert Einstein College of Medicine
Montefiore Medical Center
Director, Hematology/Oncology Fellowship Program
Bronx, NY

Faculty

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Albert Einstein College of Medicine
Director of Thoracic/Head and Neck Oncology and Clinical Cancer Genomics
Montefiore Medical Center
Bronx, NY

Activity Planning Committee

Sandy Bihlmeyer, M.Ed.
Michelle Frisch, MPH, CHCP
Daniela Hiedra
Joshua F. Kilbridge
Gregg Sherman, MD
Victor Hatcher, PhD (CME Reviewer)
Brian Koffman, MDCM, DCFP, FCFP, DABFP, MSEd

Commercial Support

Conversations in Oncology: May 18, 2019 was supported by an educational grant from Pharmacyclics, LLC and an educational grant from Boehringer Ingelheim Pharmaceuticals, Inc.

Learning Objectives

1. Recognize the need for testing for epidermal growth factor receptor (EGFR) mutations in patients with non-small cell lung cancer (NSCLC)

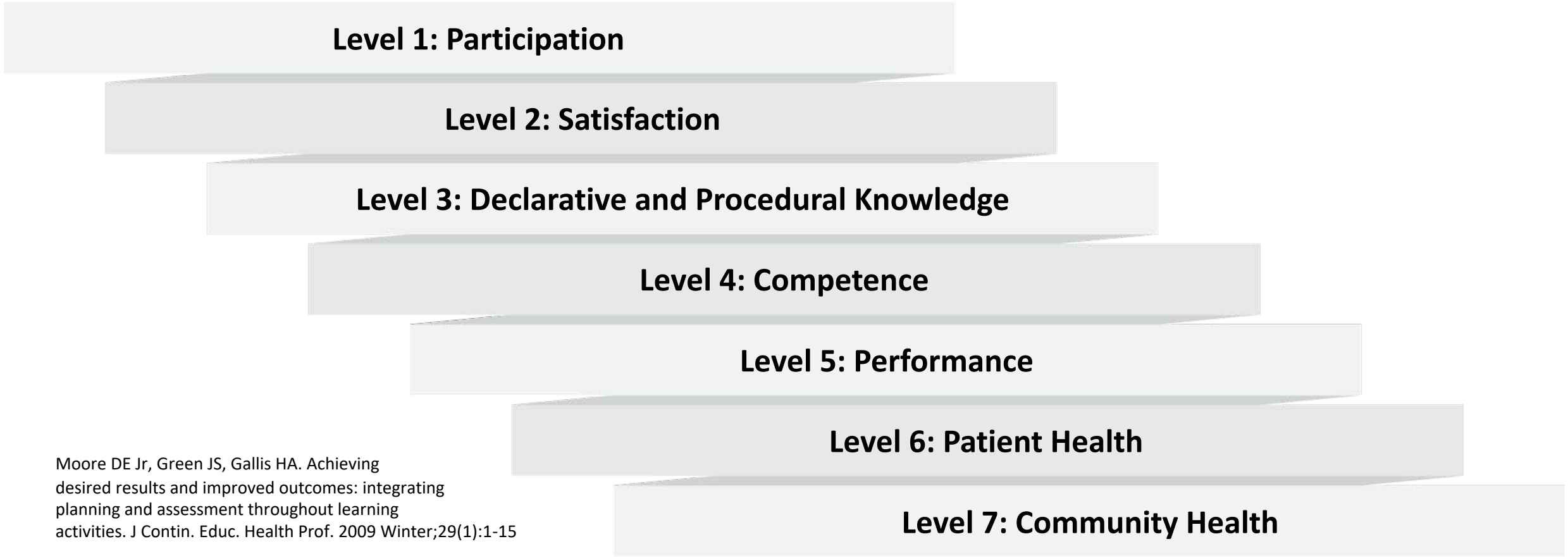
2. Recognize the role of mechanisms of resistance of EGFR inhibitors in the treatment of patients with NSCLC

3. Integrate the latest clinical data on EGFR inhibitors when developing an individualized treatment strategy for patients with NSCLC

4. Identify the adverse effects of EGFR inhibitor treatment in NSCLC

Levels of Evaluation

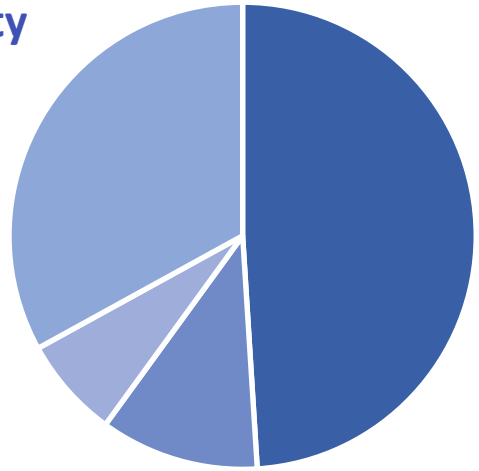
Consistent with the policies of the ACCME, Einstein and NACE evaluate the effectiveness of all CME activities using a systematic process based on Moore's model. This outcome study reaches Level 5.



Moore DE Jr, Green JS, Gallis HA. Achieving desired results and improved outcomes: integrating planning and assessment throughout learning activities. J Contin. Educ. Health Prof. 2009 Winter;29(1):1-15

Level 1 (Participation)

Practice specialty



- 40% PCPs
- 46% Oncology/Hematology
- 6% Neurology/Psychiatry
- 8% Other or did not respond

194

total attendees

92%

Provide direct patient care

Sample Size: N = 194

Level 2 (Satisfaction)

99% rated the activity as excellent

99% indicated the activity improved their knowledge

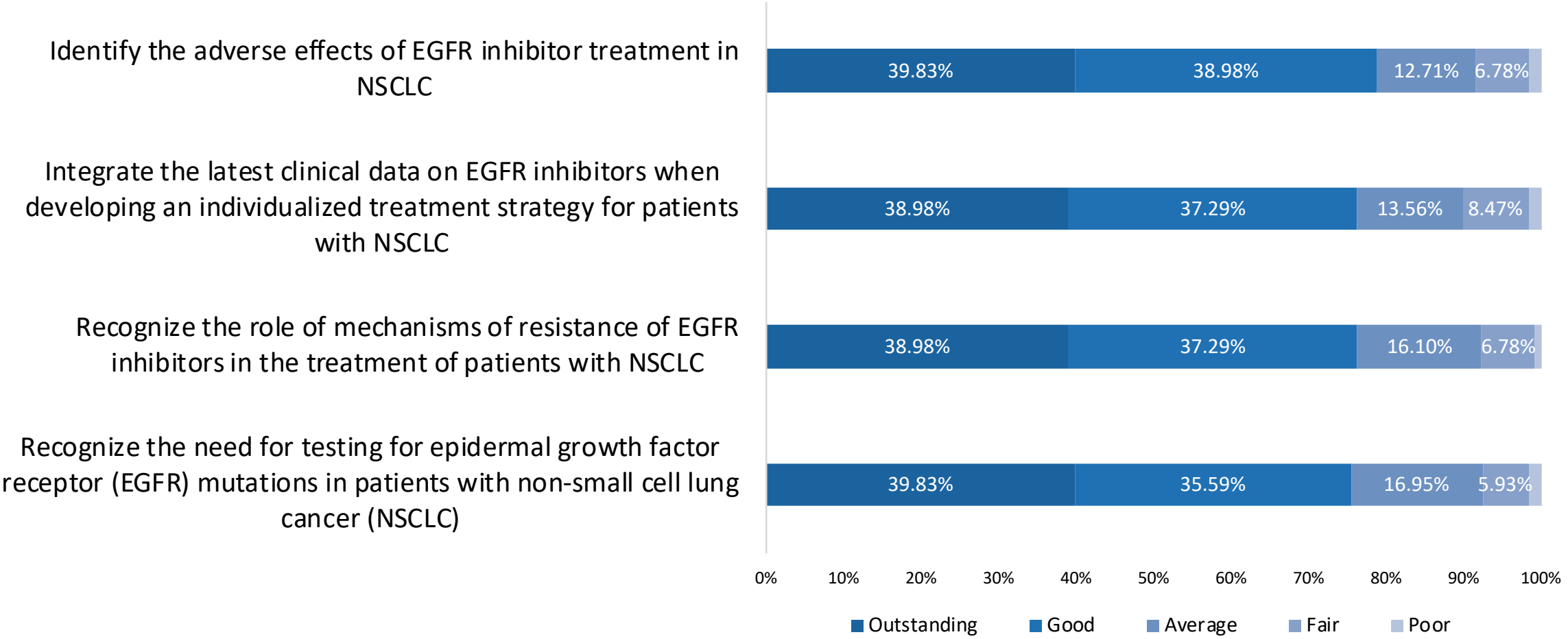
97% stated that they learned new and useful strategies for patient care

91% said they would implement new strategies that they learned

100% said the program was fair-balanced and unbiased

Attendee Learning Objectives Achievement

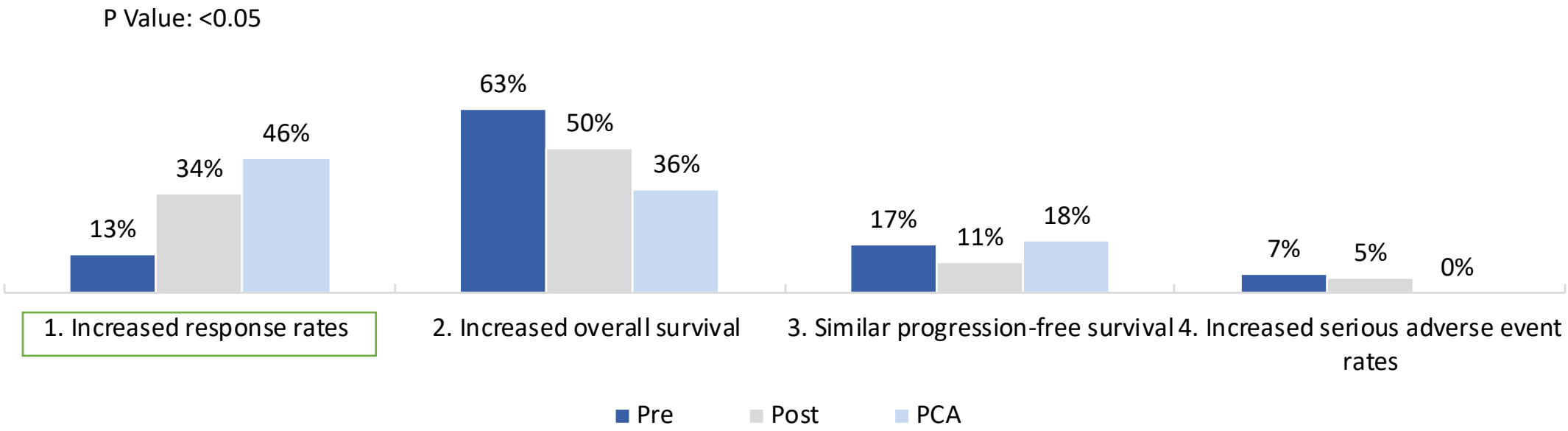
Upon completion of this activity, I can now:



Sample Size: N = 118

In clinical trials of patients with EGFR-mutated NSCLC, first-line tyrosine kinase inhibitors have been associated with which of the following outcomes compared to chemotherapy?

(Learning Objective 1, 2, and 4)

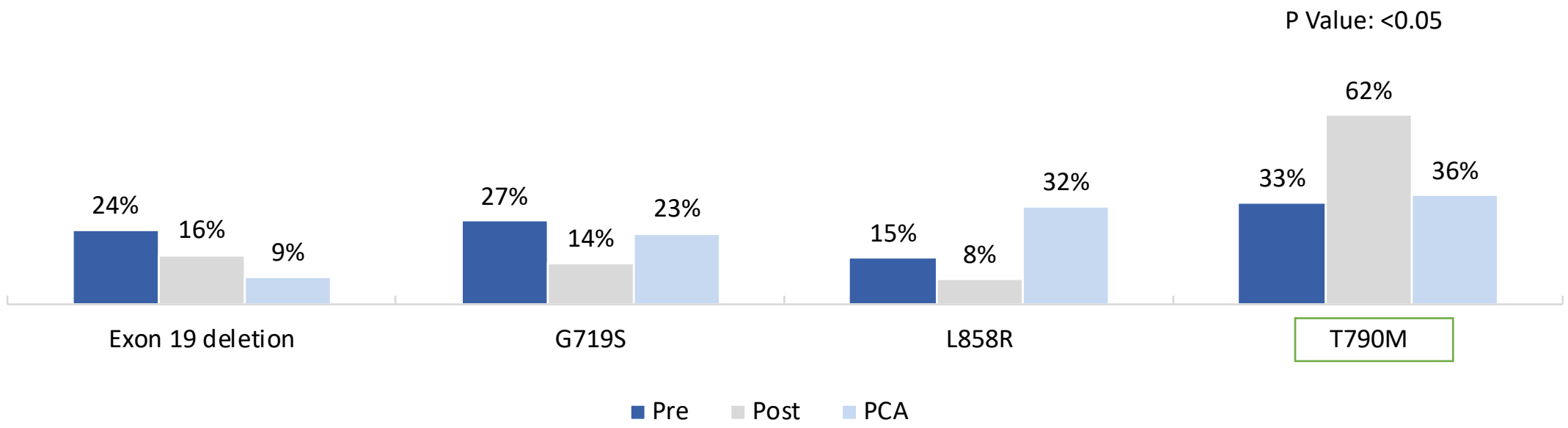


Pre N = 111 Post N = 89 PCA N = 56

Pre-Post Change	161%
Pre-PCA Change	254%

Which of the following EGFR mutations conveys resistance to erlotinib?

(Learning Objective 2, and 3)

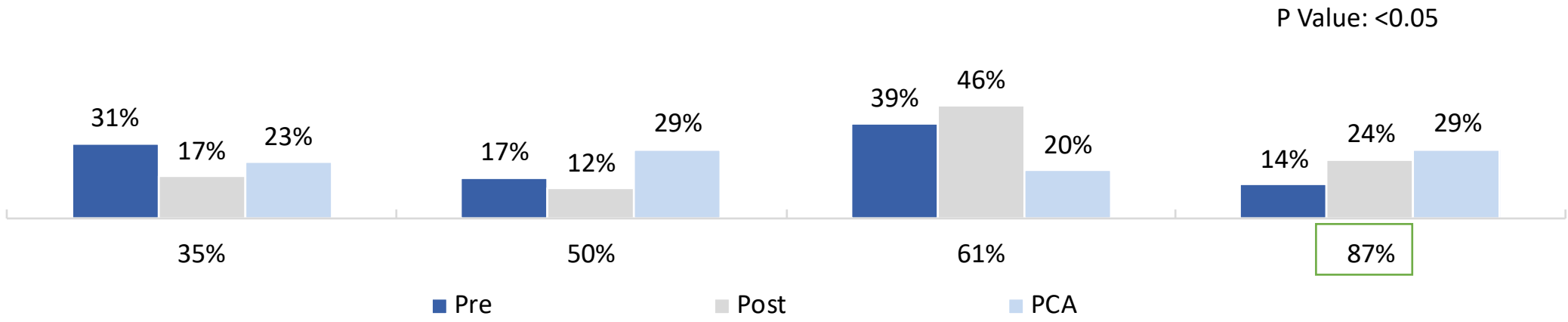


Pre N = 111 Post N = 89 PCA N = 56

Pre-Post Change	88%
Pre-PCA Change	9%

According to recent studies, what is the approximate percent positive agreement between biopsy tissue analysis and plasma ctDNA testing for activating EGFR mutations in NSCLC?

(Learning Objective 1)

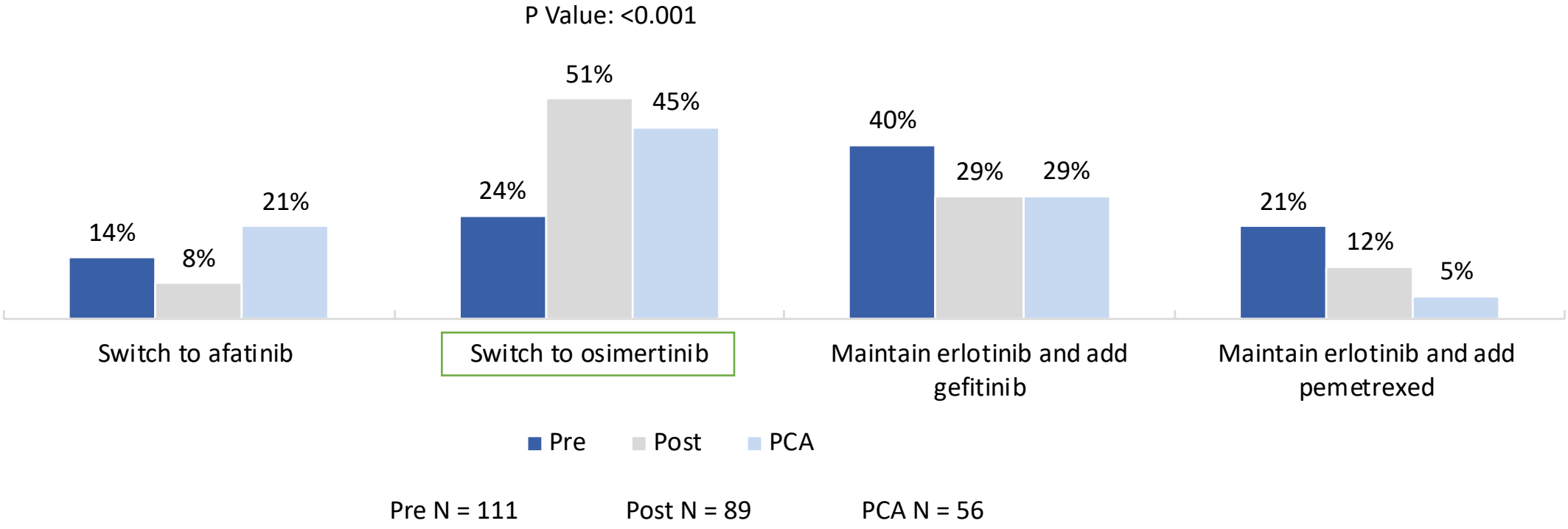


Pre N = 111 Post N = 89 PCA N = 56

Pre-Post Change	71%
Pre-PCA Change	107%

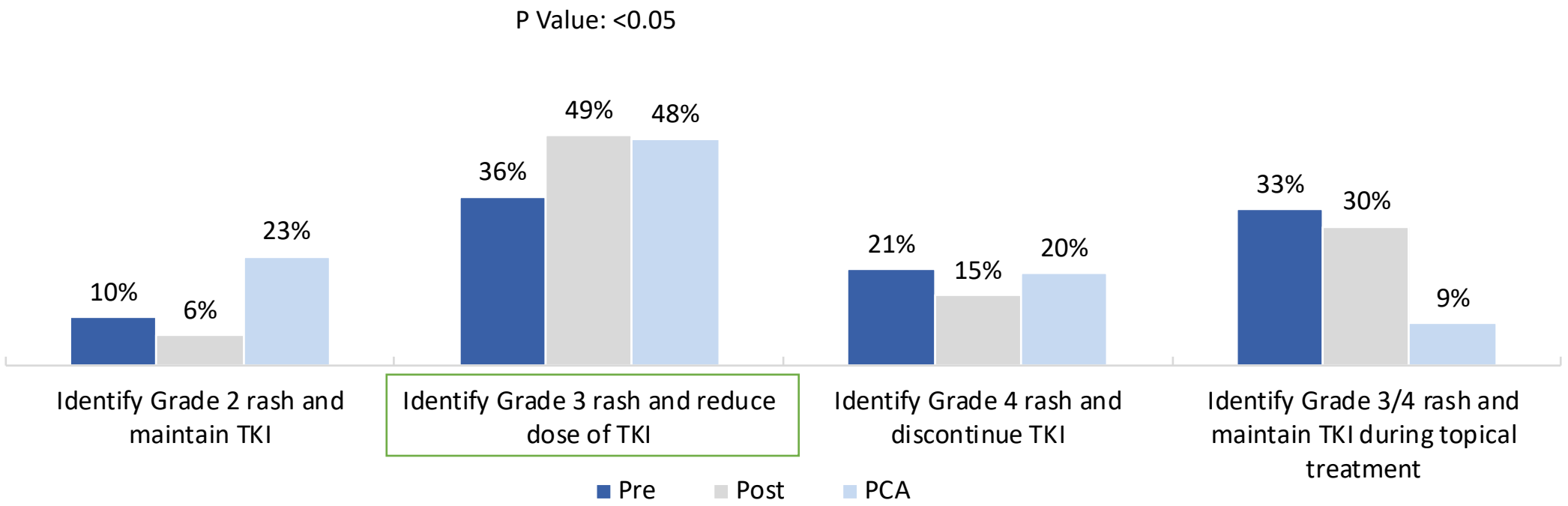
A 58-y/o woman with no smoking history presents with low back pain and chronic cough. Workup identifies upper right lung mass, with metastases to brain. Molecular biopsy testing identifies NSCLC with L858R mutation in exon 21 of EGFR gene and TPS PD-L1 score 80%. Erlotinib is initiated, with excellent initial response. After 1 year of therapy, follow-up imaging identifies progression of disease. Repeat biopsy analysis identifies T790M mutation. What might be an appropriate treatment strategy at this time?

(Learning Objective 4)



A 69-y/o man diagnosed with EGFR-mutated NSCLC is treated with afatinib and develops papules and pustules covering his face and trunk. He reports pruritus and tenderness around the rashes. Total affected body surface area is ~35%. What might be an appropriate treatment strategy?

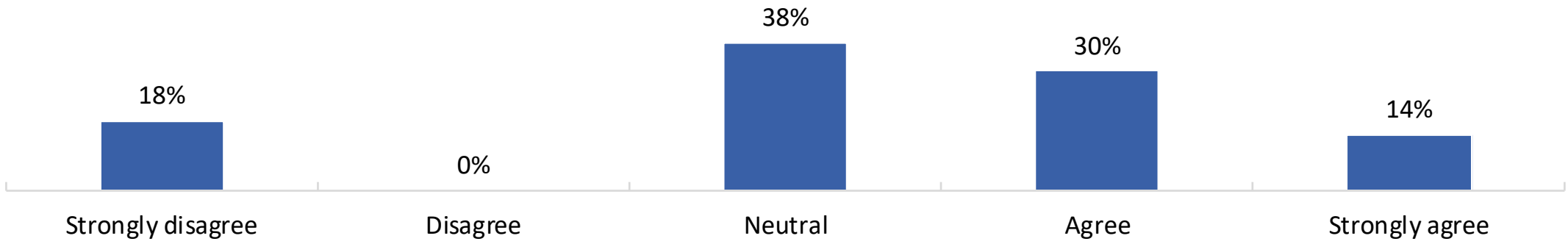
(Learning Objective 4)



Pre N = 111 Post N = 89 PCA N = 56

Pre-Post Change	36%
Pre-PCA Change	33%

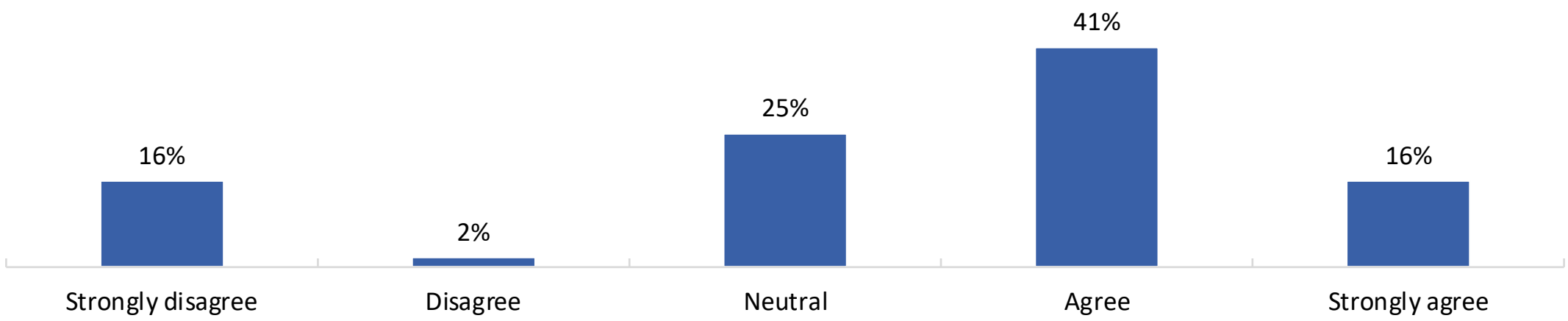
Please rate your level of agreement with the following statements since attending this CME activity: I have increased use of ctDNA testing in appropriate patients with NSCLC. (Learning Objective 1)



PCA N = 56

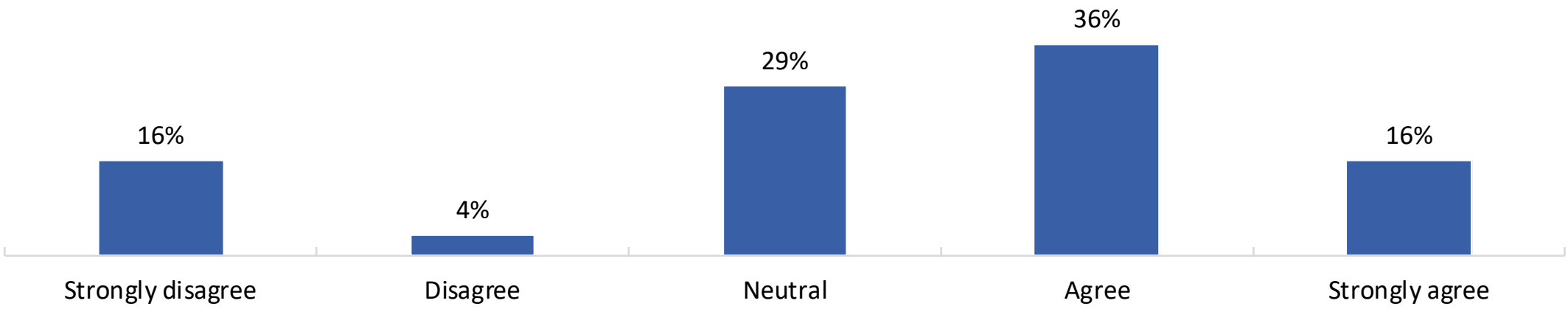
Please rate your level of agreement with the following statements since attending this CME activity: I am much more confident in understanding how to select targeted therapy based on the results of tests for EGFR mutation status.

(Learning Objective 2 and 3)



PCA N = 56

Please rate your level of agreement with the following statements since attending this CME activity: I am much more confident in understanding how to manage adverse effects of EGFR-targeted therapies. (Learning Objective 4)

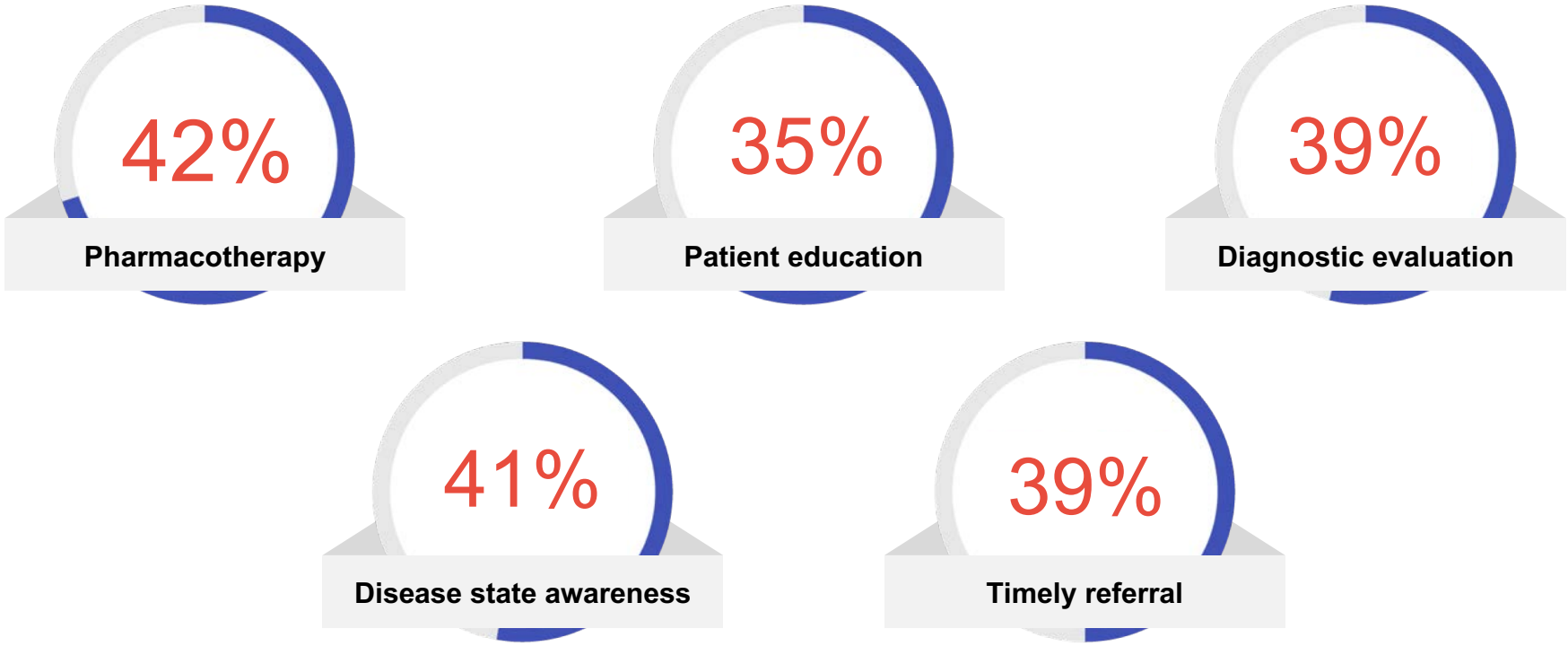


PCA N = 56

(4-week Post Assessment)

Please select the specific areas of *skills, or practice behaviors*, you have improved regarding the treatment of patients with EGFR Non-small Cell Lung Cancer since this CME activity. (Select all that apply.)

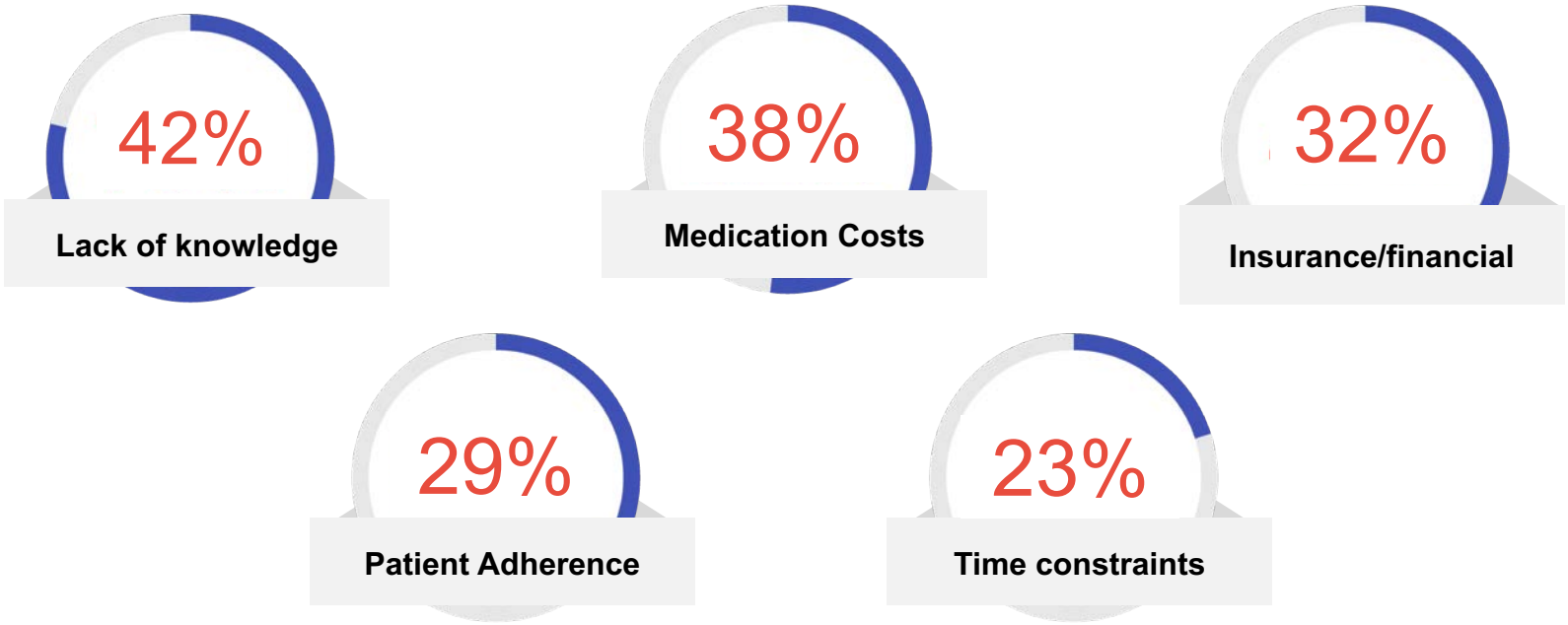
N=56



(4-week Post Assessment)

What specific *barriers* have you encountered that may have prevented you from successfully implementing strategies for patients with EGFR Non-small Cell Lung Cancer since this CME activity? (Select all that apply)? (Select all that apply)

N=56



Data Interpretation

161% improved recognition of the increased response rates demonstrated in clinical trials using first-line tyrosine kinase inhibitors in patients with EGFR-mutated NSCLC compared to chemotherapy, that improved at 4 weeks

88% improvement in recognition that the T790M EGFR mutation conveys resistance to erlotinib

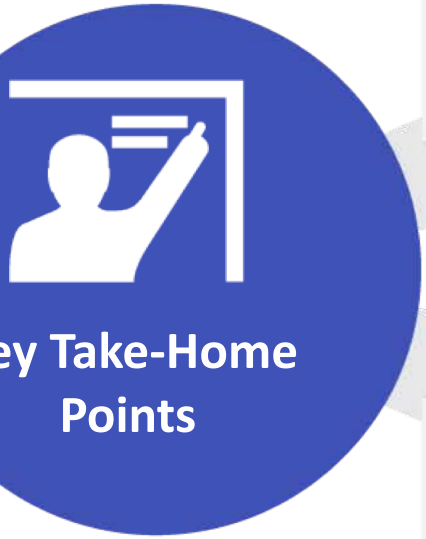
71% improved knowledge of the strong positive agreement between biopsy tissue analysis and plasma ctDNA testing of activating EGFR mutations in NSCLC

113% improved competency to select appropriate therapy for a patient with a T790M mutation that developed disease progression on initial TKI pharmacotherapy and 33% improvement on managing adverse effects of TKI

Data Interpretation

44% of participants reported increased use of ctDNA testing in appropriate patients with NSCLC 4 weeks after the program

After 4 weeks, 57% reported being more confident in understanding how to select targeted therapy based on the results of tests for EGFR mutation status



After 4 weeks, 52% reported being much more confident in understanding how to manage adverse effects of EGFR-targeted therapies

Learners made significant improvements across all learning objectives and domains that persisted 4 weeks after the program

Persistent Educational Gaps After 4 Weeks

- Recognition of the evidence supporting the use of tyrosine kinase inhibitors compared to chemotherapy
- Recognition of EGFR mutations and resistance to current therapies
- Awareness of the correlation between tissue biopsy and ctDNA testing for EGFR mutations
- Appropriate medication sequencing for NSCLC with various gene mutations and managing adverse effects