



Emerging Challenges in Primary Care

18th Annual Conference Series - 2019

Bringing ADHD into Focus: Strategies for Individualizing Care



Final Outcomes Report

Shire • IME-23282

February 5, 2020



Participation

2,933* Total Attendees

7 Cities

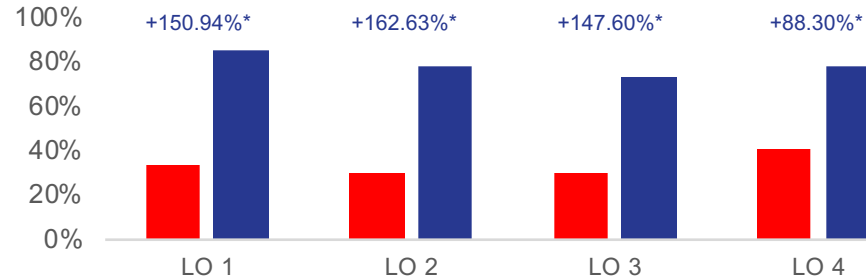
2405 certificates issued to date

1,199* On Site

1,734* Simulcast / Virtual Symposium

This education has the potential to impact **1,709,199** patients on an annual basis.

Learning Gains Across Objectives



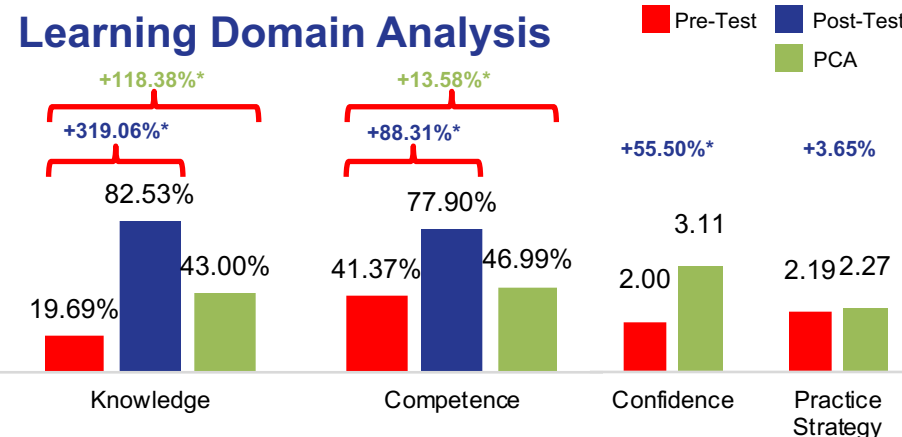
- ❖ **LO 1, 151%* Improvement:** Recognize the pervasive nature and global impact of ADHD symptoms throughout the day
- ❖ **LO 2, 163%* Improvement:** Describe the physical and psychologic morbidity and mortality associated with ADHD
- ❖ **LO 3, 148%* Improvement:** Use ADHD assessment tools to aid in diagnosis, track, and measure changes in ADHD symptoms to optimize pharmacologic treatment, non-pharmacologic treatment, and symptom control throughout the day
- ❖ **LO 4, 88%* Improvement:** Implement appropriate and individualized treatment regimens for patients with ADHD

Persistent Learning Gaps/Needs

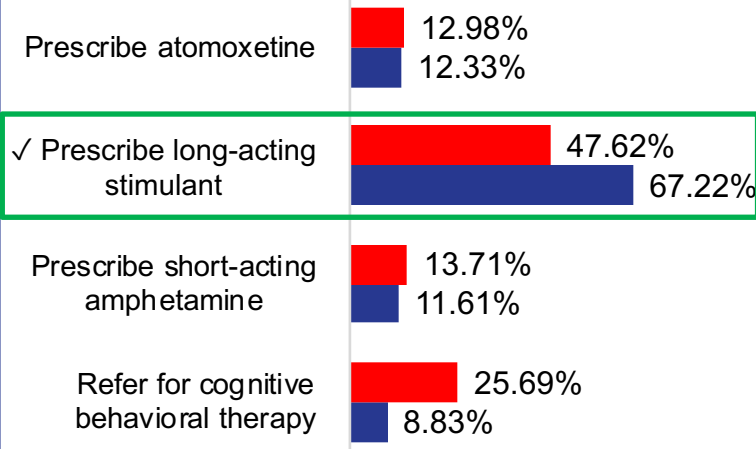
Appropriate therapy for newly diagnosed adult ADHD patients
Despite improvements in score on a Competence item related to therapy for a newly diagnosed patient, learners remained challenged at Post-Test.

A 54-year-old woman presents complaining of distractibility and feeling “overwhelmed” at work. She notes that her 15-year-old son was diagnosed with ADHD a few years ago. On questioning, she reveals symptoms of anxiety and depression. She has no other medical history. Screening with a validated tool supports a diagnosis of ADHD. What might be appropriate at this time?

Learning Domain Analysis



- ❖ Substantial gains (33% to 319%) were achieved in all learning domains except practice strategy, where a small increase was measured (4%)
- ❖ Uniformly low scores at Pre-Test were measured on curriculum Knowledge items, which increased substantially to Post-Test
- ❖ Strong increases from low Pre-Test values were also measured on both Competence items
- ❖ Low Confidence and Practice ratings reflect a lack of learner comfort with this material, motivating further education to reinforce these gains



| 2019 Meeting/Simulcast | Date | Attendees |
|--------------------------|---------|--------------|
| Miami, FL | 4/27/19 | 188 |
| Birmingham, AL | 5/4/19 | 143 |
| Birmingham, AL Simulcast | 5/4/19 | 526 |
| St. Louis, MO | 5/11/19 | 119 |
| Baltimore, MD | 5/18/19 | 180 |
| Atlanta, GA | 6/1/19 | 211 |
| Atlanta, GA Simulcast | 6/1/19 | 439 |
| Raleigh, NC | 6/8/19 | 139 |
| Tampa, FL | 6/15/19 | 219 |
| Virtual Symposium | 6/22/19 | 769 |
| Total | | 2,933 |



Curriculum Patient Impact

In the evaluation, learners (N = 2,933) were asked to report how many patients with ADHD they see per week by selecting a range. The resulting distribution of learner responses was then extrapolated to reflect the total number of learners who have attended the onsite and online meetings.

The findings reveal that this education has the potential to impact

1,709,199
patients on an annual basis.

24,275–v32,809 patients on a weekly basis

24,275–
32,809

Course Director

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St. Louis, MO

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Emerging Challenges in Primary Care

18th Annual Conference Series - 2019

Commercial Support

The Emerging Challenges in Primary Care: 2019 series of CME activities were supported through educational grants or donations from the following companies:

- ❖ Amarin Pharma Inc.
- ❖ Amgen, Inc.
- ❖ AstraZeneca Pharmaceuticals LP
- ❖ Avanir Pharmaceuticals
- ❖ Ferring Pharmaceuticals, Inc.
- ❖ Gilead Sciences, Inc
- ❖ Grifols
- ❖ Novo Nordisk, Inc.
- ❖ Sanofi US and Regeneron Pharmaceuticals
- ❖ Shire

Overview

Learning Objectives

- ❖ Recognize the pervasive nature and global impact of ADHD symptoms throughout the day
- ❖ Describe the physical and psychologic morbidity and mortality associated with ADHD
- ❖ Use ADHD assessment tools to aid in diagnosis, track and measure changes in ADHD symptoms to optimize pharmacologic treatment, non-pharmacologic treatment, and symptom control throughout the day
- ❖ Implement appropriate and individualized treatment regimens for patients with ADHD



**7 Accredited Live Regional Symposia with National Simulcasts
from 2 Locations - April 27, 2019 – June 15, 2019**



1 Accredited Live Virtual Symposium - June 22, 2019



Enduring CME Symposium Webcast

Bringing ADHD into Focus: Strategies for Individualizing Care



Speaker



Birgit Amann, MD
Medical Director/Founder
Behavioral Medical Center - Troy
Troy, MI

Cost: Free
Start Date: 07/30/2019
Expiration Date: 07/29/2020
Target Audience: Primary Care Providers, Psychiatrists
Format: Webcast
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 0.50 pharmacology hours
Hardware/Software Requirements: Any web browser

NACE Podcast



Interview with
Dr. Greg Mattingly, MD on
ADHD

<http://www.buzzsprout.com/457981/1428544-improving-outcomes-in-adhd-it-can-be-done-in-primary-care-part-1-gregg-mattingly-md>

July 18, 2019

Clinical Highlights eMonograph

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

**Emerging Challenges
in Primary Care**

LIVE CONFERENCE SERIES

2019 Clinical Highlights

Bringing ADHD into Focus: Strategies for Individualizing Care

| | |
|---|---|
| <p>Faculty</p> <p>Greg Mattingly, MD</p> | <ul style="list-style-type: none"> ADHD is a highly genetic neurologic condition with a heritability of 85%. ADHD is common clinical condition affecting 8% of children, 4.4% of adults and 2.8% of seniors in the U.S. |
|---|---|



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



2,933*
Total Attendees



7 Cities



1,199*
On Site



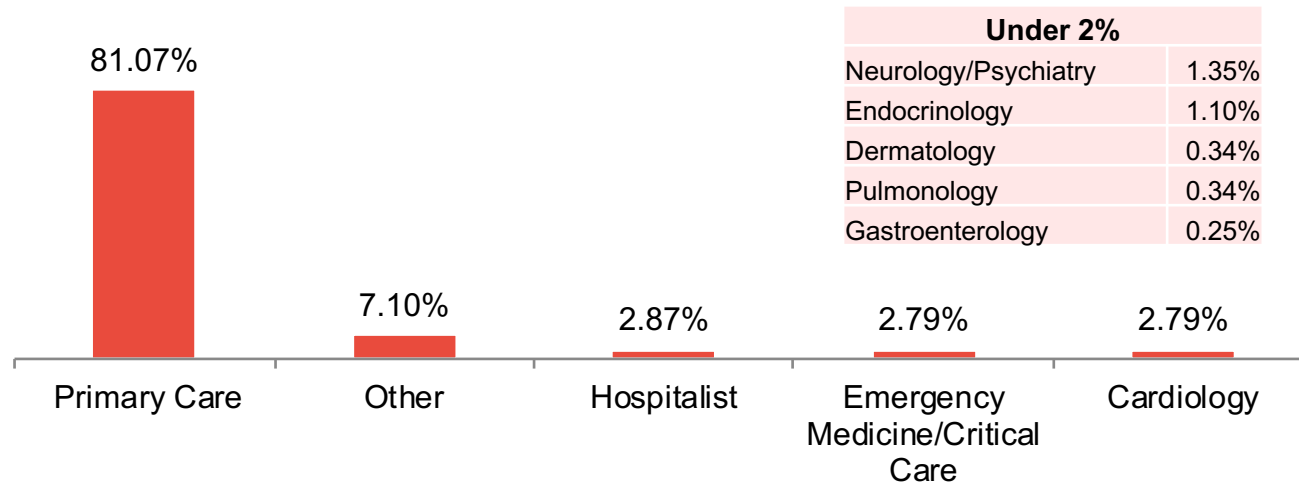
1,734*
Simulcast / Virtual
Symposium

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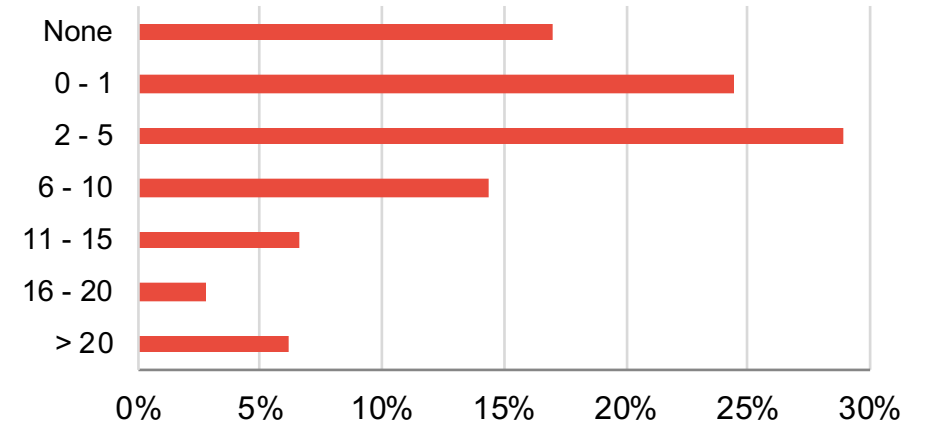
Level 1: Demographics and Patient Reach

Specialty



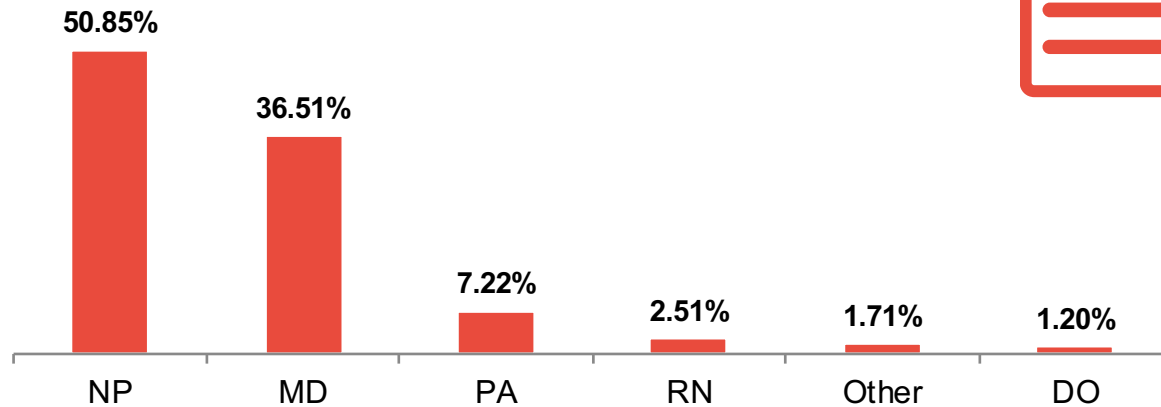
Patient Care Focus: 93%

Patients with ADHD seen each week:

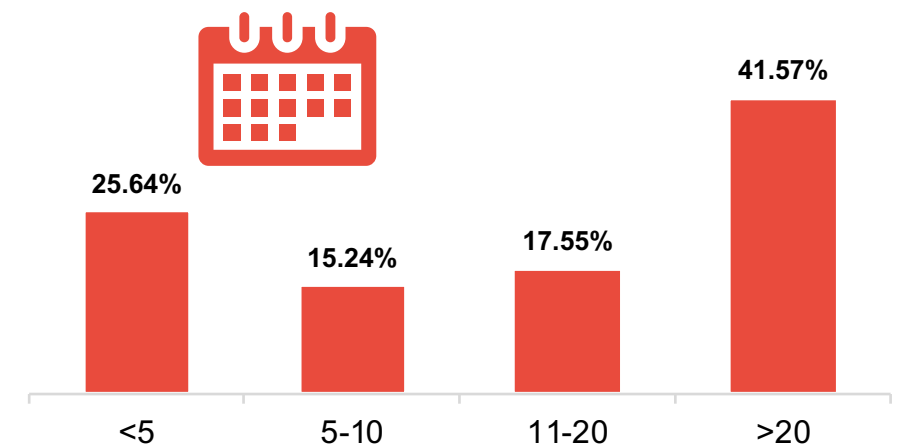


Average number of patients with ADHD seen each week per clinician: 5

Profession



Years in Practice

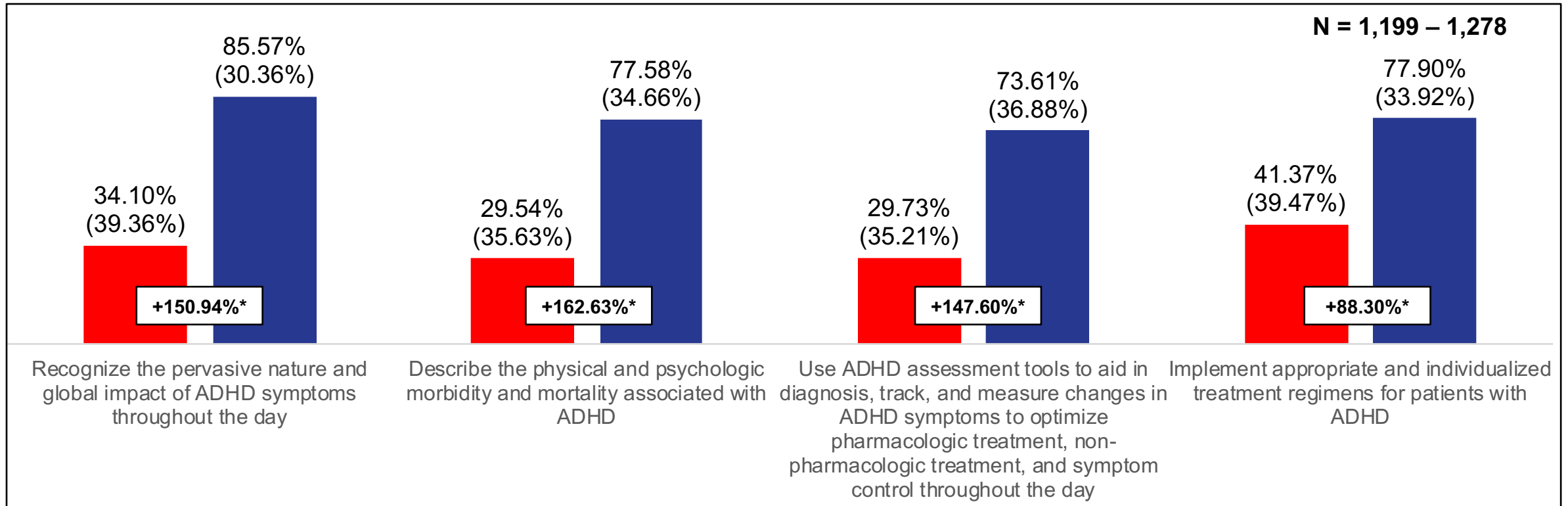




**Level 2-5:
Outcomes Metrics**

Learning Objectives Analysis

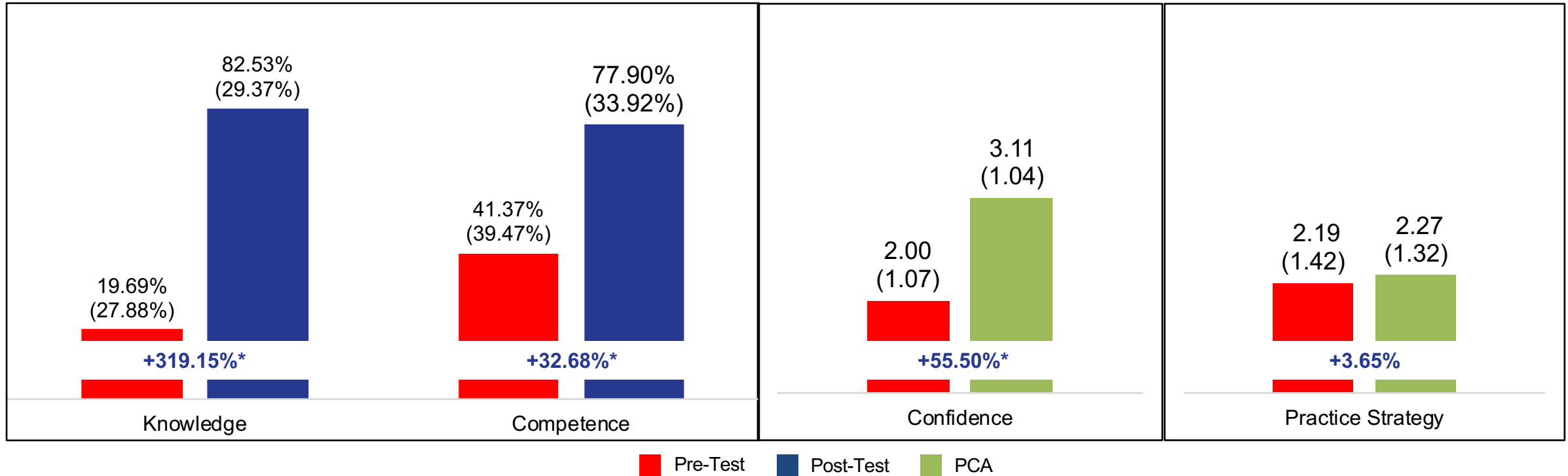
Pre-Test
Post-Test



- ❖ Substantial and significant gains, ranging from 88% to 163%, from Pre- to Post-Test, were measured across all four curriculum Learning Objectives
- ❖ Across all scored items in the curriculum, uniformly low scores were measured at Pre-Test, with strong improvements to Post-Test
- ❖ Post-Test scores ranging from 74% to 86% represent some remaining opportunities for further education in ADHD

Learning Domain Analysis

(N = 814–1,310)



- ❖ Substantial gains (33% to 319%) were achieved in all learning domains except practice strategy, where a small increase was measured (4%)
- ❖ Uniformly low scores at Pre-Test were measured on curriculum Knowledge items, which increased substantially to Post-Test
- ❖ Strong increases from low Pre-Test values were also measured on both Competence items
- ❖ Low Confidence and Practice ratings reflect a lack of learner comfort with this material, motivating further education to reinforce these gains

Learning Objectives by Professional Cohort

| Learning Objective | Physicians | | | | Nurse Practitioners | | | |
|---|------------|--------------------|--------------------|-----------|---------------------|--------------------|--------------------|-----------|
| | N | Pre-Test | Post-Test | % Change | N | Pre-Test | Post-Test | % Change |
| Recognize the pervasive nature and global impact of ADHD symptoms throughout the day | 403 | 33.75% (37.81%) | 87.47% (27.02%) | +159.17%* | 295 | 35.25% (38.77%) | 85.76% (28.54%) | +143.29%* |
| Describe the physical and psychologic morbidity and mortality associated with ADHD | 398 | 32.79% (34.53%) | 77.76% (32.90%) | +137.15%* | 294 | 33.16% (35.67%) | 80.27% (31.71%) | +142.07%* |
| Use ADHD assessment tools to aid in diagnosis, track, and measure changes in ADHD symptoms to optimize pharmacologic treatment, non-pharmacologic treatment, and symptom control throughout the day | 401 | 29.68% (33.38%) | 75.56% (34.80%) | +154.58%* | 291 | 35.05% (35.54%) | 75.95% (34.26%) | +116.69%* |
| Implement appropriate and individualized treatment regimens for patients with ADHD | 389 | 42.67% (36.97%) | 77.63% (32.68%) | +81.93%* | 281 | 46.98% (39.79%) | 80.96% (30.75%) | +72.33%* |

- ❖ Physicians and nurse practitioners (NPs) each had significant score increases on all four Learning Objectives
- ❖ Both Physicians and NPs improved most on recognizing the pervasive nature and global impact of ADHD symptoms throughout the day, and had the highest scores on this Objective at Post-Test
- ❖ Physicians and NPs both had the weakest gains on implementing appropriate and individualized treatment regimens for patients with ADHD, from Pre- to Post-Test

Learning Objectives by Professional Cohort

| Learning Domain | Nurse Practitioners | | | | Physicians | | | |
|-----------------|---------------------|--------------------|--------------------|-----------|------------|--------------------|--------------------|-----------|
| | <i>N</i> | Pre-Test | Post-Test | % Change | <i>N</i> | Pre-Test | Post-Test | % Change |
| Knowledge | 412 | 20.59% (25.97%) | 85.72% (25.34%) | +316.32%* | 307 | 22.20% (28.06%) | 81.70% (29.24%) | +268.02%* |
| Competence | 389 | 42.67% (36.97%) | 77.63% (32.68%) | +81.93%* | 281 | 46.98% (39.79%) | 80.96% (30.75%) | +72.33%* |

- ❖ Physicians and nurse practitioners (NPs) each had significant score increases in both Knowledge and Competence
- ❖ Both physicians and NPs achieved high Post-Test scores (82% – 86%) from low Pre-Test scores in Knowledge
- ❖ Compared to physicians, NPs had greater gains in both Knowledge and Competence

Learning Objectives Analysis – Live Onsite vs. Live Online Audience

- “Live onsite learners” include only those attending in-person meetings.
- “Live online learners” include those from both the Simulcast and Virtual Symposium.

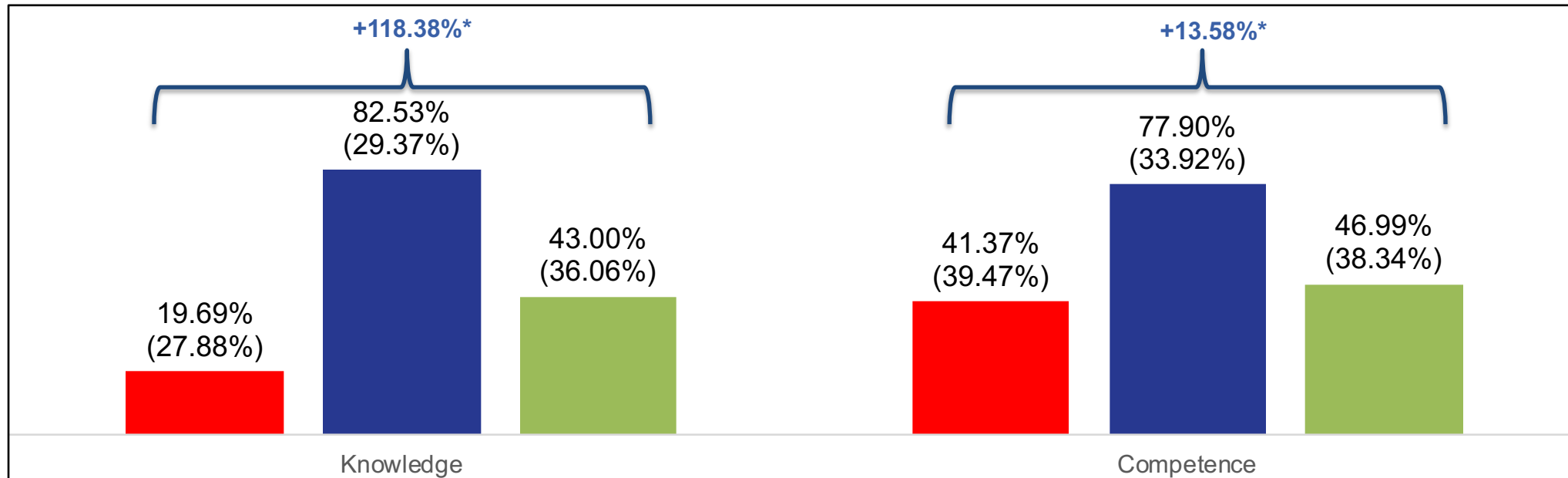
| Learning Objective | Live Onsite Learners | | | | Live Online Learners | | | |
|---|----------------------|--------------------|--------------------|-----------|----------------------|--------------------|--------------------|-----------|
| | N | Pre-Test | Post-Test | % Change | N | Pre-Test | Post-Test | % Change |
| Recognize the pervasive nature and global impact of ADHD symptoms throughout the day | 881 | 33.94% (37.52%) | 86.78% (28.26%) | +155.69%* | 380 | 34.47% (43.33%) | 82.76% (34.59%) | +140.09%* |
| Describe the physical and psychologic morbidity and mortality associated with ADHD | 883 | 30.12% (34.46%) | 78.48% (32.99%) | +160.56%* | 395 | 28.23% (38.08%) | 75.57% (38.05%) | +167.69%* |
| Use ADHD assessment tools to aid in diagnosis, track, and measure changes in ADHD symptoms to optimize pharmacologic treatment, non-pharmacologic treatment, and symptom control throughout the day | 877 | 29.70% (34.25%) | 75.26% (34.98%) | +153.40%* | 324 | 29.78% (37.68%) | 69.14% (41.25%) | +132.17%* |
| Implement appropriate and individualized treatment regimens for patients with ADHD | 855 | 41.70% (39.08%) | 79.18% (32.79%) | +89.88%* | 344 | 40.55% (40.41%) | 74.71% (36.37%) | +84.24%* |

- ❖ Across all four Learning Objectives, live onsite and live online learners both demonstrated substantial and significant score increases
- ❖ For both groups, these score increases were lowest in implementing appropriate and individualized treatment regimens for patients with ADHD, and exceeded 130% gains for all other objectives
- ❖ Similar Pre- and Post-Test scores were measured across all four Learning Objectives for live online and onsite learners, which were modestly higher for the onsite population

4-Week Retention Analysis

Pre-Test Post-Test PCA

(N = 814 – 1,730)



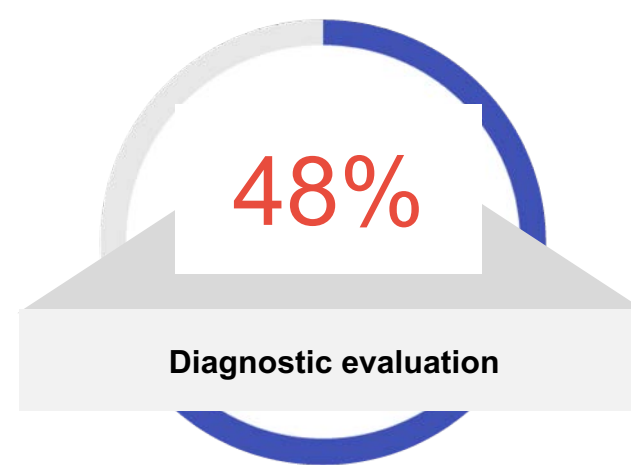
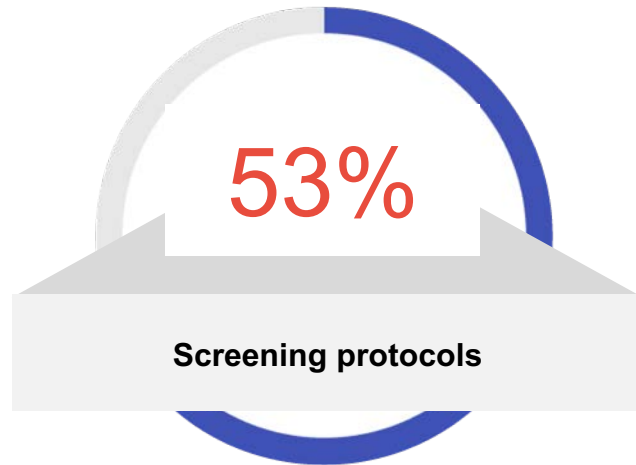
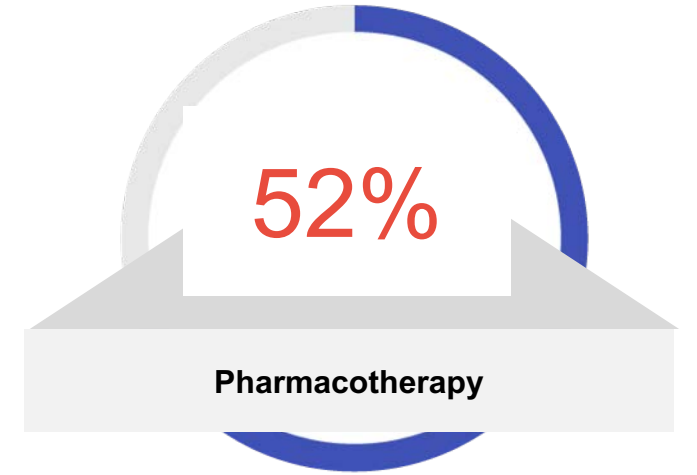
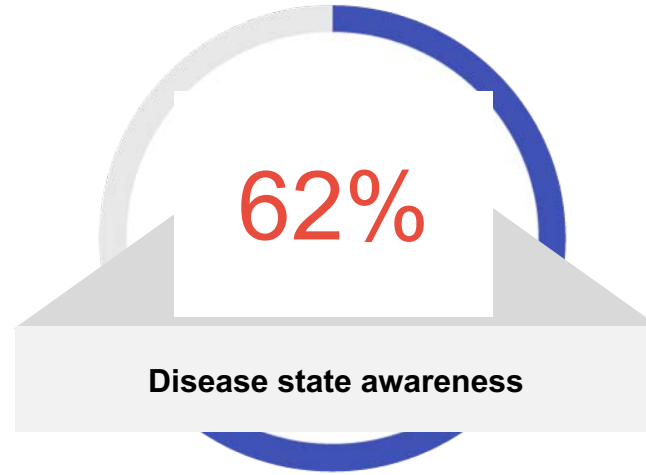
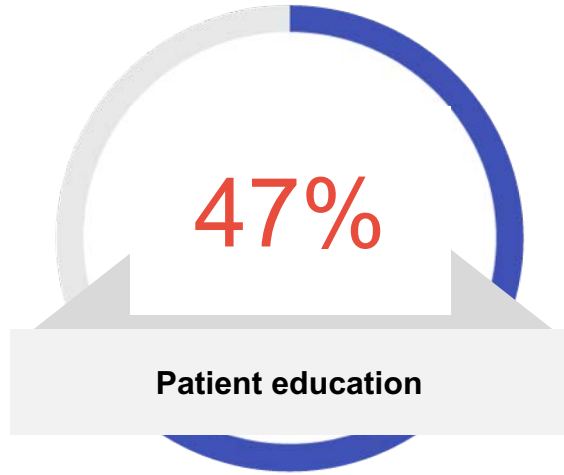
At follow-up:

- ❖ In addition to collecting Confidence and Practice data for the curriculum, the Post Curriculum Assessment (PCA) repeated questions from the Knowledge and Competence domains
- ❖ Statistically significant net gains were measured from Pre-Test to the Post Curriculum Assessment (PCA) in both Knowledge and Competence
- ❖ In both Knowledge and Competence, a decrease in score was measured between Post-Test and PCA

(4-week Post Assessment)

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

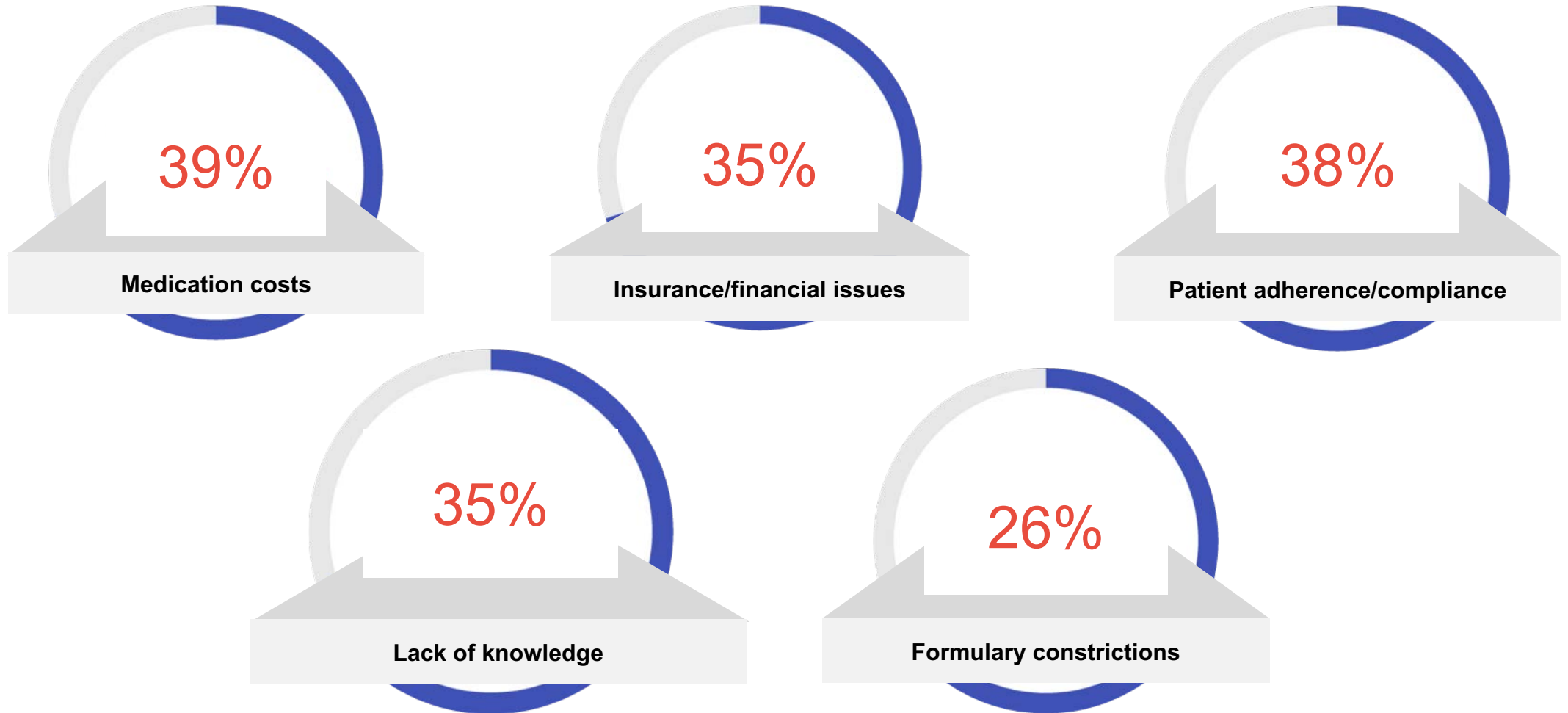
N=814



(4-week Post Assessment)

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

N=814



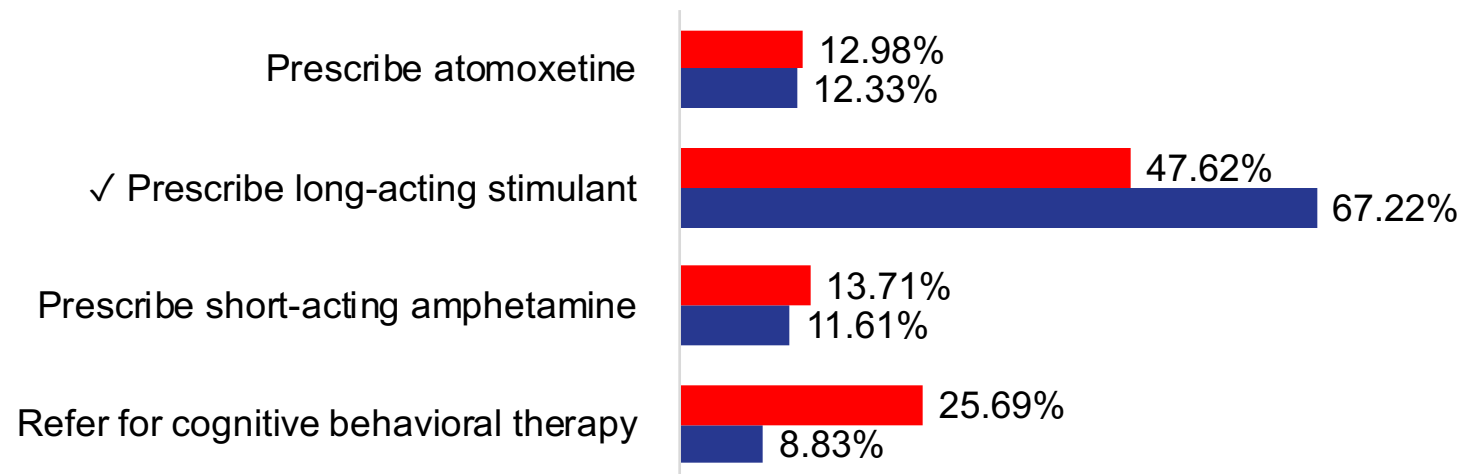
Identified Learning Gap: *Appropriate therapy for newly diagnosed adult ADHD patients*

Despite improvements in score on a Competence item related to therapy for a newly diagnosed patient, learners remained challenged at Post-Test.

A 54-year-old woman presents complaining of distractibility and feeling “overwhelmed” at work. She notes that her 15-year-old son was diagnosed with ADHD a few years ago. On questioning, she reveals symptoms of anxiety and depression. She has no other medical history. Screening with a validated tool supports a diagnosis of ADHD. What might be appropriate at this time?

Results:

- At Post-Test, 67% of learners correctly answered: “Prescribe long-acting stimulant”



Overall Educational Impact

- ❖ Substantial, significant improvements of 319% and 33% were seen in learner Knowledge and Competence, from Pre- to Post-Test
 - These gains were similar for live online and onsite learners, with onsite learners having moderately higher scores
 - On all three Knowledge items, learners achieved gains exceeding 140% from Pre- to Post-Test, illustrating the impact of the education
 - Strong improvements were also seen on both Competence items, presenting the cases of adult ADHD patients in need of initial and ongoing therapy selection
- ❖ Final scores on Confidence and practice strategy items were low to moderate (3.11 and 2.27), motivating further reinforcement of these gains
- ❖ Significant improvements ranging from 88% to 163% were measured across all Learning Objectives. Post-Test scores ranging from 74% to 86% represent some outstanding opportunities for further education
- ❖ The analysis of the Knowledge and Competence domains identified a **persistent learning gap related to appropriate therapy for newly diagnosed adult ADHD patients**
 - Pre- and Post-Test scores (48% and 67%) were low on a Competence item about the correct first-line therapy for an adult presenting with symptoms of ADHD

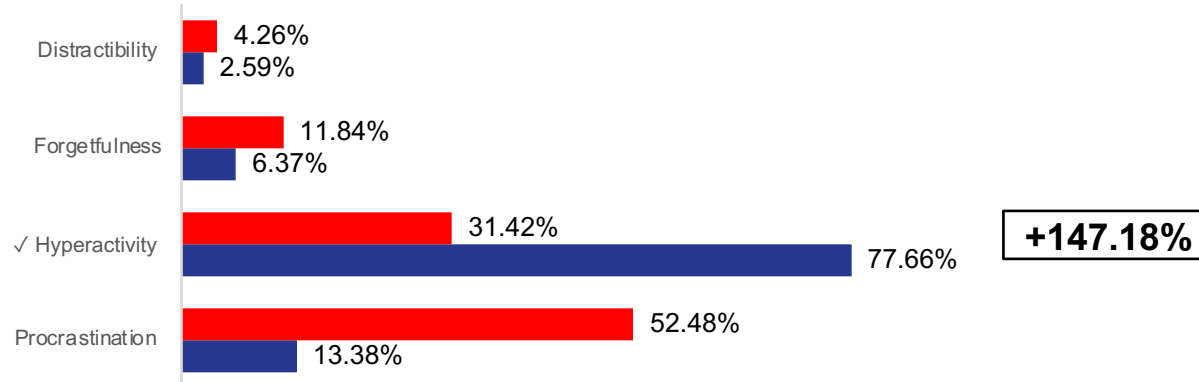
Appendix

Knowledge Items

Pre-Test
Post-Test

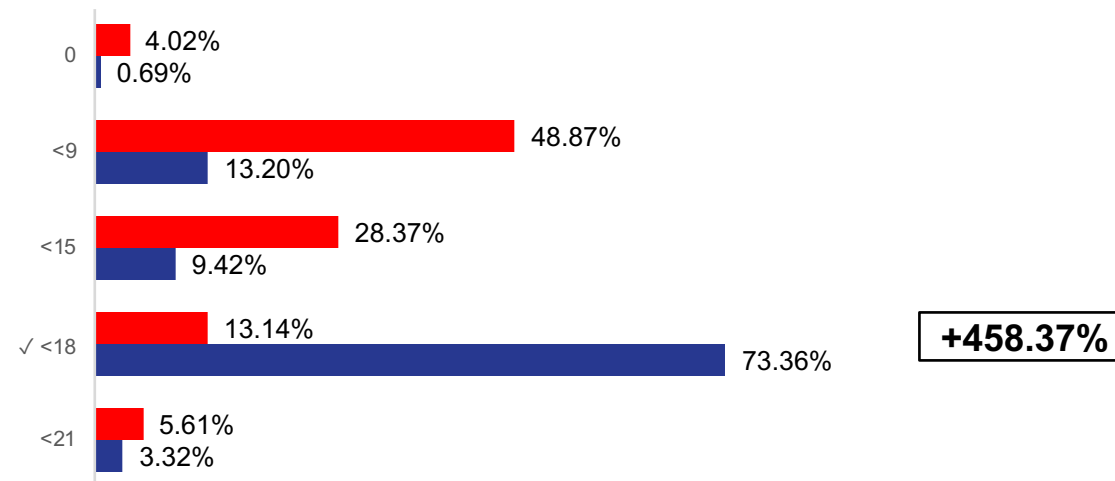
All of the following are common symptoms of adult ADHD, EXCEPT:

N = 1,149 – 1,428



The ADHD-RS screening tool is useful to monitor treatment of ADHD. To achieve optimal reduction in ADHD symptoms, and minimize functional, impairment, the survey score should be:

N = 1,195 – 1,295

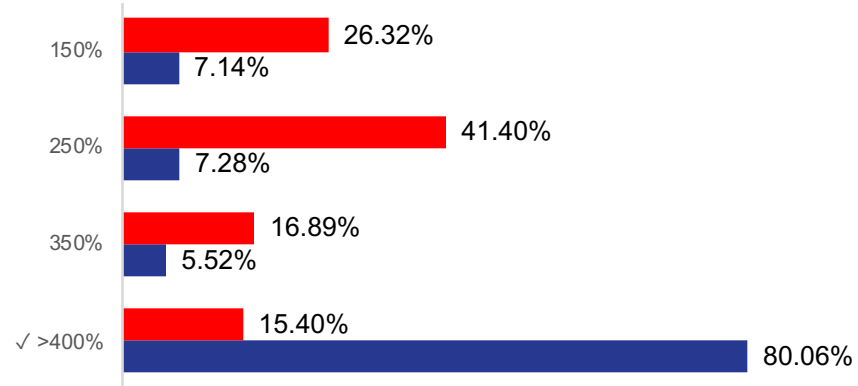


Knowledge Items

Pre-Test
Post-Test

In a Danish registry study, what was the approximate mortality percentage rate ratio for adults with ADHD, compared to the general population?

N = 1,273 – 1,414



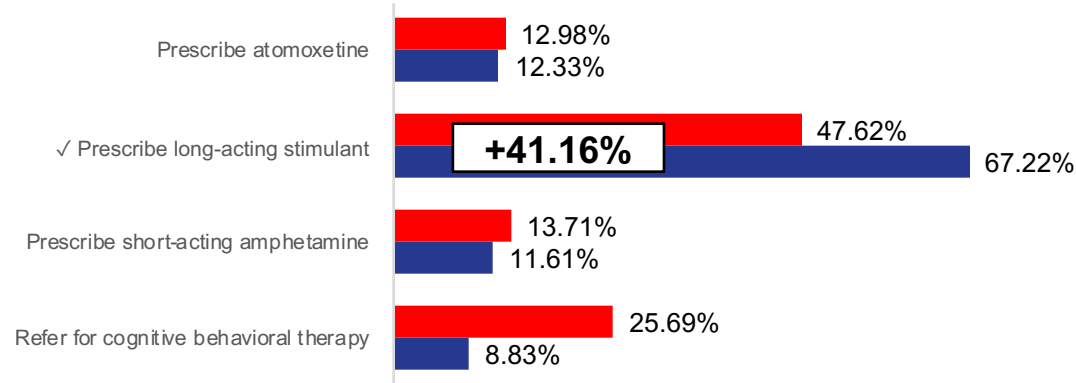
+419.96%

Competence Items

Pre-Test
Post-Test

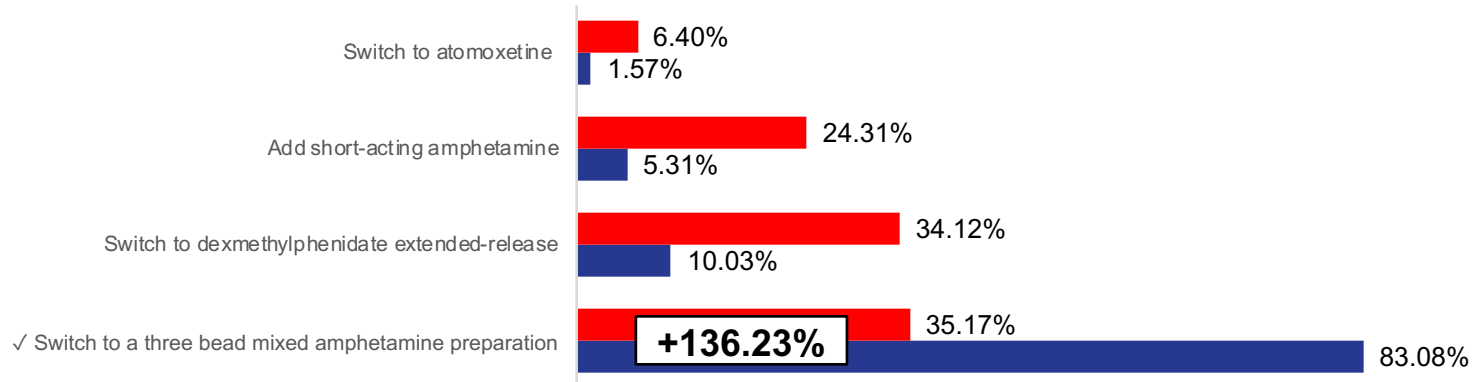
A 54-year-old woman presents complaining of distractibility and feeling “overwhelmed” at work. She notes that her 15-year-old son was diagnosed with ADHD a few years ago. On questioning, she reveals symptoms of anxiety and depression. She has no other medical history. Screening with a validated tool supports a diagnosis of ADHD. What might be appropriate at this time?

N = 1,094 – 1,257



A 41-year-old man who was diagnosed with ADHD 6 months ago presents for a checkup. He reports improved symptoms of distractibility and forgetfulness since starting treatment with mixed amphetamine extended-release (2 beads). However, he notes persistent trouble focusing at work in the afternoons. What might be most appropriate at this time?

N = 1,234 – 1,336

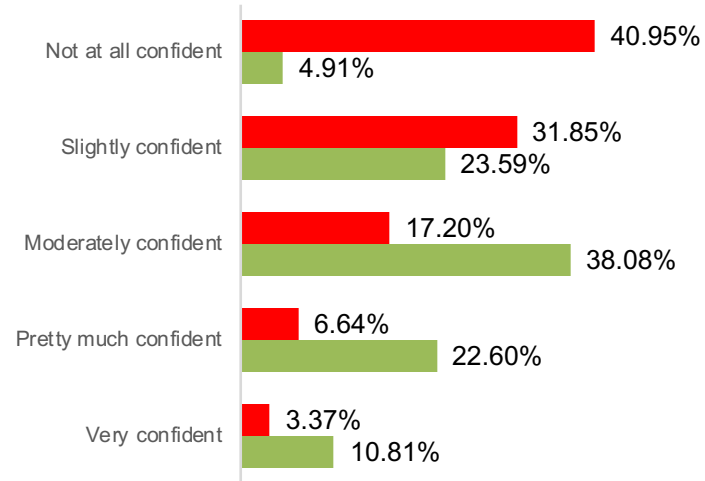


Confidence and Practice Strategy Items

Pre-Test
PCA

How confident are you in your ability to select appropriate pharmacotherapy for adult patients who have ADHD?

N = 814 – 1,099



How often do you use a validated screening tool in patients you suspect might have ADHD?

N = 814 – 1,149

