

New Agents, New Options, and Expanded Potential In Lipid Management: Integrating The Data Into Practice



Outcomes Report

October 16th, 2017



Emerging Challenges in Primary Care

Update 2017

Location	Attendees
Miami (4/29)	190
Baltimore (5/6)	186
St. Louis (5/13)	114
Birmingham (5/20)	150
Birmingham Simulcast (5/20)	222
Atlanta (6/3)	240
Raleigh (6/10)	130
Raleigh Simulcast (6/10)	322
Cleveland (6/17)	66
Tampa (267)	267
Anaheim (8/12)	175
Anaheim Simulcast (8/12)	155
San Francisco (8/19)	84
Troy (8/26)	307
Troy Simulcast (8/26)	244
Total	2852

91% of Attendees are Engaged in Direct Patient Care



2,852
Total Attendees



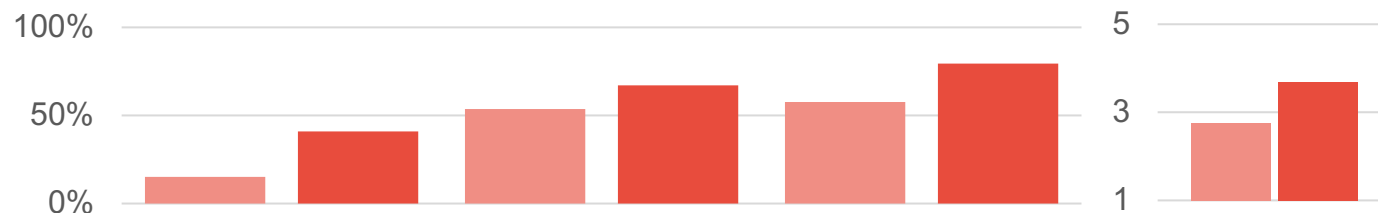
11 Cities



1,909
On Site



943
Remote Simulcast



Outcome Indicator (N = 1294)	Knowledge	Competence	RealIndex	Confidence (1-5)
Pre-Test	15%	53.8%	57.7%	2.76
Post-Test	41%	67.21%	79.53%	3.68
% Change (Significance)	173.33 (p<.05)	24.93 (p<.05)	37.83 (p<.05)	33.33 (p<.05)

Statistically significant gains were measured across the curriculum from Pre-Test (and baseline) to Post-Test (and final) in all learning domains across the intervention.



Emerging Challenges in Primary Care

Update 2017

Data Interpretation

- ◆ Learners understand current guidelines for the use of non-statin therapy, and which ones are effective
- ◆ Participants are significantly more aware of the role of anti-PCSK9 monoclonal antibody therapy and the evidence supporting primary and secondary prevention of cardiovascular disease
- ◆ Significantly increased awareness of 2017 Quality measures for statin therapy
- ◆ 38% improvement in managing hypercholesterolemia in patients with ASCVD
- ◆ 33% improvement in confidence treating hypercholesterolemia in patients who are not achieving optimal goals or are refractory to statin therapy
- ◆ Both Live meeting and Simulcast cohorts increased their Pre-Test scores and performed similarly by Post-Test on all domains, indicating that there is no significant difference between the two types of educations' styles.

#	Learning Objective (N = 1670)	Pre-Test (SD)	Post-Test (SD)	% Change	P Value
1	Employ evidence based treatment strategies for primary and secondary prevention of cardiovascular disease in high-risk patient populations	48.97% (28.06)	58.57% (28.96)	19.60*	<.0001
2	Discuss ACC recommendations on the role of non-statin therapies in the management of atherosclerotic cardiovascular disease	51.89% (26.09)	68.07% (23.41)	31.18*	< .0001
3	Explain the role of anti-PCSK9 monoclonal antibody therapy in LDL-C reduction to achieve cardiovascular risk reduction	51.81% (30.32)	74.16% (28.43)	43.14*	< .0001
4	List 2017 Quality Measures for the use of statin therapy for the prevention and treatment of cardiovascular disease	34.14% (53.06)	52.96% (50.63)	55.13*	< .0001



Emerging Challenges in Primary Care

Update 2017

Learners (N = 1,977) were asked to approximate the number of patients that they personally see in their practice with CHF on a weekly basis potential to impact the care

**2,135 – 32,949 patients
on a weekly basis**

The findings reveal that this education has the potential to impact
1,581,552
patients on an annual basis

Implications for Future Education

- ◆ Persistent gaps remained at the conclusion of the education. Specifically:
 - ◆ This population was challenged on Knowledge and Competence domains.
 - ◆ Item-level analyses revealed that learners were specifically challenged in the areas concerning CMS Quality Measure for cholesterol management and management of patients with muscle pain on statin therapy.
 - ◆ When assessed on ASCVD risk influences, medications related to cardiovascular outcomes, and statin intolerance, learners demonstrated an ongoing need for education.



Overview



Curriculum Overview

- ◆ Non-Accredited Pre-symposia Self Assessment Activity, Launch Date: March 15, 2017 End Date: August 26, 2017
 - ❖ Results were utilized by faculty to emphasize education in areas that address local practice gaps and barriers.
- ◆ Accredited Live Regional Symposia, Launch Date: April 29, 2017 through August 26, 2017
 - ❖ The live symposia was held in 11 cities.
- ◆ Non-Accredited “Clinical Highlights” - The program content was reinforced to participants with a document containing key teaching points from the program and is distributed 1 week after each meeting.
- ◆ Enduring Symposium Webcast, Launch Date: August 25, 2017 End Date: August 24, 2018
 - ❖ http://naceonline.com/CME-Courses/course_info.php?course_id=901

Faculty

Jan Basile, MD

Professor of Medicine
Seinsheimer Cardiovascular Health Program
Division of General Internal Medicine
Medical University of South Carolina
Ralph H. Johnson VA Medical Center
Charleston, SC

Mahfouz El Shahawy, MD, MS, FACP

Clinical Professor of Medicine
Universities of Florida and South Florida
Medical Director
Cardiovascular Health Assessment Center
President, Cardiovascular Center of Sarasota
Sarasota, FL

Keith C. Ferdinand, MD, FACC, FAHA, FNLA, FASH

Professor of Medicine
Tulane University School of Medicine
Tulane Heart and Vascular Institute
New Orleans, LA

Barbara Hutchinson, MD, PhD, FACC

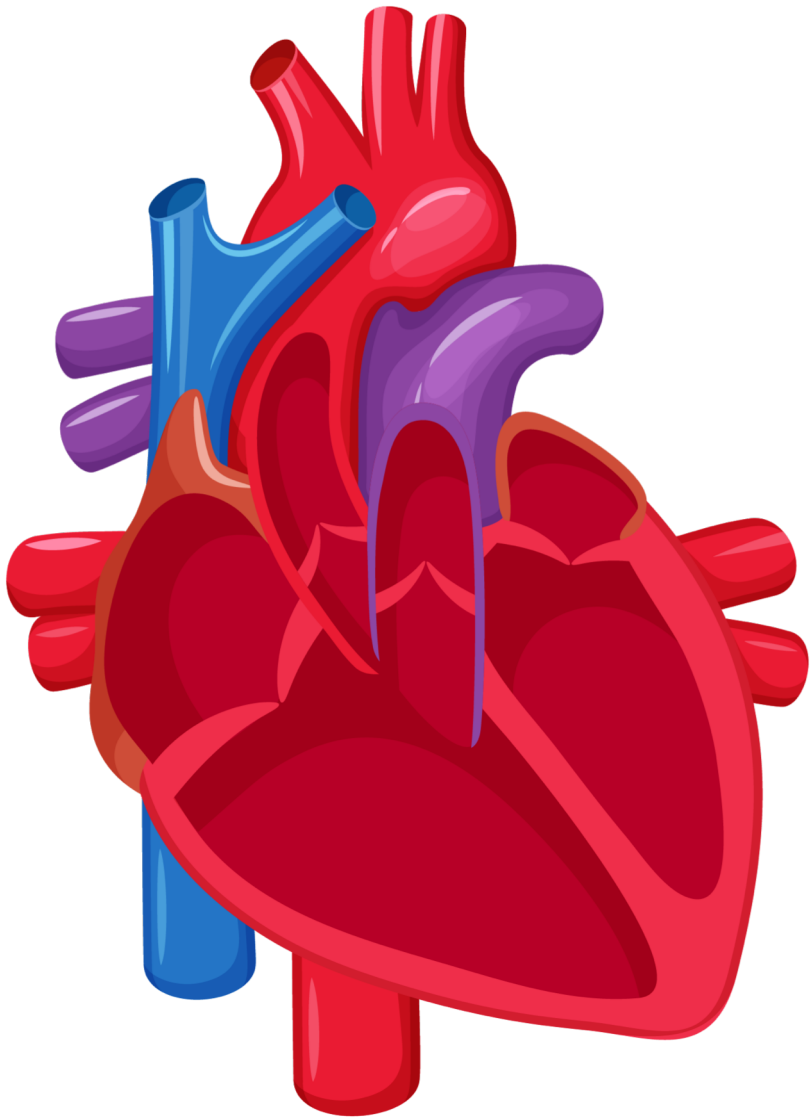
President, Association of Black Cardiologists
President, Chesapeake Cardiac Care
Annapolis, MD

Peter P. Toth, MD, PhD, FCCP, FAHA, FESC, FACC

Director of Preventative Cardiology
CGH Medical Center
Sterling, IL
Professor of Clinical Family and Community Medicine
University of Illinois College of Medicine
Peoria, IL

Karol E. Watson, MD, PhD

Professor of Medicine/Cardiology
Co-director, UCLA Program in Preventive Cardiology
Director, UCLA Barbra Streisand Women's Heart Health Program
Los Angeles, CA



LEARNING OBJECTIVES:

- 1 Employ evidence based treatment strategies for primary and secondary prevention of cardiovascular disease in high-risk patient populations
- 2 Discuss ACC recommendations on the role of non-statin therapies in the management of atherosclerotic cardiovascular disease
- 3 Explain the role of anti-PCSK9 monoclonal antibody therapy in LDL-C reduction to achieve cardiovascular risk reduction
- 4 List 2017 Quality Measures for the use of statin therapy for the prevention and treatment of cardiovascular disease

Outcomes Assessment Methodology

Activity Protocol

Data collection:

- Paired Pre- and Post-Test questions
- Demographic questions
- Learner Challenge questions

Employs **Knowledge, Competence, and Confidence**, question types

Appropriate statistics applied to assess change across learning domains

Curriculum Outcomes Protocol

Assess Moore's Levels 1–5

Learning objective analysis

Multi-dimensional **repeated-measure** (Level 5):

- Prior to activity/after completion of each activity
- Post-curriculum assessment survey



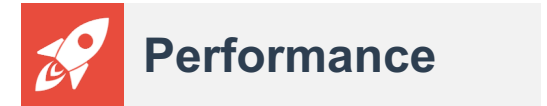
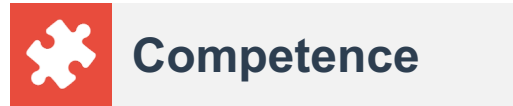
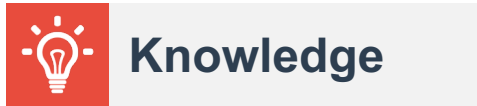
Emerging Challenges in Primary Care

Update 2017 Conference Schedule

Location	Attendees	Starts	Content Completion
Miami (4/29)	190	165	135 82%
Baltimore (5/6)	186	155	138 89%
St. Louis (5/13)	114	103	96 93%
Birmingham (5/20)	150	139	129 93%
Birmingham Simulcast (5/20)	222	136	103 76%
Atlanta (6/3)	240	213	177 83%
Raleigh (6/10)	130	116	106 91%
Raleigh Simulcast (6/10)	322	110	71 65%
Cleveland (6/17)	66	60	56 93%
Tampa (6/24)	267	226	216 96%
Anaheim (8/12)	175	117	95 81%
Anaheim Simulcast (8/12)	155	64	52 81%
San Francisco (8/19)	84	72	67 93%
Troy (8/26)	307	193	159 82%
Troy Simulcast (8/26)	244	153	87 57%
Total	2852	2022	1687 83%



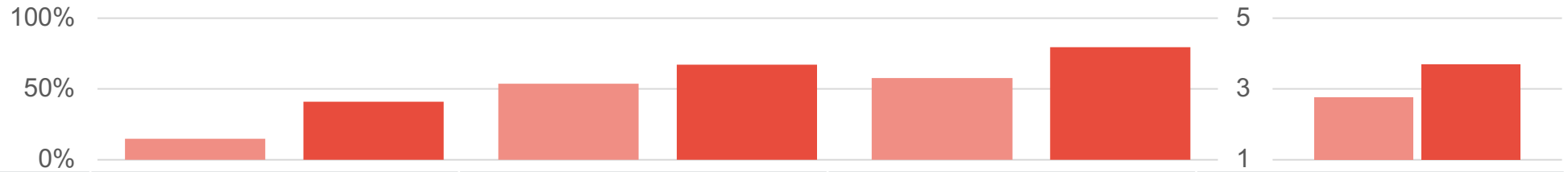
Executive Summary Moore's Levels 1-5



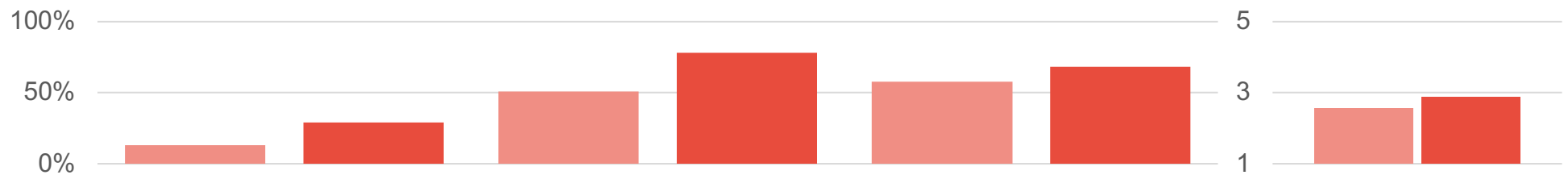
Level 2 (Satisfaction): Participants' comments and self-reports reflect a high level of satisfaction with the curriculum and indicate that the content was relevant to their practice.

Levels 3-5 (Knowledge, Competence, Confidence, and Performance): Statistically significant and substantial gains were measured from Pre-Test across the program in all learning domains.

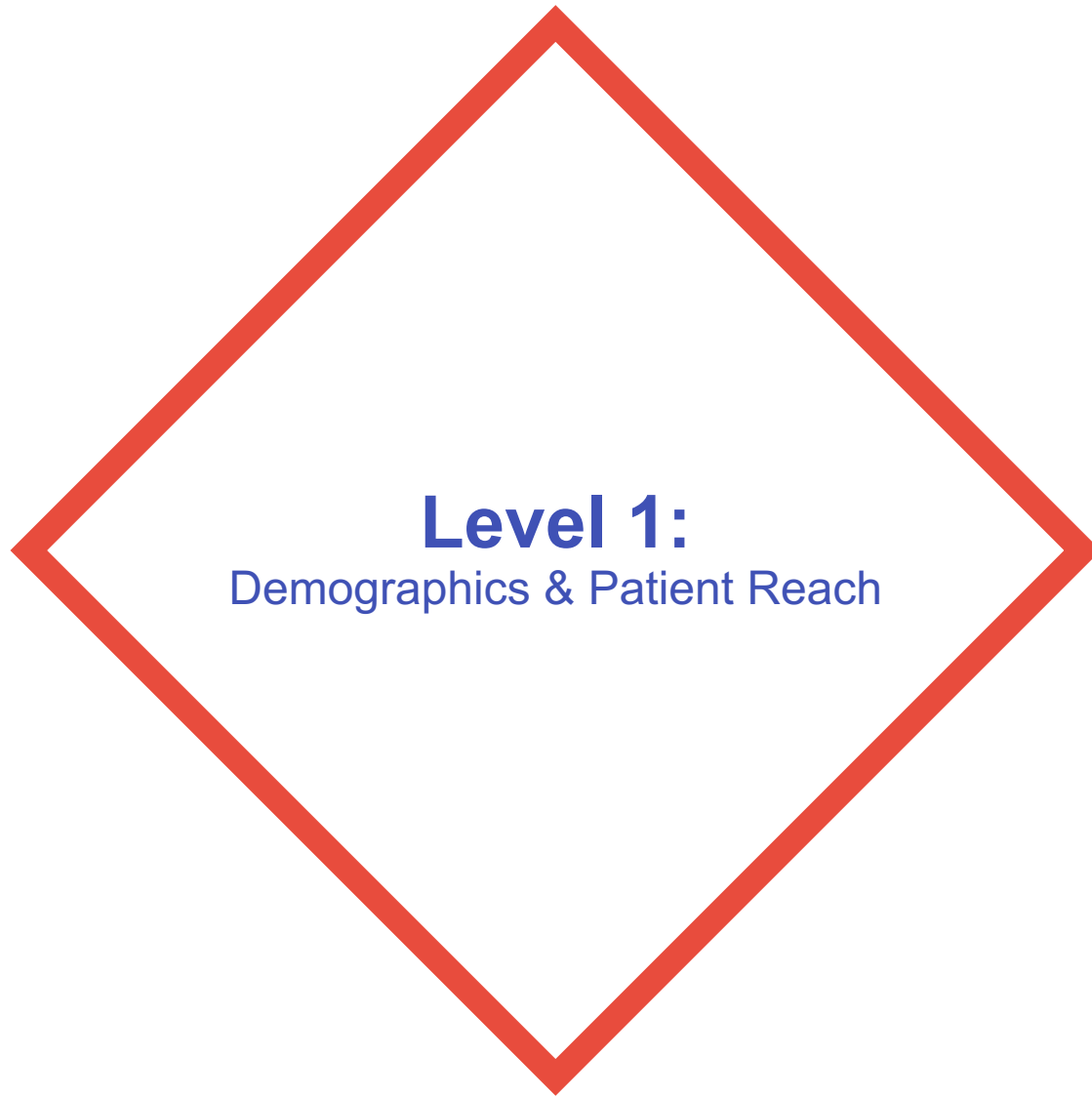
Executive Summary Moore's Levels 1-5



Outcome Indicator (N = 1294)	Knowledge	Competence	RealIndex	Confidence (1-5)
Pre-Test	15%	53.8%	57.7%	2.76
Post-Test	41%	67.21%	79.53%	3.68
% Change (Significance)	173.33 (p<.05)	24.93 (p<.05)	37.83 (p<.05)	33.33 (p<.05)



Outcome Indicator (N = 73)	Knowledge	Competence	RealIndex	Confidence (1-5)
Pre-Test	13%	50.85%	57.58%	2.55
PCA – 4 week f/u	29%	77.97%	68.44%	2.88
% Change (Significance)	123.08 (p<.05)	53.33 (p<.05)	18.86 (p<.05)	12.94 (p<.05)



Level 1 (Participation)



2,852

Total Attendees



11 Cities



1,909

On Site



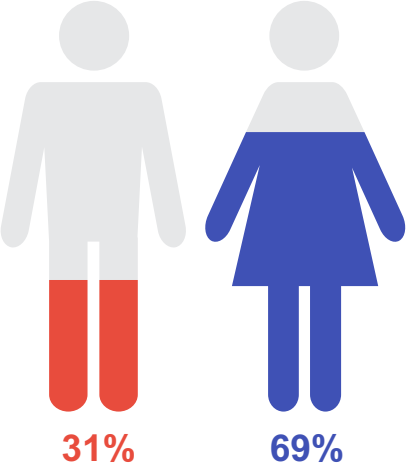
943

Remote Simulcast

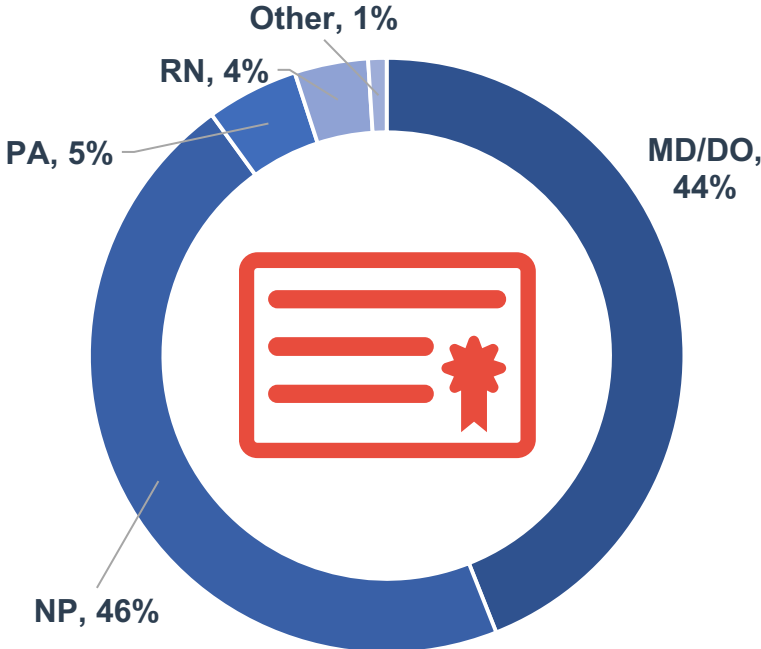
Level 1: Participation

DEMOGRAPHICS

Gender



Profession

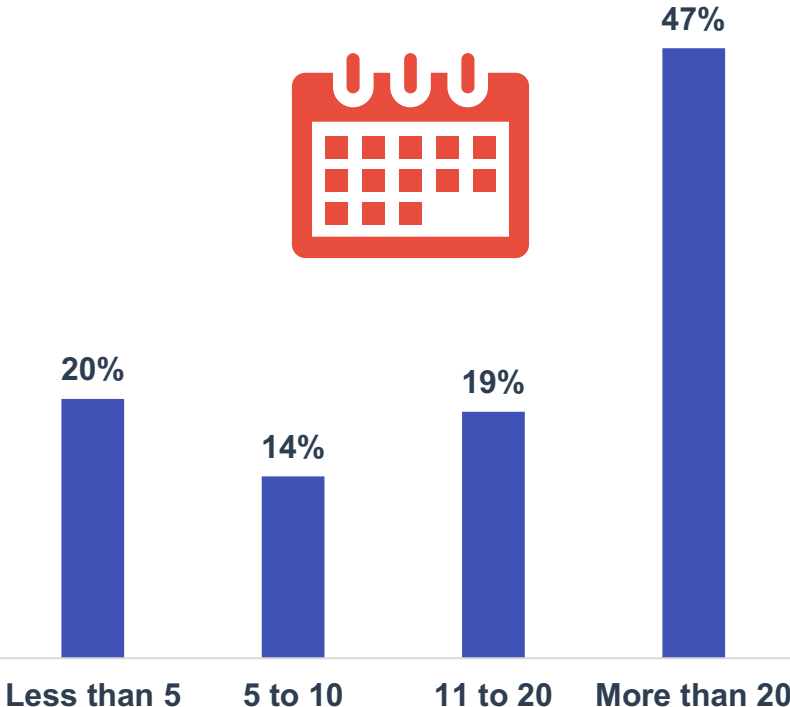


Patient Care Focus

91%: Yes

9%: No

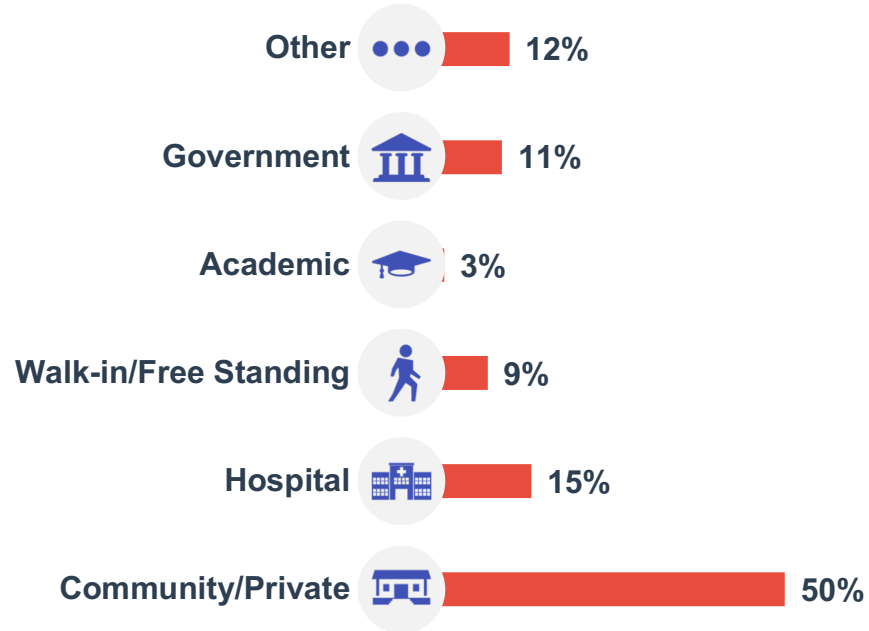
Years in Practice



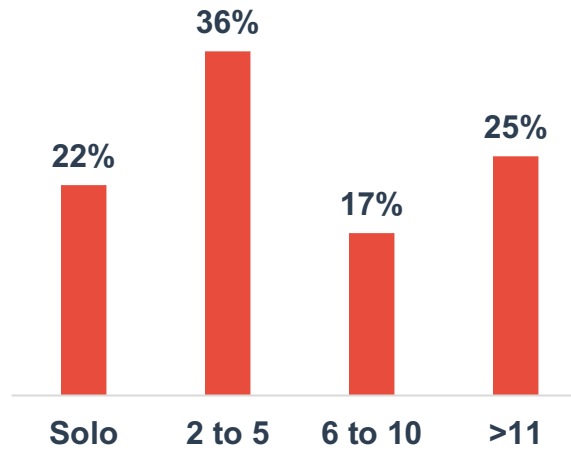
Level 1: Participation

DEMOGRAPHICS

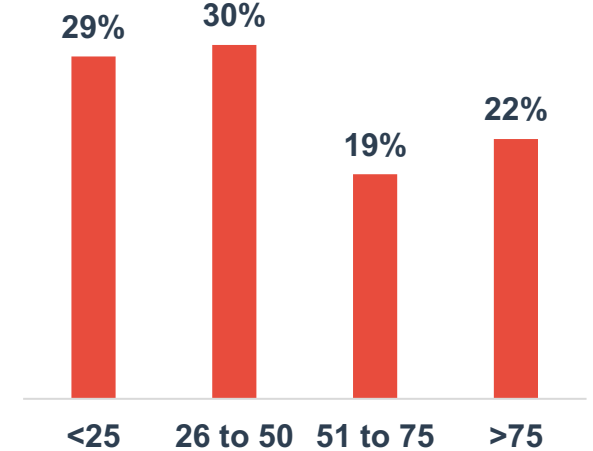
Type of Practice



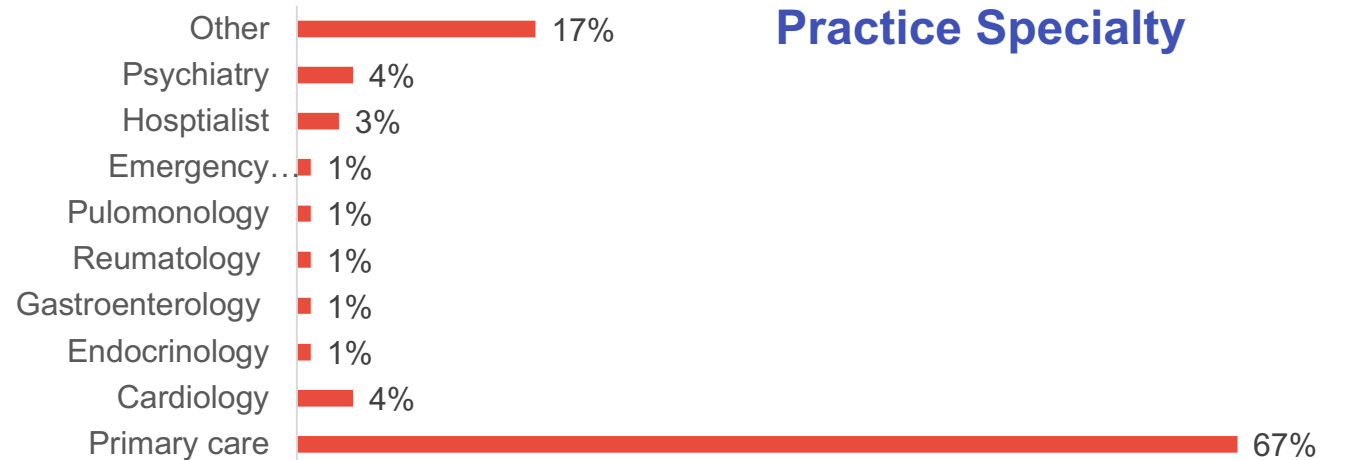
Number of Providers in Your Practice



Number of Patients Seen Each Week



Practice Specialty



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



90% said they would implement new strategies that they learned



99% said the program was fair-balanced and unbiased

Curriculum Patient Impact

In the evaluation, learners (N = 1,977) were asked to report how many patients with hyperlipidemia they see in any clinical setting per week by selecting a range. The resulting distribution of learner responses was then extrapolated to reflect the number of learners who have completed the content of the meetings.

The findings reveal that this education has the potential to impact

1,581,552
patients on an annual basis.

**2,135 – 32,949 patients
on a weekly basis**

2,135 –
32,949



Level 3-5:
Outcomes Metrics

Level 3 - Learning Objectives

#	Learning Objective (N = 1670)	Pre-Test (SD)	Post-Test (SD)	% Change	P Value
1	Employ evidence based treatment strategies for primary and secondary prevention of cardiovascular disease in high-risk patient populations	48.97% (28.06)	58.57% (28.96)	19.60*	<.0001
2	Discuss ACC recommendations on the role of non-statin therapies in the management of atherosclerotic cardiovascular disease	51.89% (26.09)	68.07% (23.41)	31.18*	<.0001
3	Explain the role of anti-PCSK9 monoclonal antibody therapy in LDL-C reduction to achieve cardiovascular risk reduction	51.81% (30.32)	74.16% (28.43)	43.14*	<.0001
4	List 2017 Quality Measures for the use of statin therapy for the prevention and treatment of cardiovascular disease	34.14% (53.06)	52.96% (50.63)	55.13*	<.0001

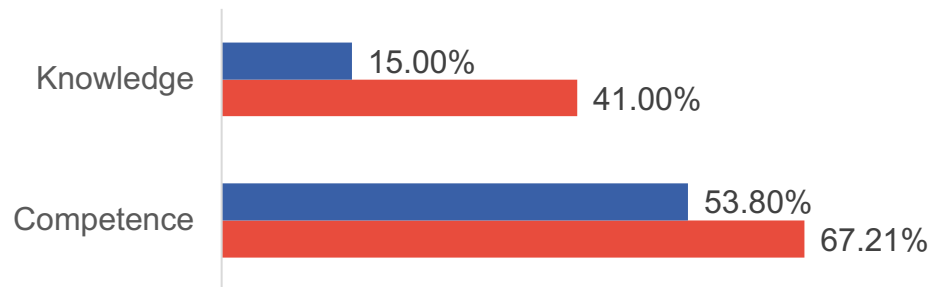
Significant (all $ps < .0001$) and substantial gains, ranging from 20% to 55%, were measured for all items mapped to curriculum Learning Objectives (LOs).

The greatest gain was observed in LO 4, which mapped onto items addressing 2017 Quality Measures for the use of statin therapy for the prevention and treatment of cardiovascular disease (55% change from Pre to Post test). However, learner's averages on these items remained the lowest measured across the curriculum, compared to learner's scores on items mapped to the other learning objectives. This finding indicates that while learner's proficiency improved, persistent gaps in this clinical area remain.

Standard deviations (SDs) remained relatively consistent from Pre-Test to Post- Test in all LOs, indicating that the variability within the learner population was consistent.

Levels 3 - 4 - Learning Domain Summary

Domain (N = 1294)	Pre-Test	Post-Test	% Change	P Value
Knowledge	15.00%	41.00%	173.33*	< .0001
Competence	53.80%	67.21%	24.93*	< .0001
Confidence	2.76	3.68	33.33*	< .0001
RealIndex	57.70%	79.53%	37.83*	< .0001



Statistically significant and substantial improvements were measured on all domains (ps < .0001).

Increases in learners' self reported Confidence ratings reflect the efficacy of this education, and the relatively moderate Post-Test Confidence averages demonstrate that this population's perceived and demonstrated proficiency are aligned.

The spread of learner scores, as represented by standard deviations (SDs), decreased modestly by Post-Test on the Competence and Confidence domains. This finding suggests that proficiency was more uniform by the conclusion of the curriculum on these domains.

Level 5 : The RealIndex

In order to help us assess your baseline knowledge of select topics that will be covered in this activity, please review the brief patient scenario and rate each of the statements as consistent with or inconsistent with your clinical approach.

A 65-year-old African American man with a history of dyslipidemia, hypertension, and obesity presents 2 years post NSTEMI. He reports no symptoms or side effects of medical therapy. BP 132/76 mmHg, eGFR 54 mL/min/1.73m², LDL-C 78 mg/dL, HDL-C 40 mg/dL, Triglycerides 152 mg/dL, and Total-C 148 mg/dL. Current medications include valsartan/hydrochlorothiazide 320/25 mg qd, atorvastatin 80 mg qd, metoprolol XL 50 mg qd, and aspirin 81 mg qd. After reviewing the brief scenario above, please rate each of the statements as consistent with or not consistent with best clinical practice for ASCVD risk management:

Consistent

Consider adding ezetimibe 10 mg qd.
If ezetimibe 10 mg qd is started and LDL-C remains >70 mg/dL at follow up, consider PCSK-9 inhibitor.

Not Consistent

Consider adding niacin.
Consider adding fibrate.
Consider adding PCSK-9 inhibitor.

Level 5 - Performance Change: RealIndex

N	Curriculum Intervention			P - Value	Intervention Effect		
	Baseline (SD)	Final (SD)	% Change		Average Effect Size	% Non-Overlap Baseline - Final	Power
1,569	57.70% (25.75)	79.53% (22.93)	37.83*	< .0001	.8924	51.09	1.000



Participants' average Performance score, based on the RealIndex, improved by 38% from baseline (58%) to final intervention (80%). This substantial improvement in learners' applied clinical proficiency met statistical significance ($p < .0001$) and exceeded the historical RealCME benchmark (5%).

This curriculum had a large effect ($d = .8924$) and achieved a high degree of power (1.000), reflected in the magnitude of impact on this population of learners: the 51% non-overlap between the RealIndex distributions measured at baseline and in learners final intervention.

Standard deviations remained relatively stable from baseline indicating a consistent amount of score scatter affecting learners' final RealIndex average.

Retention – 4 Week Follow up

Domain (N = 73)	PCA Average			Slippage		Net Change	
	Pre-Test (SD)	Post-Test (SD)	(SD)	Post-Test - PCA	P Value	Pre-Test - PCA	P Value
Knowledge	13% (33.4)	50% (50.00)	29% (45.9)	-42.00%*	<.001	123.08%*	.019
Competence	50.85% (31.62)	78.89% (24.90)	77.97% (25.22)	-1.17%	.825	53.33%*	<.001
Confidence	2.55 (1.0)	3.57 (.85)	2.88 (1.0)	-19.32%*	<.001	12.94%*	.014
RealIndex	57.58% (23.53)	82.32% 17.04	68.44 (20.41)	-16.86%*	<.001	18.86%*	.003

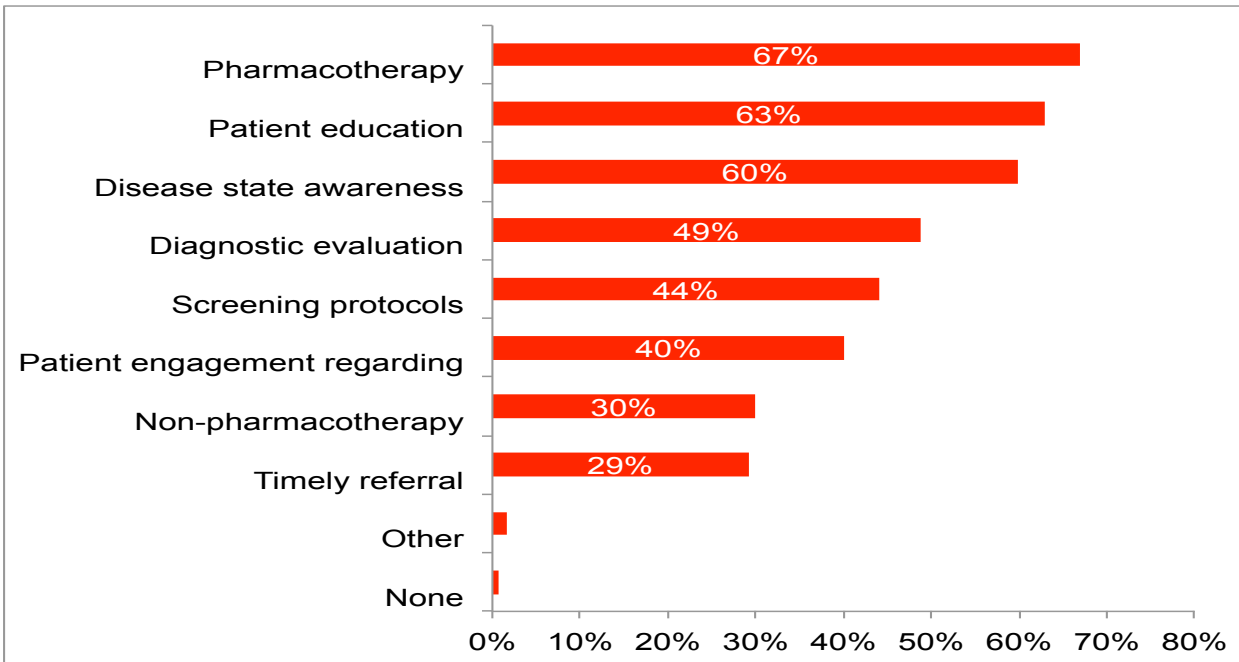
Although there was slippage in all learning domains (Post-test to PCA), there were net gains (Pre-test to PCA) in all learning domains:

- Statistically significant net gains ($p \leq .02$) were measured at follow-up (the PCA) in all domains, with substantial net change observed in Knowledge and Competence (53% to 123%).
- These findings suggest that the learning gains made across the curriculum were retained.
- Knowledge remained particularly low throughout the curriculum, however, suggesting that learners may have struggled with the fact based information.

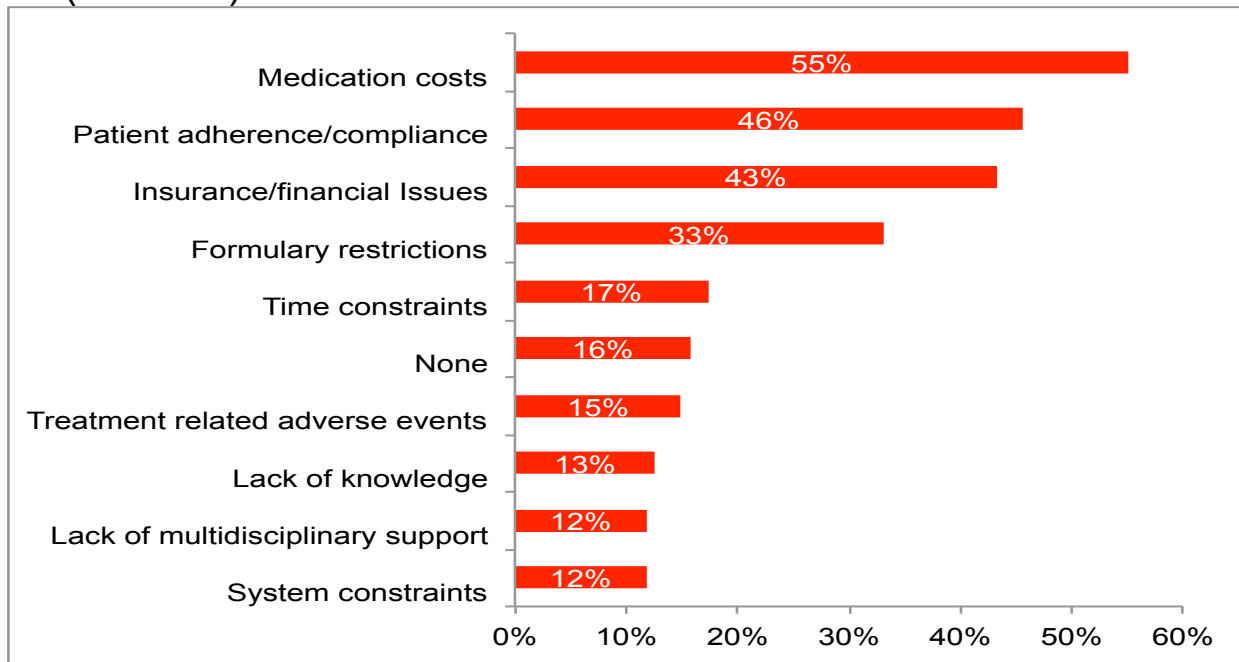
4 Week Follow Up

Self Reported Behavioral Changes and Barriers to Care

Please select the specific areas of skills, or practice behaviors, you have improved regarding the treatment of patients with hypercholesterolemia since this CME activity? (N = 127)



What specific barriers have you encountered that may have prevented you from successfully implementing strategies for patients with hypercholesterolemia since this CME activity? (N = 127)



Over 60% of respondents report improved comfort with pharmacotherapy, patient education and disease state awareness in the management of patients with hypercholesterolemia, 4 weeks after the activity, but note medication cost and patient compliance as the biggest barriers to care.

Cohort Comparison Analysis: Profession

Domain	Physicians (MD/DO)				Nurse Practitioner (NP)			
	N	Pre-Test	Post-Test	% Change	N	Pre-Test	Post-Test	% Change
Knowledge	304	14.00%	42.00%	200.00%*	351	13.00%	42.00%	223.00%
Competence	420	56.98%	71.15%	24.87*	459	51.67%	67.43%	30.50*
Confidence	357	2.94	3.79	28.91*	395	2.66	3.63	36.47*
RealIndex	420	56.98	71.15%	24.87*	494	56.81%	81.09%	42.74*

To identify differences based on professional proficiency, an analysis of learner performance by cohort was performed. The two largest professional groups, physicians and nurse practitioners (who comprised 90% of the population), were evaluated across curriculum domains.

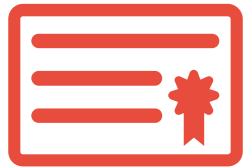
With similar averages at Pre-Test both professional groups improved by Post-Test to demonstrate proficiency on items.

When learners were asked to rate their degree of Confidence regarding lipid management, both cohorts' ratings improved substantially (on an ascending scale of 1 to 5) from low Confidence levels at Pre-Test to comparably high levels by the conclusion of the curriculum.



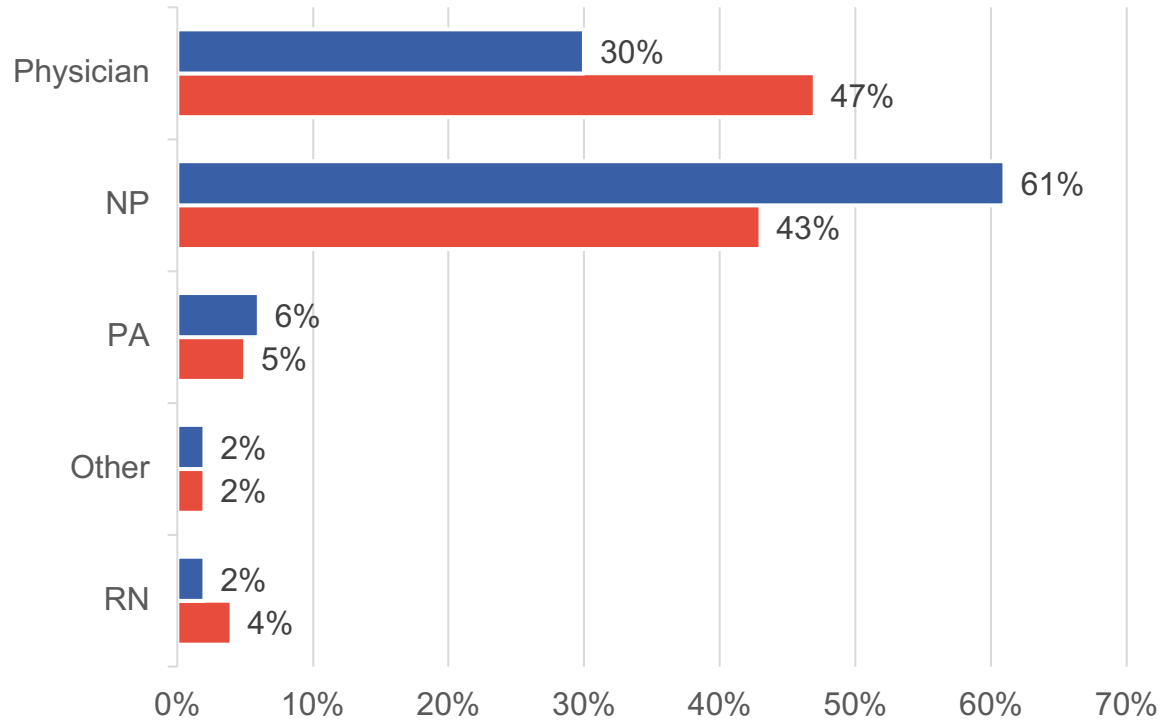
Level 1,3,4,5:
Cohort Comparison Analyses
(Live Meeting & Simulcast)

Cohort Comparison Analysis - Live Meeting vs. Simulcast



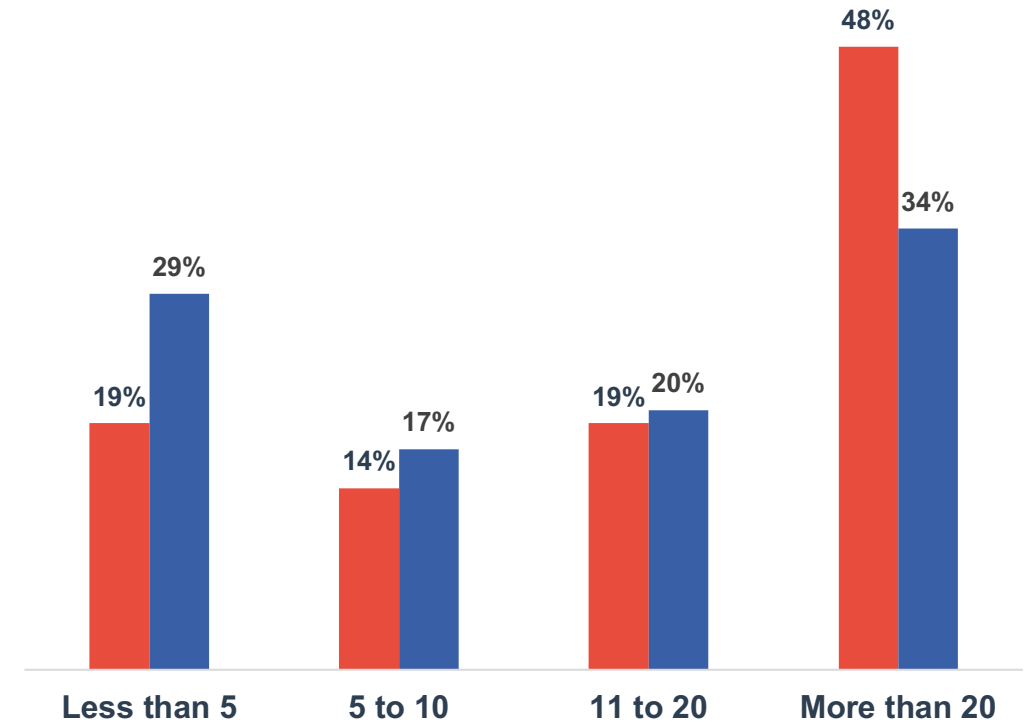
Profession

Onsite Simulcast



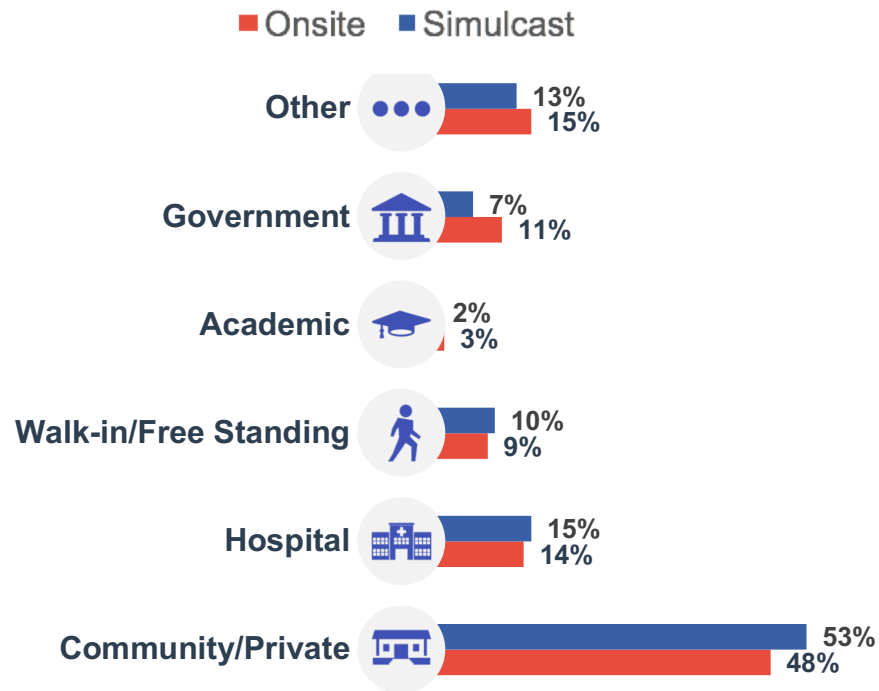
Years in Practice

Onsite Simulcast

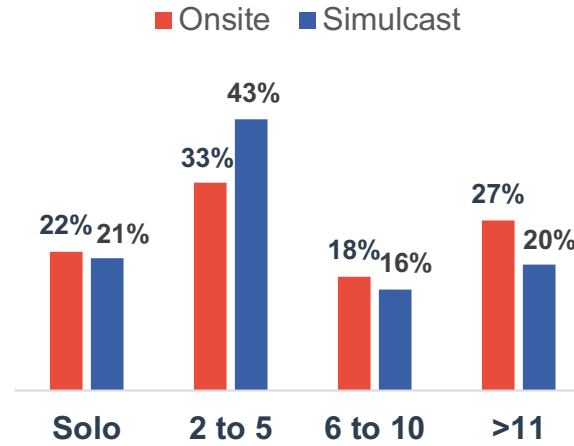


Cohort Comparison Analysis: Live Meeting (Demographics)

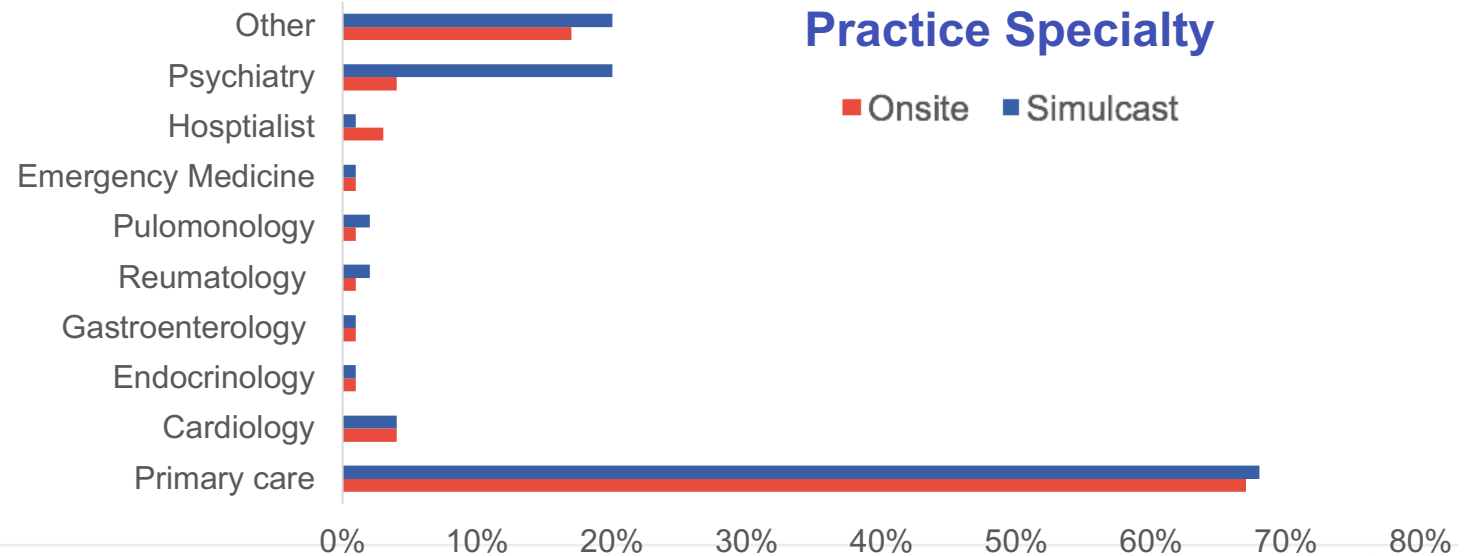
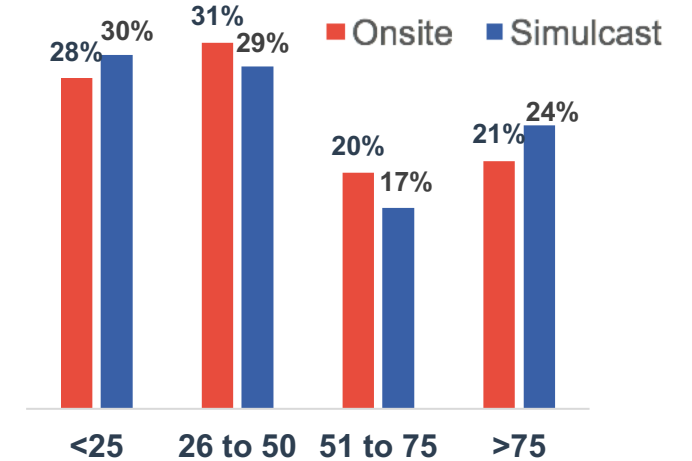
Type of Practice



Number of Providers in Your Practice



Number of Patients Seen Each Week



Practice Specialty

■ Onsite ■ Simulcast

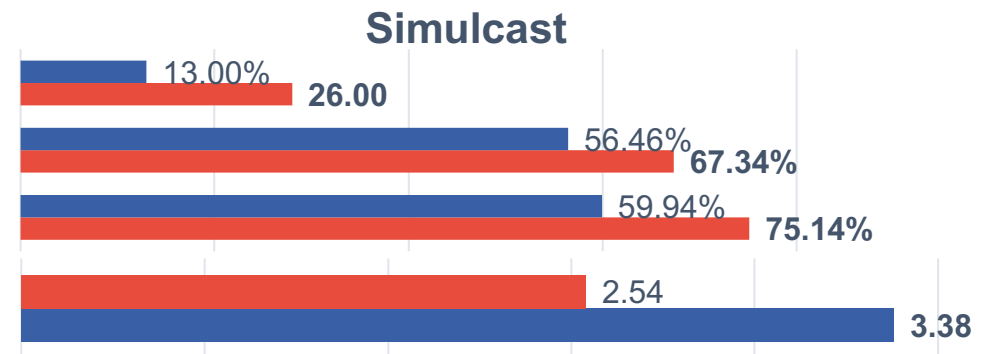
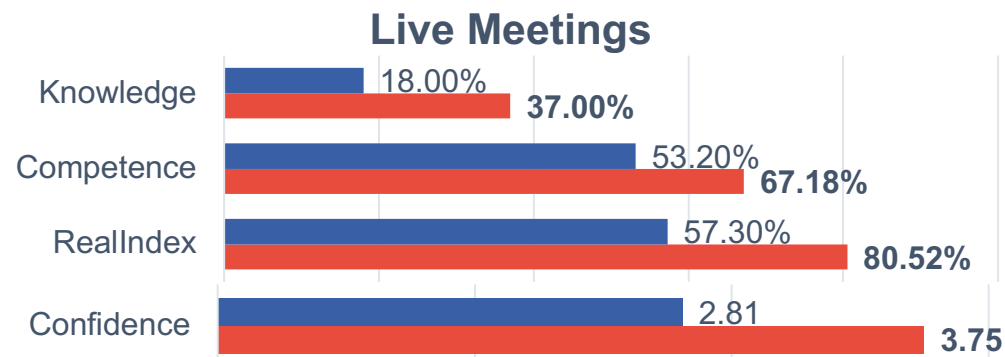
Cohort Comparison Analysis:

Meeting Type (Learning Objectives)

LO	Live Meeting (N = 1360)				Simulcast (N = 310)			
	Pre-Test (SD)	Post-Test (SD)	% Change	P Value	Pre-Test (SD)	Post-Test (SD)	% Change	P Value
Employ evidence based treatment strategies for primary and secondary prevention of cardiovascular disease in high-risk patient populations	45.71% (21.52)	56.35% (21.25)	23.28*	<.0001	48.19% (23.69)	54.26% (23.80)	12.60*	<.0001
Discuss ACC recommendations on the role of non-statin therapies in the management of atherosclerotic cardiovascular disease	51.04% (25.92)	68.50% (23.16)	33.27*	<.0001	55.51% (26.55)	66.22% (24.37)	19.29*	<.0001
Explain the role of anti-PCSK9 monoclonal antibody therapy in LDL-C reduction to achieve cardiovascular risk reduction	51.46% (30.61)	75.42% (28.53)	46.56*	<.0001	53.32% (29.05)	68.76% (27.39)	28.96*	<.0001
List 2017 Quality Measures for the use of statin therapy for the prevention and treatment of cardiovascular disease	26.81% (31.56)	47.25% (35.71)	76.24*	<.0001	28.48% (29.45)	44.24% (27.94)	55.38*	<.0001

Cohort Comparison Analysis: Meeting Type (Domain Level)

Domain	Live Meeting (N = 1,034)				Simulcast (N = 260)			
	Pre-Test (SD)	Post-Test (SD)	% Change	P Value	Pre-Test (SD)	Post-Test (SD)	% Change	P Value
Knowledge (0% – 100%)	18.00% (49.80)	37.00% (57.90)	105.60*	< .0001	13.00% (34.40)	26.00% (44.10)	115.38	< .0001
Competence (0% - 100%)	53.20% (34.05)	67.18% (30.59)	26.28*	<.0001	56.46% (31.50)	67.34% (28.74)	19.27*	<.0001
Confidence (1 – 5)	2.81 (100.90)	3.75 (88.70)	33.45*	<.0001	2.54 (92.20)	3.38 (81.20)	33.07*	<.0001
RealIndex (0% - 100%)	57.20% (24.17)	80.52% (22.73)	40.77*	<.0001	59.94% (24.17)	75.14% (23.35)	25.36*	<.0001



Both Live and Simulcast cohorts improved on all domains. Significant gains were observed for both cohorts in Knowledge, Competence, Confidence, and the RealIndex.

There was no statistical difference in learning domain gains from Pre-test to Post-test between Live & Simulcast meetings.

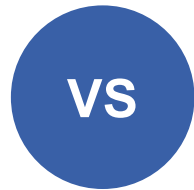
Retention: Cohort Comparison (Live & Simulcast)

Live					Slippage		Net Change	
Domain (N = 58)	Pre-Test (SD)	Post-Test (SD)	PCA Average (SD)	Post-Test - PCA	P Value	Pre-Test - PCA	P Value	
Knowledge	11.00% (31.50)	49.00% (50.6)	30.00% (46.30)	-38.78%*	.037	172.72%*	.033	
Competence	49.28% (31.02)	78.72% (24.98)	78.99% (23.68)	0.34%	.9525	60.29%*	<.001	
Confidence	2.51 (1.03)	3.59 (.79)	2.83 (1.05)	-21.17%*	<.0001	12.75%*	.046	
RealIndex	59.18% (22.27)	81.78% (16.61)	70.20% (19.20)	-14.16%*	<.001	18.62%*	.007	

Simulcast					Slippage		Net Change	
Domain (N = 15)	Pre-Test (SD)	Post-Test (SD)	PCA Average (SD)	Post-Test - PCA	P Value	Pre-Test - PCA	P Value	
Knowledge	18% (40.5)	54.00% (51.9)	27% (46.7)	-50.00%	.145	50%	.341	
Competence	56.41% (34.38)	79.49% (25.59)	74.36% (30.89)	-6.45%	.624	31.82%	.131	
Confidence	2.70 (.95)	3.50 (1.08)	3.10 (.99)	-11.00%	.299	14.81%	.104	
RealIndex	52.33% (27.44)	84.00% (18.82)	62.67% (23.75)	-25.39%	.159	19.76%	.214	

Retention:

Cohort Comparison (Live & Simulcast)



There was some slippage (from Post-test to PCA) in Knowledge, Confidence, and Performance at Live meetings and in all learning domains at Simulcast meetings.

- **Slippage was only significant for Knowledge, Confidence, and Performance at Live meetings.**

Net gains were seen across all learning domains from Pre-test to PCA for both Live and Simulcast meetings, but these gains were only significant for Live meetings.

At first blush, these findings may suggest that Live meetings result in greater retention of learning gains than Simulcast meetings. However, true retention from Simulcast meetings may be difficult to predict with such small Ns. Future analyses will compare retention at PCA between these cohorts with a larger sample.

Cohort Comparison Analysis: Meeting Location

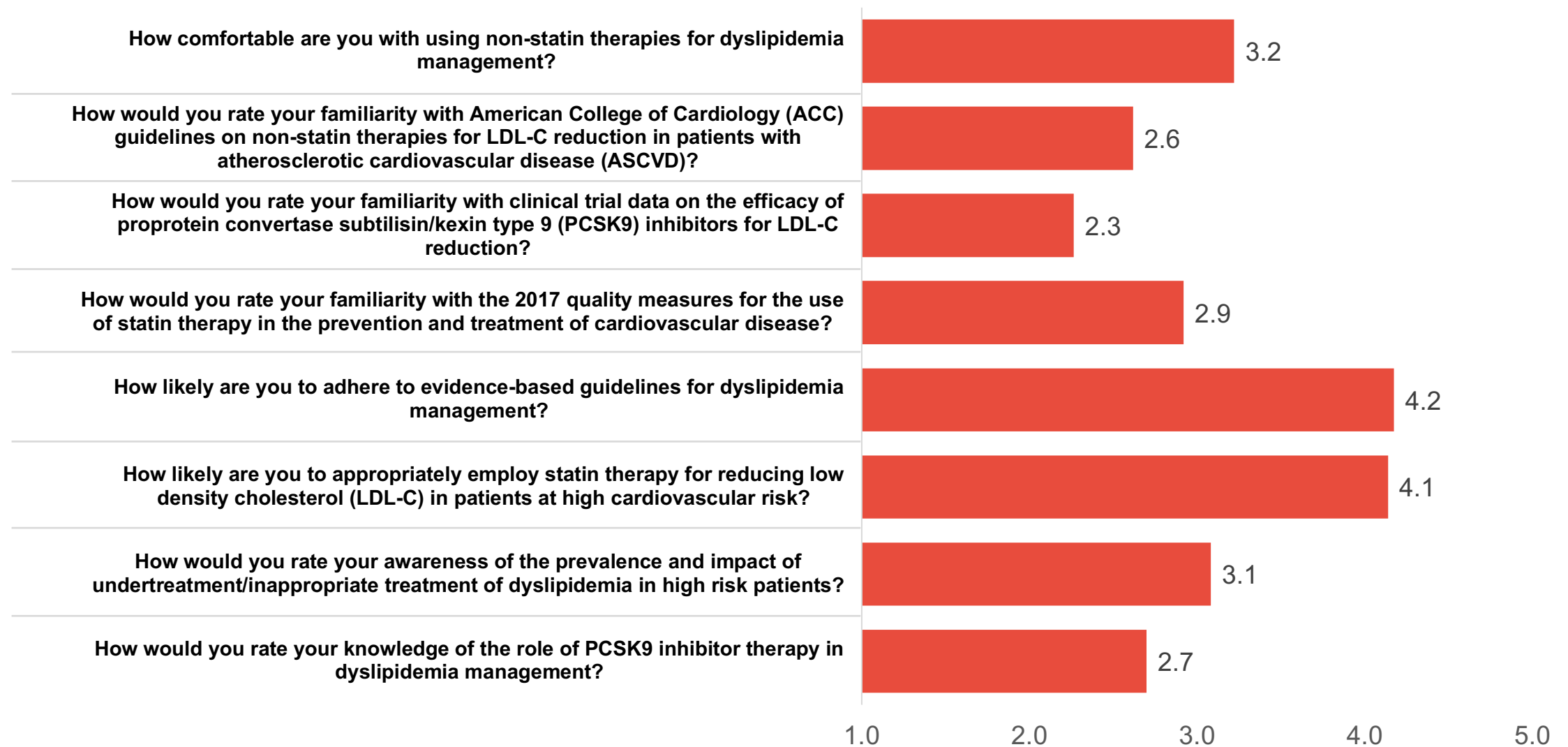
Location	Knowledge			Competence			Confidence			RealIndex		
	Pre-Test	Post-Test	% Change	Pre-Test	Post-Test	% Change	Pre-Test	Post-Test	% Change	Pre-Test	Post-Test	% Change
Miami	17.00%	50.00%	194.12*	53.54%	58.27%	8.83	2.95	3.61	22.37*	62.53%	76.76%	22.76
Baltimore	41.00%	32.00%	-21.95	57.85%	62.50%	8.04	2.55	3.55	39.22*	51.85%	75.58%	45.77*
St. Louis	8.00%	36.00%	350.00*	47.38%	65.00%	37.19*	2.79	3.85	37.99*	59.83%	79.50%	32.88*
Birmingham	18.00%	45.00%	150.00*	52.46%	60.18%	14.72	3.23	4.03	24.77*	60.65%	93.92%	54.86*
Birmingham Simulcast	10.00%	21.00%	110.00*	53.11%	58.97%	11.03	2.34	3.26	39.32*	58.51%	78.12%	33.52*
Atlanta	16.00%	34.00%	112.5*	54.14%	61.23%	13.10	3.02	4.23	40.07*	57.34%	79.08%	37.91*
Raleigh	18.00%	36.00%	100.00*	52.50%	61.00%	16.19	2.82	3.88	37.59*	55.97%	78.18%	39.68*
Raleigh Simulcast	19.00%	35.00%	84.21*	51.11%	59.72%	16.85	2.55	3.41	33.73*	63.08%	70.97%	12.51*
Cleveland	14.00%	22.00%	57.14*	46.47%	74.04%	59.33*	2.62	3.52	34.35*	57.56%	83.17%	44.49*
Tampa	13.00%	47.00%	261.54*	56.04%	76.49%	36.49*	2.84	3.80	33.80*	55.89%	84.63%	51.42*
Anaheim	13.00%	81.00%	523.08*	50.56%	79.44%	57.12*	2.78	3.70	33.09*	60.48%	82.48%	36.38*
Anaheim Simulcast	21.00%	71.00%	238.10*	59.85%	79.55%	32.92*	2.54	3.23	27.17*	59.05%	80.00%	35.48*
San Francisco	9.00%	45.00%	400.00*	55.56%	77.25%	39.04*	2.46	3.30	34.15*	54.53%	87.66%	60.76*
Troy	8.00%	30.00%	275.00*	51.38%	66.32%	29.08*	2.67	3.46	29.59*	54.11%	69.74%	28.89*
Troy Simulcast	20.00%	31.00%	55.00*	62.72%	76.32%	21.63*	2.72	3.55	30.51*	59.59%	72.22%	21.19*

* indicates that the change reached statistical significance $p \leq .05$. Blue denotes the highest average, red denotes the lowest.

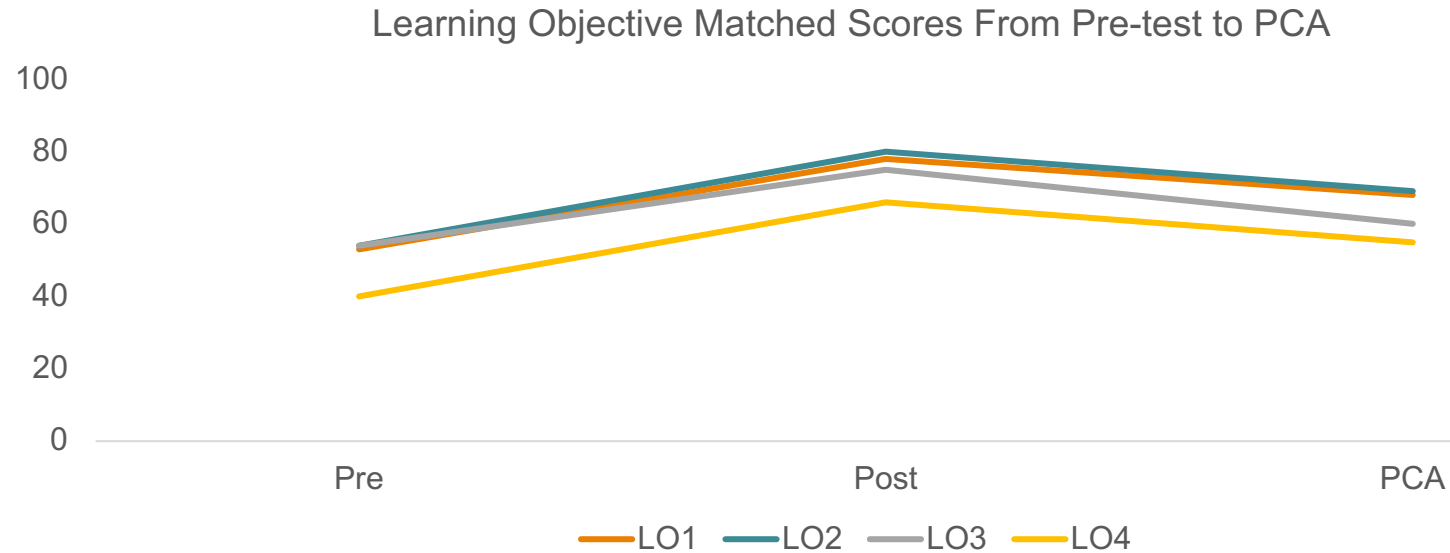


Item-Level/ Gap Analysis

Baseline Survey (rated on an ascending 5-Point Likert scale)



Learning Objectives: Score Trend through Follow-up



LO 1: Employ evidence based treatment strategies for primary and secondary prevention of cardiovascular disease

LO 2: ACC recommendations on the role of non-statin therapies

LO 3: Role of anti-PCSK9 monoclonal antibody therapy

LO 4: 2017 Quality Measures for the use of statin therapy

Learning domain scored-questions were mapped to LOs throughout the curriculum. In a series of paired t-tests, we examined the LO scores starting at Pre-test, through the PCA ($N = 65$).

- There was significant slippage from Post-test for all LOs, $p_s < .05$. However, net gains were made from Pre-test to PCA for each learning domain.
- Overall, there were substantial gains across LOs from Pre-Test to PCA (ranging from 11% to 38%). Significant gains were made for LO1 (28%), LO2 (28%), and LO4 (38%), $p_s < .05$. There was also a net gain from Pre-test for items mapped to LO3 (11%), but this gain was not significant, $p = .099$. However, given that a substantial gain was made from Pre- to Post-test (43.1%; see slide 3), with a much larger matched sample ($N = 1670$ for Pre to Post vs. $N = 65$ for Pre to PCA), it is likely that this net gain would also reach significance with a larger sample.
- For each learning domain, scores were moderate at Post-test (ranging from 66% to 80%), and were low at the PCA (ranging from 55% to 69%), suggesting there is still room for education addressing these learning objectives. In particular, the lowest final scores were seen on LO4 which addressed proficiency related to Quality Measures for the use of statin therapy, suggesting learners still struggle in this area.

Item-Level Analysis: Knowledge

LOs	Question 1	Choice	Pre-Test (N = 1,296)	Post-Test (N = 1,427)	% Change
4	All of the following patient types are included in the CMS Quality Measure for cholesterol management, EXCEPT:	Adults with ASCVD	9.70%	10.20%	5.15
		Adults with LDL-C \geq 190 mg/dL	11.00%	6.40%	-41.82
		<u>Adults age 40-75 years with diabetes, any LDL-C</u>	<u>14.70%</u>	<u>37.80%</u>	<u>157.14</u>
		Aged \geq 21 years with familial hypercholesterolemia	64.2%	45.10%	-29.75

Curriculum Knowledge questions evaluate learners' factual proficiency. When assessed about patient types included in the CMS Quality Measure for cholesterol management, learners had a significant improvement from Pre-Test to Post-Test. However, this population of learners would benefit from additional education as indicated by the low scores at Post-Test.

Item-Level Analysis: Competence

LOs	Question 1	Choice	Pre-Test (N = 1,285)	Post-Test (N = 1,479)
1	A patient with no history of cardiovascular disease and an atherosclerotic cardiovascular disease (ASCVD) risk of 9.1%, starts atorvastatin 10 mg daily. On follow up, LDL-C is 40 mg/dL. She is tolerating therapy well. What is the most appropriate next step?	Switch to ezetimibe	4.0%	6.80%
		Decrease the statin dose	14.70%	4.70%
		<u>Continue current statin dose</u>	64.30%	81.40%
		Switch to a less potent statin	7.50%	3.60%
		Hold statin until LDL-C rises above 50 mg/dL	9.40%	3.40%
LOs	Question 2	Choice	Pre-Test (N = 1,398)	Post-Test (N = 1,329)
1,2	A patient with recent NSTEMI starts rosuvastatin 20 mg daily. On follow up he complains of disabling muscle pain. What is the most appropriate next step?	Switch to ezetimibe	7.5%	9.18%
		Cut statin dose in half	16.10%	32.10%
		Continue statin and add Coenzyme Q-10	7.90%	4.10%
		Continue statin while you check CPK level	16.50%	19.80%
		<u>Hold the statin while you evaluate the muscular complaints</u>	51.90%	34.90%
LOs	Question 3	Choice	Pre-Test (N = 1,391)	Post-Test (N = 1,394)
1,2,3	A patient with hypercholesterolemia is taking atorvastatin 80 mg and ezetimibe 10 mg daily. Lipid profile at follow up shows: LDL-C 185 mg/dL HDL-C 45 mg/dL Triglycerides 330 mg/dL She is tolerating therapy well	Add niacin	12.60%	3.00%
		Add fish oil	14.10%	2.10%
		Add fibrate	24.90%	7.60%
		Add colesevelam	2.70%	2.50%
		<u>Add PCSK9 inhibitor</u>	45.70%	84.90%

Item-Level Analysis: Competence

Curriculum Competence questions evaluate learners' procedural proficiency. When assessed on therapy tolerance at Post-Test, most learners were proficient with the variables indicated in the question.

Learners would benefit from additional education regarding the management of patients with muscle pain related to statin therapy. Learners had difficulty deciding whether to cut the medication dosage or hold therapy while assessing muscular complaints first.

Learners' competence score increased from 46% to 85% between Pre-Test and Post-Test on the item evaluating learner's understanding of appropriate next steps for a patient with hypercholesterolemia taking atorvastatin 80mg and ezetimibe 10mg daily. This finding suggests that learner's competence was proficient in this area.

Item-Level Analysis: Confidence

Confidence

(Based on a scale of 1 – 5 with 1 = Not at all Confident and 5 = Completely Confident)

Question	Pre-Test		Post-Test	
	N	Average	N	Average
Please rate your confidence in your ability to treat hypercholesterolemia in patients who are not achieving optimal goals or are refractory to statin therapy:	1,118	2.76	1,118	3.68

Learners' self-reported Confidence at Pre-Test was low. Post-Test Confidence improved by 33%, providing evidence that the curriculum not only met an area of educational need, but also provided an opportunity for learners to gain confidence in their abilities to effectively treat hypercholesterolemia in patients who are not achieving optimal goals or are refractory to statin therapy.

Item-Level Analysis: The RealIndex

A 65-year-old African American man with a history of dyslipidemia, hypertension, and obesity presents 2 years post NSTEMI. He reports no symptoms or side effects of medical therapy. BP 132/76 mmHg, eGFR 54 mL/min/1.73m², LDL-C 78 mg/dL, HDL-C 40 mg/dL, Triglycerides 152 mg/dL, and Total-C 148 mg/dL Current medications include valsartan/hydrochlorothiazide 320/25 mg qd, atorvastatin 80 mg qd, metoprolol XL 50 mg qd, and aspirin 81 mg qd. After reviewing the brief scenario above, please rate each of the statements as consistent with or not consistent with best clinical practice for ASCVD risk management:

Statement	Sorting	Baseline (N = 1,408)	Final (N = 1,538)
1. Consider adding ezetimibe 10 mg qd.	Consistent	52.30%	88.00%
2. If ezetimibe 10 mg qd is started and LDL-C remains >70 mg/dL at follow up, consider PCSK-9 inhibitor.	Consistent	69.10%	90.50%
3. Consider adding niacin.	Not Consistent	64.90%	88.60%
4. Consider adding fibrate.	Not Consistent	62.40%	83.20%
5. Consider adding PCSK-9 inhibitor.	Not Consistent	40.00%	43.50%

The RealIndex Performance metric assessed learners' applied clinical proficiency. A patient case scenario was presented after which learners sorted the above statements (representing a clinical decision or behavior) as either consistent or not consistent with their current clinical approach.

A statement-level analysis revealed that learners performance improved from Baseline to Final with learners reaching near mastery on most items except statement 5 (regarding the addition of a PCSK-9 inhibitor) which improved modestly but remained low.

Item-Level Analysis: Scored Questions

Question 1	Choice	Pre-Test (N = 1,435)
Which parameter has the greatest influence on estimated ASCVD risk ?	Blood pressure	13.0%
	Cholesterol level	34.50%
	Diabetes	34.20%
	Age	14.80%
	Gender	3.50%
Question 2	Choice	Pre-Test (N = 1,403)
Which of the following statements is TRUE regarding statin intolerance?	<u>Patients with statin intolerance have higher cardiovascular event rates</u>	35.6%
	Patients with statin intolerance have lower cholesterol levels	2.5%
	In patients with statin intolerance, a secondary cause is usually found	18.5%
	In patients with statin intolerance, switching to a different statin usually alleviates the problem	42.3%
	Patients with statin intolerance are faking	1.10%
Question 3	Choice	Pre-Test (N = 1,424)
Which of the following medications has been shown to improve cardiovascular outcomes when added to statin therapy?	Niacin	8.40%
	<u>Ezetimibe</u>	43.10%
	Bile Acid Sequestrant	3.10%
	All of the above	45.40%
Question 4	Choice	Pre-Test (N = 1,455)
Is this patient's LDL-C level of 38 mg/dL safe?	No	9.50%
	Yes	58.40%
	Insufficient evidence to know	32.10%

When assessed on ASCVD risk influences, medications related to cardiovascular outcomes, and statin intolerance learners demonstrated an ongoing need for education. However, on items which addressed LDL-C levels, learners were relatively more proficient.

Summary of Outcomes: (Levels 1-5)

Statistically significant and substantial improvements were measured across the curriculum on all learning domains. The improvements in Knowledge and the RealIndex were notable and exceeded historical benchmarks ($\geq 5\%$) for change established through RealCME meta-analyses.



An evaluation of self-reported higher Confidence indicates that following participation, clinicians felt more able and empowered to make changes in their practice behavior: a finding reflected in learners' substantial (38%) improvement in Performance.

Though this curriculum successfully engaged learners, and improved their proficiency in this clinical area, persistent gaps remained at the conclusion of the education. Specifically, this population was challenged on Knowledge and Competence domains. Item-level analyses revealed that learners were specifically challenged in the areas concerning CMS Quality Measure for cholesterol management and management of patients with muscle pain on statin therapy.

Both Live meeting and Simulcast cohorts increased their Pre-Test scores and performed similarly by Post-Test on all domains indicating that there is little difference between the two types of educations' styles.

Summary of Gap Analysis: Item- and Statement-level Analyses

Learners achieved statistically significant and substantial gains across all curriculum domains. However, item- and statement-level analyses of all curriculum questions revealed ongoing areas of educational need:



Knowledge

Knowledge related to which patient types are included in CMS Quality Measure for cholesterol. 45% of learners believed that patients aged ≥ 21 years with familial hypercholesterolemia is not a patient type in CMS Quality Measure for cholesterol.

Scored Questions in regard to parameters for ASCVD risk. 35% of learners believed cholesterol levels was a risk, 34% believed diabetes was a risk, while only 15% selected age as a parameter for ASCVD risk.

Scored Questions regarding medications that have been shown to improve cardiovascular outcomes when added to statin therapy. 45% of learners believed Niacin, Ezetimibe and a Bile Acid Sequestrant (All of the above) improve cardiovascular outcomes when added to a statin therapy when only Ezetimibe is correct.

This finding suggests that this population would benefit most from education addressing the underlying deficits influencing their performance in the areas mentioned above.