Einstein Montefiore | Center for Continuing Medical Education

RFP CV Risk in RA 7-25-12 - Designing an Electronic Medical Record-based Clinical Decision Support Tool to Improve CVD Screening in Rheumatoid Arthritis Patients

Pfizer Grant ID 045604

Cardiovascular Risks in Patients with Rheumatoid Arthritis

A CME Enduring Material on the Internet

Final Outcomes Report

This activity was supported by an independent educational grant from Pfizer Inc.

Cardiovascular Risks in Patients with Rheumatoid Arthritis

Module 1: Arthritis, Inflammation, and the Heart
Module 2: Current 2013 Lipid Guidelines
Module 3: A Cardiologist's View of Rheumatologic Disease
All three modules must be viewed to earn credit. It is estimated that the modules, pre-assessment, post-test, and evaluation will take 1 hour to complete.

Launch Date: 12/30/2014 **Termination Date:** 2/29/2016 **Activity URL:** http://www.mycme.com

Target Audience: Rheumatologists, Cardiologists, Primary Care Physicians, Nurse Practitioners, Physician Assistants and other healthcare professionals involved in the care of patients with RA.

Accreditation Statement: Albert Einstein College of Medicine of Yeshiva University is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians

Credit Designation: Albert Einstein College of Medicine designates this enduring material for a maximum of 1.00 *AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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Educational Objectives:

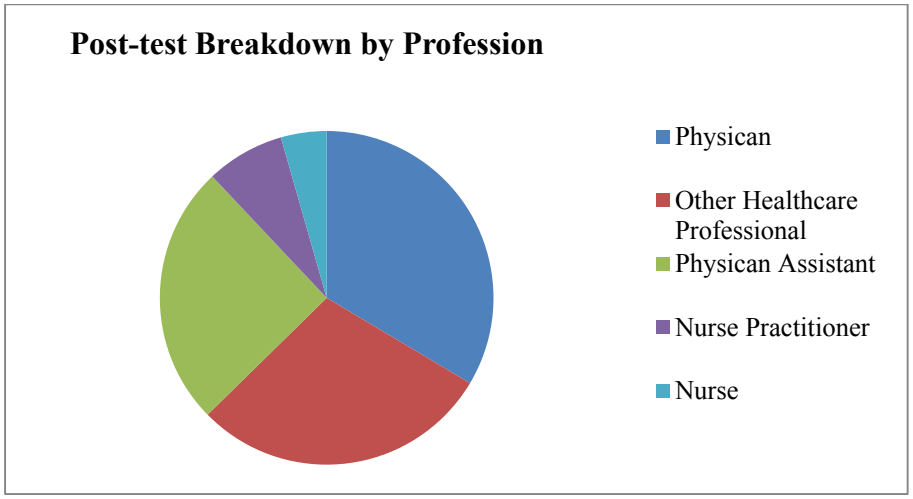
At the end of this activity, participants will be better able to:

- Identify the prevalence of cardiovascular disease in the population of patients with RA and other rheumatologic diseases, and become aware of the problem of inadequate screening in this high risk population.
- Explore the links between inflammation and atherosclerotic disease, and the probable connections between inflammatory processes in rheumatoid arthritis and development of atherosclerosis.
- Examine the available screening techniques for atherosclerotic disease in the RA and non-RA populations.
- Investigate the new paradigm for treatment of lipids and vascular inflammation for primary prevention and secondary treatment of atherosclerotic disease.

CME Activity Web Metrics:

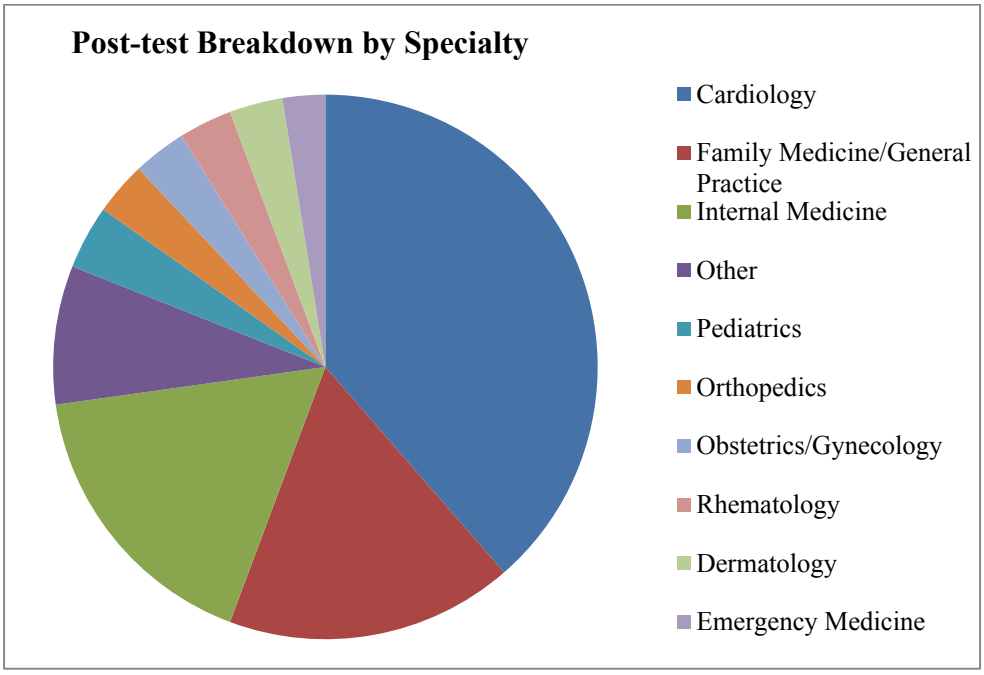
- ***Views: 3,086***
- ***Visits: 913***
- ***Unique Visitors: 827***
- ***Completed Activity: 228***
- ***Completed Post-test Exam: 158***
- ***Certificates Requested: 158***
- ***Completed 30-Day Post Activity: 11***

Post-test Breakdown by Profession	158 Exams	%
Physician	53	33.54%
Other Healthcare Professional	46	29.11%
Physician Assistant	40	25.32%
Nurse Practitioner	12	7.59%
Nurse	7	4.43%



This CME activity consisted of three modules, of which the third module was a patient case study. 158 learners completed the activity, post-test and evaluation. The majority of learners were physicians, followed by other healthcare professionals, followed by physician assistants, nurse practitioners and nurses.

Post-test Breakdown by Specialty	Exams	%
Cardiology	61	38.61%
Family Medicine/General Practice	27	17.09%
Internal Medicine	27	17.09%
Other	13	8.23%
Pediatrics	6	3.80%
Orthopedics	5	3.16%
Obstetrics/Gynecology	5	3.16%
Rheumatology	5	3.16%
Dermatology	5	3.16%
Emergency Medicine	4	2.53%



The majority of learners, 73%, were cardiologists, family medicine/general practice physicians and internal medicine physicians. 27% of learners were other healthcare professionals, followed by pediatricians, orthopedists, obstetrician/gynecologists, rheumatologists, dermatologists and emergency care physicians.

ACTIVITY EVALUATION SUMMARY

1. Educational Objectives: After completing this activity, I should be able to:

a. Identify the prevalence of cardiovascular disease in the population of patients with rheumatoid arthritis (RA) and other rheumatologic diseases, and become aware of the problem of inadequate screening in this high risk population

	AGREE	DISAGREE
Percentage	99.35%	0.65%

b. Explore the links between inflammation and atherosclerotic disease, and the probable connections between inflammatory processes in rheumatoid arthritis and development of atherosclerosis

	AGREE	DISAGREE
Percentage	100.00 %	0.00%

c. Examine the available screening techniques for atherosclerotic disease in the RA and non-RA populations

	AGREE	DISAGREE
Percentage	98.04 %	1.96%

d. Investigate the new paradigm for treatment of lipids and vascular inflammation for primary prevention and secondary treatment of atherosclerotic disease

	AGREE	DISAGREE
Percentage	98.04 %	1.96%

2a. Will you make changes that will benefit patient care as a result of attending this course?

	AGREE	DISAGREE	N/A
Percentage	62.75 %	7.84%	29.41%

3. This activity provided information that I can use to:

a. Increase my competence skills

	AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	DISAGREE
Percentage	71.9 %	26.14%	1.31%	0.65%

b. Modify the way I perform in practice

	AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	DISAGREE
Percentage	61.44 %	28.76%	3.27%	6.54%

c. Improve patient outcomes

	AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	DISAGREE
Percentage	66.76 %	26.14%	2.61%	4.58%

4. What percentage of the presentations was effective in teaching you something new that you will incorporate into your practice?

	90%	70%	50%	30%	10%
Percentage	35.29 %	28.1%	20.92%	8.5%	7.19%

5. Was this CME activity "free of commercial bias for or against any product?"

	YES	NO
Percentage	99.35 %	0.65%

6. Please write down up to three (3) changes in your practice that you intend to implement after your participation in this activity.

1. More frequent CV risk screening for RA patients
2. More frequent use of CV risk calculator
3. More aggressive use of statin drugs

1. Earlier monitoring of lipids in patients with RA
2. If patient has RA, multiply risk by 1.5%
3. Consider CRP when treating HLD in patient with RA

1. More closely screen RA patients for CVD
2. Risk-stratify RA patients higher
3. Lower threshold to treat RA patients that are at a borderline risk

1. Observe RA patients more timely
2. Incorporate cardiac lipid screening into evaluation of RA patients
3. Improve the use of statins in RA patients

1. ALL

1. Change approach to patient, counseling and prevention

1. Asking patients if they have been diagnosed with RA or any Autoimmune diseases

1. Be more mindful of screening RA patients for lipids
2. Limit NSAID use in these patients
3. Consider them high risk

1. Calculation of RA patients
2. Screening
3. Education

1. Check risk labs

1. Control, control, control

1. Counseling
2. Medicine
3. Testing

1. Discuss statins with patient
2. Assess patient risk
3. Follow CV risk factors

1. Early Screening for CAD in RA patients
2. LP-PLA2 Test consideration

3. High intensity statin therapy in RA Patients

1. Educate staff
2. Use ideas
3.Learn more

1. Everything

1. Get protein c levels; use both criteria protein c and ldl

1. Identify patients with CAD risk
2. Diagnosis of patients with CAD risk
3. Treatment of patients with CAD risk

1. Increased awareness of ASCVD in RA patients
2. Increased awareness of ASCVD overall
3. Increased awareness of increasing statin doses

1. Increased screening for patients with RA
2. Get hsCRP
3. More intense risk factor modification

1. More aggressively screen for CV risk in RA patients
2. Ensure evidence-based interventions/therapies are used along with ensuring that risk reduction is achieved

1. More attention to RA patients risk

1. More closely monitor and educate patients with RA about increased risk

1. Obtain appropriate labs in all patients
2. Communicate with PCP regarding these issues
3. Discuss these risks in patients with RA

1. Proper management
2. Early diagnosis
3. Prompt treatment

1. Risk factors
2. RA patient follow up
3. Marker check

1. Screen RA patients or patients with autoimmune/inflammatory diseases more aggressively
2. Use hsCRP as a tool to regularly assess risk
3. Use other risk scores like Reynolds Risk Score in addition to new population equation cohort and Framingham risk score

1. Screening cardiac risk in patients with RA

1. Screening
2. Assessment
3. Better management plan

1. Treat comorbidities
2. Treat metabolic syndrome
3. Use medications and lifestyle changes

1. Will pay more attention to CV risk in RA
2. Be more aggressive in treating risk factors

7. If you do not plan to incorporate any clinical strategies, please list the factors acting as barriers.

1. I think the new screening tool is confusing
1. Money
1. Patient compliance and willingness to take the medication
1. Hospital issues

8. In comparison to other similar activities, how would you rate this activity?

	Excellent	Good	Fair	Poor
Percentage	48.37 %	46.41%	5.23%	0%

9. Please provide general comments regarding this activity and suggest how it might be improved:

- Educative and informative
- Excellent activity; straight to the core
- Good presentation (3)
- Good learning format
- It was fine
- It was interesting
- It was too broad, and questions, too specific
- Maybe another case study
- More info regarding follow-up
- This activity was extraordinarily interesting and relevant
- This was fantastic. Easy layout, clear statements and well organized
- Very effective
- Very good
- Very informative and easy to follow

10. Please indicate medical topics that would be of interest to you:

- A similar CME on cardio risk in inflammatory bowel patients
- Acute coronary syndrome
- Any topic related to rheumatic diseases
- Anything related to Internal Medicine
- Cardiac rehab
- Cardiology
- Cardiovascular diseases (2)
- Diabetes
- Hypertension diabetes mellitus
- Inherited cardiac disease
- Pediatric cardiology
- Pediatric topics
- Peptic ulcer disease
- Renal
- Neurology
- Valve disease

EVALUATION SUMMARY TAKEAWAYS

- Overall, approximately 99% (98.85%) of the learners agreed that the program met the stated educational objectives.
- 99.35% of learners indicated that the program was free from commercial bias (one learner indicated bias).
- 71.9% of the learners agreed, and 26.14% somewhat agreed, that this activity provided information they can use to increase their competence skills.
- 61.44% of the learners agreed, and 28.76% somewhat agreed, that this activity provided information they can use to modify the way they perform in practice.
- 66.76% of the learners agreed, and 26.14% somewhat agreed, that this activity provided information they can use to improve patient outcomes.
- 62.75% of learners indicated that they will make changes that will benefit patient care as a result of participating in this course.
- When asked, "What changes in your practice you plan to implement," most respondents to this question indicated that they will do CVD risk screening for patients with rheumatoid arthritis.

PRE-TEST, POST-TEST, 30-DAY POST ACTIVITY PATIENT CASE

This CME activity consisted of three modules in which a patient case study was included. 228 learners completed the pre-test and activity, but did not take the post-test. 158 learners completed the activity, post-test and evaluation. The pre- and post-test questions and answers, the 30-day post activity patient case with questions and answers, and the learners' responses to each of the questions are included on the following pages.

Key to Pre- and Post-tests:
Highlighted option = correct answer
= number of respondents to each answer
% = percentage of respondents to each answer

Activity Pre-test Questions	Answer	#	%
1. Cardiovascular disease is highly prevalent in the rheumatoid arthritis population, and at any age, the risk for an RA patient approximates the risk for a non-RA patient at what age?	a. A non-RA patient 4 years older	29	12.72%
	b. A non-RA patient 10 years older	110	48.25%
	c. A male non-RA patient of age 60 or female RA patient of age 70	61	26.75%
	d. The same approximate age	28	12.28%
2. Which of the following is not true of vascular disease in RA patients?	a. Risk is unrelated to treatment of RA with corticoid steroid therapy	61	26.75%
	b. Traditional risk factors are less important in predicting risk than in the general population	54	23.68%
	c. Methotrexate therapy has a significant effect on cardiovascular mortality	42	18.42%
	d. Coronary arteritis is the major mechanism of vascular disease in RA patients	71	31.14%
3. The connection between RA and cardiovascular risk appears to involve inflammation. Which of the following inflammatory markers is used clinically to identify patients with vascular inflammation and consequently higher risk for atherosclerotic cardiovascular disease?	a. IL-6	58	25.44%
	b. TNF-α	81	35.53%
	c. Lp-PLA2	45	19.74%
	d. Endothelial progenitor cells (EPCs)	44	19.3%
4. Based upon the Jupiter (Justification for the Use of Statins in Primary Prevention: An Intervention Trial Evaluating Rosuvastatin) trial, what is the next treatment step for an otherwise low-risk patient with LDL of 72 and hs-CRP of 2.5 on rosuvastatin 20 mg daily?	a. Continue present therapy	85	37.28%
	b. Increase dose of rosuvastatin to 40 mg	50	21.93%
	c. Add niacin to reduce hs-CRP further	47	20.61%
	d. Add aspirin 162 mg daily	46	20.18%
5. Which of the following lipid/hs-CRP profiles would have the highest risk of cardiovascular events based upon the PROVIT-TIMI 22 (Pravastatin or Atorvastatin Evaluation and Infection Therapy -- Thrombolysis in Myocardial Infarction 22) study?	a. LDL 68, hsCRP 0.9	29	12.72%
	b. LDL 102, hsCRP 0.9	52	22.81%
	c. LDL 68, hsCRP 2.9	60	26.32%
	d. Both b and c would have the same risk	87	38.16%
6. The European League Against Rheumatism (EULAR) recommends all of the following	a. Screen RA patients at least annually for CV risk	61	26.75%

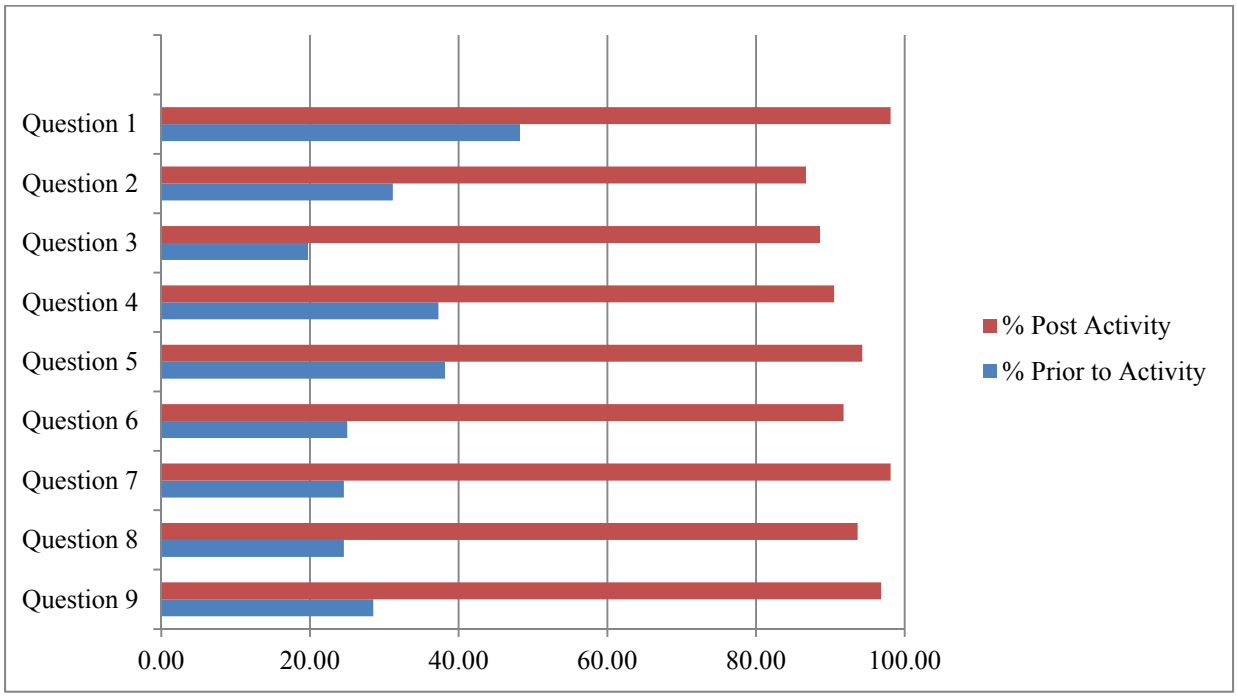
	c. Use the total cholesterol/HDL ratio to help assess risk	67	29.39%
	d. Multiply traditional risk scoring models by 2.5 for patients with RA	57	25%
7. The new US Guidelines for Lipid Management of the American Heart Association and American College of Cardiology identified 4 major benefit groups for statin treatment, including all of the following EXCEPT:	a. Diabetics with LDL 70-189	49	21.49%
	b. Any patient with LDL > 160	56	24.56%
	c. Any patient with 10-year atherosclerotic risk > 7.5%	73	32.02%
	d. Any patient with clinical atherosclerotic cardiovascular disease	50	21.93%
8. All of the following represent moderate intensity lipid lowering therapy EXCEPT:	a. Atorvastatin 20 mg daily	36	15.79%
	b. Simvastatin 40 mg daily	48	21.05%
	c. Rosuvastatin 5 mg daily	88	38.6%
	d. Pravastatin 20 mg daily	56	24.56%
9. The following statements about the new atherosclerotic cardiovascular disease risk calculator are true, EXCEPT:	a. Race is included in calculating risk	89	39.04%
	b. The calculator estimates a 10-year risk based on pooled trial analysis for individuals aged 40 to 79	37	16.23%
	c. Family history of early coronary disease in the calculator is defined as CV disease in a male relative ≤ 55 years old and in a female relative ≤ 65 years old	65	28.51%
	d. Diabetes is included as a parameter, even though it is a CV risk equivalent	37	16.23%

Activity Post-test Questions	Answers	#	%
1. Cardiovascular disease is highly prevalent in the rheumatoid arthritis population, and at any age, the risk for an RA patient approximates the risk for a non-RA patient at what age?	a. A non-RA patient 4 years older	0	0%
	b. A non-RA patient 10 years older	**155**	**98.1%**
	c. A male non-RA patient of age 60 or female RA patient of age 70	1	0.63%
	d. The same approximate age	2	1.27%
2. Which of the following is not true of vascular disease in RA patients?	a. Risk is unrelated to treatment of RA with corticoid steroid therapy	8	5.06%
	b. Traditional risk factors are less important in predicting risk than in the general population	8	5.06%
	c. Methotrexate therapy has a significant effect on cardiovascular mortality	5	3.16%
	d. Coronary arteritis is the major mechanism of vascular disease in RA patients	**137**	**86.71%**
3. The connection between RA and cardiovascular risk appears to involve inflammation. Which of the following inflammatory markers is used clinically to identify patients with vascular inflammation and consequently higher risk for atherosclerotic cardiovascular disease?	a. IL-6	8	5.06%
	b. TNF-α	6	3.8%
	c. Lp-PLA2	**140**	**88.61%**
	d. Endothelial progenitor cells (EPCs)	4	2.53%
4. Based upon the Jupiter (Justification for the Use of Statins in Primary Prevention: An Intervention Trial Evaluating Rosuvastatin) trial, what is the next treatment step for an otherwise low-risk patient with LDL of 72 and hs-CRP of 2.5 on rosuvastatin 20 mg daily?	**a. Continue present therapy**	**143**	**90.51%**
	b. Increase dose of rosuvastatin to 40 mg	9	5.7%
	c. Add niacin to reduce hs-CRP further	3	1.9%
	d. Add aspirin 162 mg daily	3	1.9%
5. Which of the following lipid/hs-CRP profiles would have the highest risk of cardiovascular events based upon the PROVIT-TIMI 22 (Pravastatin or Atorvastatin Evaluation and Infection Therapy -- Thrombolysis in Myocardial Infarction 22)	a. LDL 68, hsCRP 0.9	1	0.63%
	b. LDL 102, hsCRP 0.9	1	0.63%
	c. LDL 68, hsCRP 2.9	7	4.43%

study?	**d. Both b and c would have the same risk**	**149**	**94.3%**
6. The European League Against Rheumatism (EULAR) recommends all of the following EXCEPT:	a. Screen RA patients at least annually for CV risk	2	1.27%
	b. Use the lowest doses of corticosteroids possible	4	2.53%
	c. Use the total cholesterol/HDL ratio to help assess risk	7	4.43%
	d. Multiply traditional risk scoring models by 2.5 for patients with RA	**145**	**91.77%**
7. The new US Guidelines for Lipid Management of the American Heart Association and American College of Cardiology identified 4 major benefit groups for statin treatment, including all of the following EXCEPT:	a. Diabetics with LDL 70-189	2	1.27%
	b. Any patient with LDL > 160	**155**	**98.1%**
	c. Any patient with 10-year atherosclerotic risk > 7.5%	0	0%
	d. Any patient with clinical atherosclerotic cardiovascular disease	1	0.63%
8. All of the following represent moderate intensity lipid lowering therapy EXCEPT:	a. Atorvastatin 20 mg daily	3	1.9%
	b. Simvastatin 40 mg daily	5	3.16%
	c. Rosuvastatin 5 mg daily	2	1.27%
	d. Pravastatin 20 mg daily	**148**	**93.67%**
9. The following statements about the new atherosclerotic cardiovascular disease risk calculator are true, EXCEPT:	a. Race is included in calculating risk	2	1.27%
	b. The calculator estimates a 10-year risk based on pooled trial analysis for individuals aged 40 to 79	1	0.63%
	c. Family history of early coronary disease in the calculator is defined as CV disease in a male relative ≤ 55 years old and in a female relative ≤ 65 years old	**153**	**96.84%**
	d. Diabetes is included as a parameter, even though it is a CV risk equivalent	2	1.27%

PRE-TEST/POST-TEST BY CORRECT/INCORRECT ANSWERS

Question #	% Pre-test	% Post-test	% Change
Question 1	48.25%	98.10%	49.85%
Question 2	31.14%	86.71%	55.57%
Question 3	19.74%	88.61%	68.87%
Question 4	37.28%	90.51%	53.23%
Question 5	38.16%	94.30%	56.14%
Question 6	25.00%	91.77%	66.77%
Question 7	24.56%	98.10%	73.54%
Question 8	24.56%	93.67%	69.11%
Question 9	28.51%	96.84%	68.33%



KEY TAKEAWAYS

Prior to the CME activity, the Pre-test responses indicate that

- Less than one quarter (19.74%) of the learners had knowledge that Lp-PLA2 is an inflammatory marker used clinically to identify patients with vascular inflammation and consequently, higher risk for atherosclerotic cardiovascular disease.
    - Approximately 35.53% of learners thought the appropriate answer was TNF-a.

- Only one quarter (24.56%) of learners indicated the appropriate choice, when asked to identify the moderate intensity lipid-lowering therapy that was not an approved treatment.
- Less than half (48.25%) of the learners had knowledge that "Cardiovascular disease is highly prevalent in the rheumatoid arthritis population, and at any age, the risk of a rheumatoid arthritis patient approximates the risk of a non-rheumatoid arthritis patient 10 years older."
- More than two thirds (71.49%) of the learners did not have knowledge that the new atherosclerotic cardiovascular disease risk calculator did not include the option, "Family history of early coronary disease in the calculator is defined as cardiovascular disease in a male relative ≤ to 55 years old and in a female relative, ≤ 65 years old."

After the CME activity, the Post-test responses indicate that

- The average post-test score was 93%
- The percentage of learners with a post-test score of 100% was 63.29%
- 88.61% of learners chose the correct option, indicating that Lp-PLA2 is an inflammatory marker used clinically to identify patients with vascular inflammation and consequently, higher risk for atherosclerotic cardiovascular disease. There was a 68.87% increase in the respondents' correct answer.
- 93.67% of the learners chose the appropriate option when asked to identify the moderate intensity lipid-lowering therapy that was not an approved treatment. This demonstrated an increase of 69.11% of the learners responding appropriately.
- 98.1% chose the appropriate option, "Cardiovascular disease is highly prevalent in the rheumatoid arthritis population, and at any age, the risk of a rheumatoid arthritis patient approximates the risk of a non-rheumatoid arthritis patient 10 years older," representing a 49.85% change.
- 68.33% additional learners chose the correct option, when asked to identify which option the new atherosclerotic cardiovascular disease risk calculator **does not** include. A total of 96.84% of learners chose the appropriate answer, "Family history of early coronary disease in the calculator is defined as cardiovascular disease in a male relative ≤ to 55 years old and in a female relative, ≤ 65 years old."

30-DAY POST ACTIVITY PATIENT CASE

After reading this case study, please complete the related questions below.

The patient is a 65-year-old African American woman who presents for coronary risk management. She has a history of hyperlipidemia, hypertension, and cigarette smoking (1-2 packs per day for 30 years until she stopped at age 55). She has a history of rheumatoid arthritis for many years, treated only with non-steroidal anti-inflammatory agents. She has no cardiac complaints.

Past medical history is also significant for hypothyroidism (Hashimoto's thyroiditis in the past), glaucoma, gastroesophageal reflux, and peripheral vascular disease requiring multiple percutaneous interventions in the lower extremities. Surgical history is significant for emergency appendectomy in 2010, and breast lumpectomy in 2002 (benign lesion). She has a positive family history of early coronary disease in that her mother had an MI at age 60.

Current medications: Hydrochlorothiazide 25 mg daily, simvastatin 20 mg daily, celecoxib 200 mg daily, calcitonin nasal 1 spray daily, pantoprazole 40 mg daily, levothyroxine 112 µg daily, and aspirin 81 mg daily.

On physical examination, BP is 110/60, pulse 68, regular, weight 250 pounds, BMI 30.25, and O^2 saturation is 98% on room air. Neck exam shows normal carotid upstrokes with soft bruit on the left. Lungs are clear. Cardiac exam shows a non-displaced PMI, normal S1 and S2, and no murmurs, rubs, or gallops. Abdominal exam is unremarkable. Lower extremity peripheral pulses are decreased bilaterally and dorsalis pedis pulse is absent on the right. She has no pedal edema. She has mild swelling and tenderness of her left knee, but other joints are not swollen or tender.

EKG shows sinus rhythm at 76 BPM, normal intervals and axis, and mild nonspecific ST-T wave changes, unchanged from prior tracings.

Recent laboratory studies show creatinine of 1.2, normal electrolytes, normal liver functions, total cholesterol 170, HDL 37, cholesterol/HDL ratio 4.6, triglyceride 106, and LDL 121.

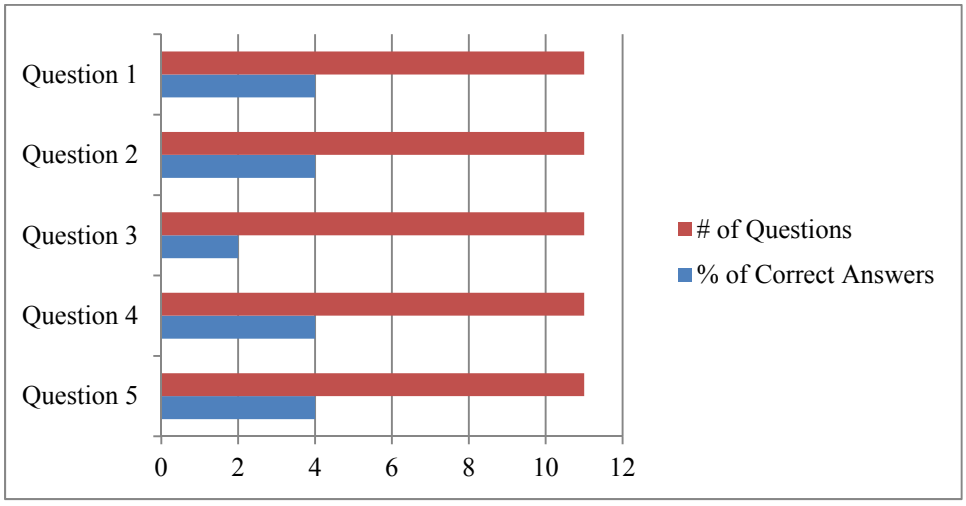
30 day Post Activity Case Study Questions	Answer	#	%
1. In trying to decide whether to modify lipid-lowering therapy, consideration should be given to all of the following except:	a. Presence of rheumatoid arthritis	3	27.27
	b. hsCRP measurement	4	36.36
	c. Calculation of 10-year athero-sclerosis risk based upon traditional risk factors	2	18.18
	d. Presence of peripheral vascular disease	2	18.18
2. Although she has not had manifest coronary artery disease, which of the following statements can be made about patients with rheumatoid arthritis:	a. Her overall coronary risk is similar any other non-rheumatoid arthritis patient of her age and medical profile	3	27.27
	b. Her risk is approximately the same as a male of the same age with rheumatoid arthritis	2	18.18
	c. Her overall coronary risk is similar to a non-rheumatoid arthritis patient 10 years older	4	36.36
	d. Her overall coronary risk is similar a non-rheumatoid arthritis patient 6 years older	2	18.18
3. Currently she is on simvastatin at a dose which represents moderate intensity lipid-lowering therapy. You decide that high intensity therapy would be more appropriate. Which of the following represents an increase to high intensity lipid-lowering therapy?	a. Rosuvastatin 20 mg daily	2	18.18
	b. Atorvastatin 20 mg daily	0	0
	c. Simvastatin 40 mg daily	2	18.18
	d. Pravastatin 80 mg daily	2	18.18
	e. Answers a and b	5	36.36
4. The following statements about the new atherosclerotic cardiovascular disease risk calculator are true, EXCEPT:	a. Race is included in calculating risk	3	27.27
	b. Diabetes is included as a parameter, even though it is a CV risk equivalent	0	0
	c. The calculator estimates a 10-year risk based on pooled trial analysis for individuals aged 40 to 79	4	36.36
	d. Family history of early coronary disease in the calculator is defined as CV disease in a male relative ≤ 55	4	36.36

	years old and in a female relative ≤ 65 years old		
5. Which of the following is not true of vascular disease in RA patients?	**a. Methotrexate therapy has a significant effect on cardiovascular mortality**	**4**	**36.36**
	b. Traditional risk factors are less important in predicting risk than in the general population	**2**	**18.18**
	c. Risk is unrelated to treatment of RA with corticoid steroid therapy	**2**	**18.18**
	d. Coronary arteritis is the major mechanism of vascular disease in RA patients	**3**	**27.27**

30-DAY POST ACTIVITY PATIENT CASE RESULTS

A 30-day post activity case study consisting of a new patient case with five questions, related to content covered in the CME activity was sent to 158 participants. A small sample of 11 learners responded to the post activity patient case. Their responses of Correct/Incorrect are the following:

Question #	# of Responses	# Correct Answers	% of Correct Answers
Question 1	**11**	4	36.36%
Question 2	**11**	4	36.36%
Question 3	**11**	2	18.18%
Question 4	**11**	4	36.36%
Question 5	**11**	4	36.36%



30 days after the CME activity,

- Learners were asked a similar question from the post-test regarding treatment. When asked to identify an increase to high intensity lipid-lowering therapy, only 18.18% of the learners answered correctly. Although the sample size was small, it may suggest that healthcare professionals should be continually educated on this topic as 63.64% of learners were still unsure of the correct answer.
- Only 36.36% of the learners recalled that, “cardiovascular disease is highly prevalent in the rheumatoid arthritis population, and at any age, the risk of a rheumatoid arthritis patient approximates the risk of a non-rheumatoid arthritis patient 10 years older.” This question was exactly the same as the post-test, suggesting that more education may be needed on this topic.

CONCLUSION

Each question was analyzed using a 2 x 2 Chi-square test of Pre/Post by Correct/Incorrect answers. There was statistically significant improvement from Pre-test to Post-test for all questions.

Program Pre-test Questions	Pre % Correct	Post % Correct	Chi-Square	P value
1. Cardiovascular disease is highly prevalent in the rheumatoid arthritis population, and at any age, the risk for an RA patient approximates the risk for a non-RA patient at what age?	48.2%	98.1%	107.8	<.001
2. Which of the following is not true of vascular disease in RA patients?	31.1%	86.7%	116.0	<.001
3. The connection between RA and cardiovascular risk appears to involve inflammation. Which of the following inflammatory markers is used clinically to identify patients with vascular inflammation and consequently higher risk for atherosclerotic cardiovascular disease?	19.7%	88.6%	177.4	<.001
4. Based upon the Jupiter (Justification for the Use of Statins in Primary Prevention: An Intervention Trial Evaluating Rosuvastatin) trial, what is the next treatment step for an otherwise low-risk patient with LDL of 72 and hs-CRP of 2.5 on rosuvastatin 20 mg daily?	37.3%	90.5%	109.4	<.001
5. Which of the following lipid/hs-CRP profiles would have the highest risk of cardiovascular events based upon the PROVIT-TIMI 22 (Pravastatin or Atorvastatin Evaluation and Infection Therapy -- Thrombolysis in Myocardial Infarction 22) study?	38.2%	94.3%	123.8	<.001
6. The European League Against Rheumatism (EULAR) recommends all of the following EXCEPT:	25.0%	91.8%	166.8	<.001
7. The new US Guidelines for Lipid Management of the American Heart Association and American College of Cardiology identified 4 major benefit groups for statin treatment, including all of the following EXCEPT:	24.6%	98.1%	203.7	<.001
8. All of the following represent moderate intensity lipid lowering therapy EXCEPT:	24.6%	93.7%	178.9	<.001
9. The following statements about the new atherosclerotic cardiovascular disease risk calculator are true, EXCEPT:	28.5%	96.8%	177.3	<.001

In the 30-day follow-up test, there was no pre/post to test. However, the results were not impressive. The observed results were compared to what we would expect if the respondents were guessing the answers at random. For questions 1,2, 4 & 5, there is a 25% chance of getting the correct answer if guessing randomly. For question 3, there is a 20% chance. For each question, the 95% confidence interval was

calculated around the expected value for correct answers by random guessing. If the confidence interval contained the observed correct number, we can conclude with 95% confidence that the observed percentage correct was not significantly different from chance. The confidence intervals for questions 1, 2, 4, and 5 were 0 to 5.56, and the confidence interval for question 3 was 0 to 4.8. In all cases, the 95% confidence interval for guessing at random included the observed value. Our interpretation would be that there was little or no retention of the information at 30 days. The slippage in retention from Post-test to the 30-Day Post Activity Patient Case might suggest that future programs might consider using a multiple activity design to provide learners with serial learning opportunities that can result in better learning retention.