

Hyperlipidemia: PBL

Charles Carter, MD, FAAFP

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Dr. Carter is a graduate of the University of South Carolina School of Medicine. He completed his residency at Palmetto Health Richland in Columbia, and fellowship at Georgetown University School of Medicine in Washington, DC. He practices in a residency-teaching program and cares for mostly underserved patients. He has interests in diabetes, cardiovascular health, and headache disorders. He believes the most important trend in cardiovascular disease right now is population-based primary prevention. This is relevant to family medicine as we confront the challenge of remaining the core facet of our patients' health care. Dr. Carter also believes that preventive cardiology is a key part of family medicine practice.

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Learning Objectives

1. Practice applying new knowledge and competencies gained from hyperlipidemia sessions, and receive feedback from expert faculty.
2. Interact collaboratively with peers to solve complex and challenging case-study scenarios.
3. Develop problem-solving skills that promote effective reasoning to manage hyperlipidemia within the context of professional practice.

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Audience Engagement System

The image shows three sequential screenshots of a mobile application interface for an Audience Engagement System. Step 1 shows a home screen with a navigation bar at the top and a grid of icons for various features. Step 2 shows a list of CME activities with details such as title, date, and duration. Step 3 shows a detailed view of a specific CME activity, including the title 'CME011 Acute Coronary Syndromes: Unchain My Heart', a description, and a list of speakers.

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PBL Instructions

- Five work groups
- Each group has a case study
 - Instructions/questions with each case study
 - Discuss the case with your table - 10 min
 - Elect a spokesperson to enter info into ARS
- We'll review each case and key points

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To the Cases!

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Discuss the cases to illustrate key evidence
and clinical lessons in addressing
hyperlipidemia

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Case Study 1

40-year-old African-American man	55-year-old Caucasian woman
No HTN No DM	Treated for hypertension No DM
No family history of CVD	Mother with stroke at age 72
Does not use tobacco	Smokes cigarettes
120/80	120/80
Total Cholesterol 190 HDL 48	Total Cholesterol 213 HDL 50

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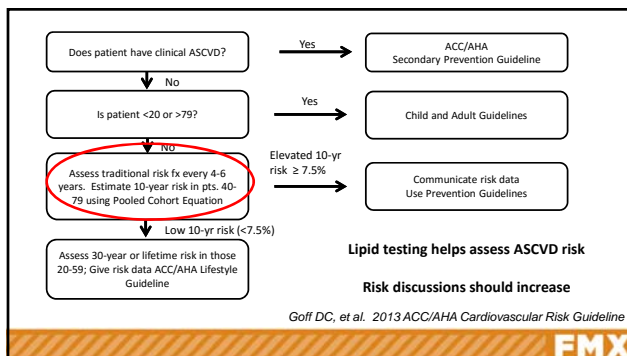
Case Study 1 Key Questions

1. Describe the present lipid screening recommendations for adults.
2. List the key components of cardiovascular risk?
3. Calculate the risk of atherosclerotic cardiovascular disease (ASCVD)?
 - What is the 10-year risk?
 - What is the lifetime ASCVD risk?
 - Treatment recommendation?
4. Is the 10-year risk an absolute or relative risk? Why is this important?
5. Calculate changes in Patient #2's 10-year risk by altering these risk factors: age, race, smoking status, blood pressure, diabetes status

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Team 1 ARS

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The AHA's "Simple Seven"

- ♥ High blood pressure
- ♥ Cholesterol
- ♥ Blood sugar
- ♥ Diet
- ♥ Physical Activity
- ♥ Weight
- ♥ Smoking



http://www.heart.org/HEARTORG/Conditions/My-Life-Check---Lifes-Simple7_UCM_471453_Article.jsp

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Case Example:
55-year-old woman, Caucasian
Tobacco smoker
Doesn't have diabetes, on HTN treatment
Total Cholesterol 213
HDL 50
Systolic BP 120 mm/Hg

Risk Equation

10 Year Risk	Lifetime Risk
6.7%	50.0%

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For Patient #2, calculate the changes in her 10-year risk by altering the following risk factors:

Risk factor	ASCVD 10-year risk % Changing one factor	ASCVD 10-year risk % Compounding each factor
Change her age to 65	12.8%	12.8%
She was African-American	8.9%	16.2%
She doesn't use tobacco	2.8%	8.5%
Her blood pressure is 145/85	9.6%	13.1%
She develops diabetes	12.5%	28.6%

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Case Study 2

65-year-old Indian-American man (DOB 9/3/1952)
HTN- Stage 1, amlodipine/benazepril
No DM
No FH of premature ASCVD
Does not use tobacco
Vegetarian, regularly exercises
Associate Dean at a medical school, immigrated to U.S. 20 years ago
110/70 Ht: 69 in, Wt: 172, BMI – 25
Total Cholesterol 171
HDL 44
LDL 109
Triglycerides 89

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Case 2 Key Questions

- Please calculate his 10-year CVD risk using the following calculators:
 - Framingham equation
 - ACC/AHA Pooled Cohort Equation
 - Joint British Societies (JBS-3) Calculator
- What would your recommendation be to this patient?
 - Is statin treatment recommended for this patient?
 - What other treatment recommendations (if any) would you have?
- In a situation where you recommend a statin medication, what are reasons a patient (or a clinician) would not want to use a medication

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Team 2 ARS

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Risk Calculators

- There are lots of them!
- 363 models and counting
 - Framingham Risk Score
 - ACC/AHA Pooled Cohort Equation
 - Systematic Coronary Risk Evaluation (SCORE)
 - Reynolds Risk Score
 - Joint British Societies (JBS3)
- Uncertain evidence regarding benefit

Holt T. *BMJ* 2016; 353: i2621
Damen JAAG, et al. *BMJ* 2016; 353: i2426

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Framingham Score	Reynolds Risk Score	Berry, et al Lifetime Risk	2013 ACC/AHA Pooled Cohort
Age	Age	Age	Age
Gender	Gender	Gender	Gender
Total Cholesterol	Total Cholesterol	Total Cholesterol	Total Cholesterol
Smoking	Smoking	Smoking	Smoking
Systolic BP	Systolic BP	Blood Pressure	Systolic BP
HDL	hs-CRP	Diabetes	HDL
HTN treatment	FH (parent w/MI before 60)		HTN Treatment
10-year CHD	10-year CVD	Lifetime CVD	10-year CVD

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His Framingham Score

Information about your risk score:

Age: 65
 Gender: male
 Total Cholesterol: 171 mg/dL
 HDL Cholesterol: 44 mg/dL
 Smoker: No
 Systolic Blood Pressure: 110 mm/Hg
 On medication for HBP: Yes
 Risk Score* 9%

*Means 9 of 100 people with this level of risk will have a heart attack in the next 10 years.

* Your risk score was calculated using an equation. Other NCEP products, such as printed ATP III materials, use a point system to determine a risk score that is close to the equation score.

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ACC/AHA Pooled Cohort Equation

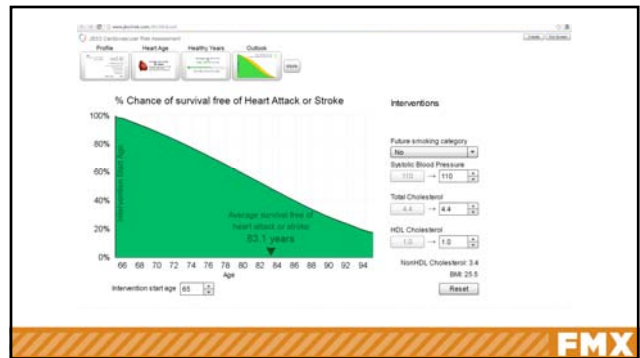
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JBS3
Score

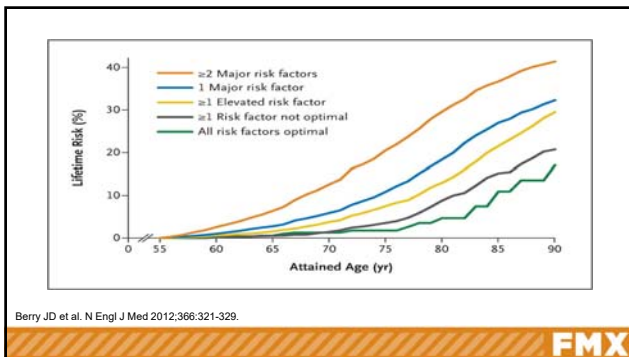
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Berry JD et al. N Engl J Med 2012;366:321-329.

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Risk

- Benefits of prevention will tend to confer more to those with higher risk
- Important for those on the lower margins of risk

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Author	Findings	Reference
Kavousi	Compared risk assessment and statin recommendations between ATP III, European guidelines, and Pooled Cohort Equation applied to Rotterdam Study (pts over 55) <ul style="list-style-type: none"> ACC/AHA overestimated compared to actual events Statins would be recommended for 96% of men and 66% of women 	Kavousi M, et al. JAMA 2014; 311 (14): 1416
Pencina	Used NHANES data (2005-2010). Compared ATP III vs. ACC/AHA, Adults 60-75 <ul style="list-style-type: none"> Statin use would increase from 30.4% to 87.4% in men, 21.2% to 53.6% in women Projected increase of 12.8 million adults (↑ sensitivity, ↓ specificity) 	Pencina, et al. N Engl J Med 2014; 370 (15): 1422
Munter	Sought to externally validate Pooled Cohort equation using cohort in REGARDS study (a stroke cohort study) <ul style="list-style-type: none"> Assessed CV events at 5 years (hasn't had 10-yr follow-up) ACC/AHA showed moderate to good discrimination compared to actual events 	Munter P, et al. JAMA 2014; 311(44): 1406
Johnson	Used data from Medical Expenditure Panel Survey, 2010, national sample of 16,712 adults 30-79 <ul style="list-style-type: none"> In those over 40, 58.2% with CAD and 52.0% with DM were on statins Treatment gap could be related to focus on lipid goals rather than risk 	Johnson ME, et al. Ann Fam 2014; 215
DeFillippis	Compared ACC/AHA calibration and discrimination with other risk scores (Framingham, Reynolds) <ul style="list-style-type: none"> Multi-ethnic study of atherosclerosis (MESA) prospective cohort study, 50-74 without DM All but Reynolds overestimate risk: 37% to 154% in men, 8% to 67% in women Reynolds overestimated by 9% in men but underestimated 21% in women 	DeFillippis AP, et al. Ann Intern Med 2015; 162: 266
Rana	Applied ACC/AHA Pooled cohort equation to large integrated health system population to assess accuracy vs event rates at 5 years. Multiethnic study <ul style="list-style-type: none"> Equation overestimated risk 	Rana JS, et al. J Am Coll Cardiol 2016; 67: 2118-30

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Case Study 3

36 year-old Caucasian woman	28 year-old Caucasian man
HTN- Stage 1, HCTZ 12.5 mg No DM Polycystic ovarian syndrome	No HTN No DM
FH of premature ASCVD in father (CABG @ 38) Paternal GM MI 50, Paternal GGM MI age 57	FH of premature ASCVD in father (MI @ 45) Paternal GF – "heart disease"
Does not use tobacco Vegetarian, Exercises 30-60 min, 4x/week	Does not use tobacco Exercises ~60-90 minutes, 5x/week Completed first marathon last fall
BMI 40 BP 120/80	BMI 22 BP 116/70
Total Cholesterol 147 HDL 40 LDL 78 VLDL 35 Triglycerides 177 hs-CRP 13.2	Total Cholesterol 180 HDL 28 LDL 124

Case Study 3 Key Questions

1. What defines a family history of premature atherosclerotic cardiovascular disease (ASCVD)?
2. What interventions would you recommend for each patient?
 - What additional testing would you recommend (if any) for these patients?
 - Would you recommend any non-medical or medical treatment?
3. How does family history impact your decision making?
4. Would you do anything to address his low HDL?
5. What are the pros and cons of risk estimation calculators for patients like this?
6. What do your findings about altering the risk factors tell you about lifetime risk?

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Team 3 ARS

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Calculate her ASCVD Risk using these two equations	
ACC/AHA Pooled Cohort	Reynolds Risk
10-year risk%: Can't calculate due to age	Risk by Age 45: 1%
Lifetime risk%: 39%	Risk by Age 55: 2%
	Risk by Age 65: 5%
	Risk by Age 75: 11%

His lifetime risk% = 36%	
Enter lifetime risk values by changing the following factors (change each one individually):	
Factor	Lifetime risk%
Woman	27%
Total cholesterol 170	5%
HDL 55	36%
Smoker	50%

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What about those other factors?

hs-CRP		✓
ApoB		
Renal	• GFR • Microalbuminuria	
ABI		✓
Coronary Calcium		✓
Carotid Intima-Media Thickness		
Cardiorespiratory Fitness		
Family History		✓
Not mentioned	• Advanced lipid testing • Erectile Dysfunction • Rheumatoid arthritis • Homocysteine • Lipoprotein a	

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Optional screening tests when risk and treatment decisions are uncertain?		
Measure	Consider revising risk assessment upward	Don't adjust risk assessment
Family history of premature CVD	Males <55 Females < 65 (1 st degree relatives)	Occurrence at older ages (if any)
hs-CRP	≥ 2 mg/L	≤2 mg/L
Coronary Calcium Score	≥ 300 Agaston units or ≥ 75% for age, sex, ethnicity	< 300 Agaston units or < 75% for age, sex, ethnicity
ABI	< 0.9	≥ 0.9

Goff DC, et al. 2013 ACC/AHA Cardiovascular Risk Guideline

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What about raising HDL?

- Low HDL is a risk factor
 - Theory: Raising HDL = Reducing events
 - Reality: Doesn't match up to theory ☹
- Can raise HDL with
 - Niacin, Fibrates, CETP inhibitors
 - RCTs of these medicine show no significant impact on
 - All cause mortality
 - CHD mortality
 - Stroke mortality
- New meds would need to reduce rates 75%-95%

Keene D, et al. BMJ 2014; 349: g4379

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Case Study 4

48 year-old African-American man
HTN – lisinopril 20mg, amlodipine 5 mg
Type 2 DM – Hgb A1c 6.5%
No FH of premature ASCVD
Paternal GM – "heart disease"
Does not use tobacco
Walks 30 minutes 3 times/week
BMI 32 BP 124/78
Total Cholesterol 190
HDL 50
LDL 116
Triglycerides 120

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Case Study 4 Key Questions

1. Is treatment to address cholesterol indicated for this patient?
2. What medication options (please specify doses) would you recommend?
3. Change the patient to a woman and recalculate the Pooled Cohort Equation. What medication options (with doses) would you recommend?
4. If the patient was less than 40-years-old would you recommend treatment?
5. What treatment would you recommend if he or she could not tolerate your initial treatment recommendation?

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Team 4 ARS

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2013 ACC/AHA Lipid Guidelines

- Goals based on risk. Expansion of primary prevention
- Who benefits from statin treatment?
 - Atherosclerotic CVD
 - LDL ≥ 190
 - Diabetes, age 40-75 and LDL 70-189
 - Without diabetes, 40-75, and LDL 70-189 with 10-yr ASCVD risk of 7.5% or higher
- * 5%-7.5% with other factors – "consider treatment"

Stone NJ, et al. Circulation 2014; 129: S1-S45

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USPSTF Draft Recommendation - Adults		
Risk Group	Recommendation	USPSTF SOR
Adults 40-75, no hx of ASCVD	Screen for lipid disorders	B
Adults 40-75, no symptoms or hx of ASCVD 10-year risk of $\geq 10\%$	Low- to moderate-dose statin for the prevention of CVD events	B
Adults ages 40-75 years with no symptoms or history of CVD and a 10-year risk of 7.5%-10%	Statin may be beneficial for primary prevention, likelihood of benefit is smaller	C
Adults 76 and older No hx of ASCVD	Insufficient evidence on benefits and harms of statins in this group	I

Draft Recommendation Statement: Statin Use for the Primary Prevention of Cardiovascular Disease in Adults: U.S. Preventive Services Task Force, December 2015.

USPSTF Recommendation – Child/Adolescent		
Risk Group	Recommendation	USPSTF SOR
Children/Adolescents younger than 20	Insufficient evidence on benefits and harms of screening	I

U.S. Preventive Services Task Force. JAMA. 2016;316(6):625-633.

Who gets High-intensity	Who gets Moderate-intensity	Who gets Low-intensity
Secondary prevention: • Clinical CAD Primary prevention: • LDL ≥ 190 • Diabetes, age 40-75, LDL 70-189 and Risk score $\geq 7.5\%$ • 40-75, LDL 70-189 and Risk score $\geq 7.5\%$ *	Secondary prevention: • Treatment for adults older than 75 Primary prevention : • 40-75, LDL 70-189 and Risk score $\geq 7.5\%$ * • Diabetes, age 40-75, LDL 70-189 and Risk score $< 7.5\%$	• Those who can't tolerate high-intensity or moderate intensity statin treatment

* High or Moderate dose are options Prescriber's Letter, PL Detail Document #300101

Case Study 5

68 year-old Hispanic-American man	
MI – Age 63	
HTN – lisinopril 40mg, metoprolol XL 25 mg, amlodipine 10 mg	
TIA last year – on aspirin	
simvastatin 20 mg	
No FH of premature ASCVD	
Father died of unknown causes age 60, Mother with stroke age 68	
Former tobacco user, quit 5 years ago	
Walks 30 minutes 3 times/week	
BMI 28 BP 142/84	
Total Cholesterol 220 HDL 38	
LDL 154 Triglycerides 140	

- ### Case Study 5 Key Questions
- Do you need to calculate his ASCVD risk?
 - What conclusions do you draw regarding his statin therapy based on his lipid profile?
 - What recommendations do you have regarding altering his medication regimen?
 - This patient comes back to your office and reports that he could not take the statin due to side effects. How do you approach that challenge? What would you recommend?
 - Taking a similar patient who just had an MI, what lipid treatment would you recommend?

Team 5 ARS

Low-intensity statins	Moderate-intensity statins	High-intensity statins
Lower LDL by $<30\%$	Lower LDL by 30-49%	Lower LDL by $\geq 50\%$
Fluvastatin 20-40 mg Lovastatin 20 mg Pitavastatin 1 mg Pravastatin 10-20 mg Simvastatin 10 mg	Atorvastatin 10 – 20 mg Fluvastatin 80 mg Lovastatin 40 mg Pitavastatin 2-4 mg Pravastatin 40-80 mg Rosuvastatin 5-10 mg Simvastatin 20-40 mg	Atorvastatin 40-80 mg Rosuvastatin 20-40 mg

Stone NJ, et al. Circulation 2014; 129: S1-S45
Prescriber's Letter, PL Detail Document #300101

Why so much emphasis on statins?

- Substantial data supporting statin use
 - Primary and secondary prevention
- Lack of RCT data supporting other lipid medications
 - Niacin (may have role for those not on statins)
 - Fibrates
 - Ezetimibe (except after MI – secondary prevention)
 - Omega – 3
 - Cholesteryl ester transfer protein (CETP) inhibitors

Keene D, et al. *BMJ* 2014; 349: g4379
Cannon CP et al. *NEJM* 2015; 372(25): 2387-97

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What about statin intolerance?

- Most patients can tolerate even the same medication on retreat
- Consider different statin
- Consider alternative dosing strategies
- Consider other factors – hydration, CoQ10

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Practice Recommendations

- Use the Simple Seven to develop a comprehensive ASCVD prevention plan
- Screen for abnormal lipids and assess using the ACC/AHA pooled cohort equation (SOR B)
 - Statin dosing for primary prevention according to risk
 - Consider adjunctive testing – hs-CRP
 - Consider lifetime risk
- Avoid added medications to raise HDL in the absence of other compelling indications (SOR A)

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Practice Reflection

What one change will you commit to implementing when you return to practice based on what you've learned in this session?

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Risk Calculator Links

- ACC/AHA Pooled Cohort Equation:
<http://tools.acc.org/ASCVD-Risk-Estimator/>
- Framingham equation:
<http://cvdrisk.nhlbi.nih.gov/>
- Joint British Societies (JBS-3) Calculator:
<http://www.jbs3risk.com/JBS3Risk.swf>
- Reynolds Risk Score:
<http://www.reynoldsriskscore.org/>

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Questions?

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Thank you!

- Charles Carter, MD
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Associated Sessions

- Hyperlipidemia: Beyond the Numbers
- Hyperlipidemia: Ask the Expert

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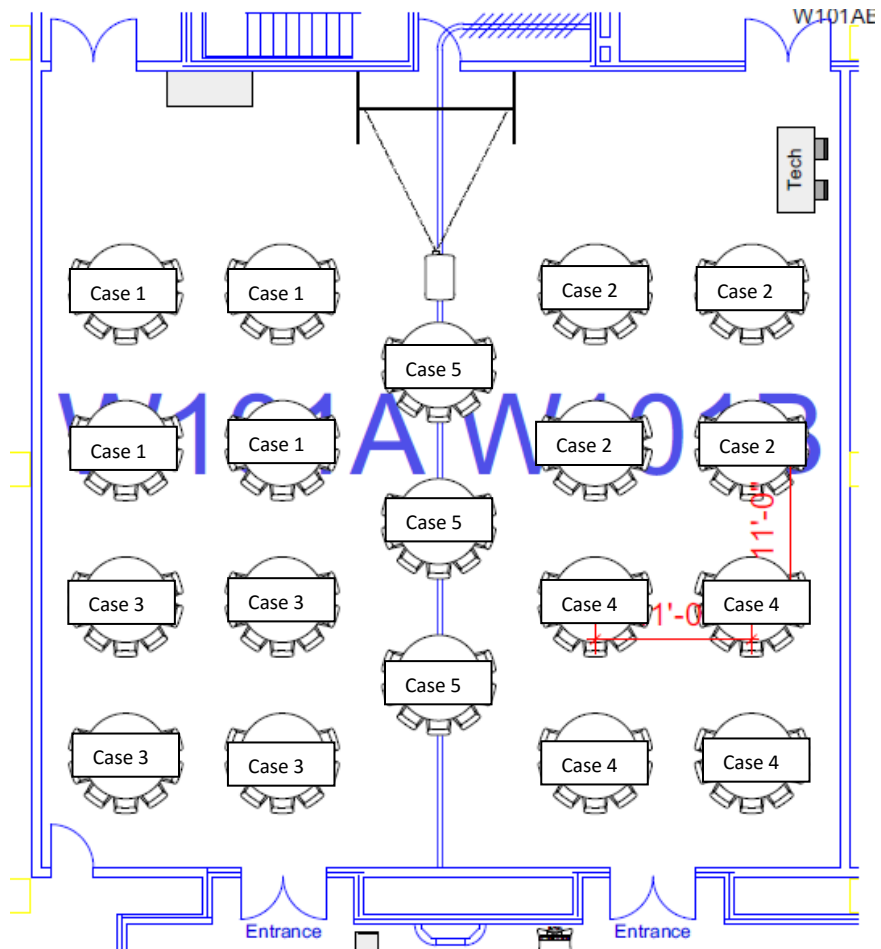
Interested in More CME on this topic?
aafp.org/fmx-cardio

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2016 FMX Problem-based Learning Session - Carter

Hyperlipidemia

Case study materials



PBL case study instructions:

- 1) Your table will have a description of a patient case scenario regarding hyperlipidemia evaluation and/or management. There are a total of five separate cases we will review in this session.
- 2) There will also be a sheet with a set of key questions your group will need to answer.
- 3) We will do group case work for 10 minutes of this session. The remainder of the session will involve review of each case so that all participants can learn from each other.
- 4) To address the key questions you will work within your group. You may use your smart phones, laptops, etc. to access resources you might use at the point-of-care in practice.
 - a. It's recommended you obtain the ACC/AHA Risk Calculator for use in this session. If you don't already have it you can obtain it from your respective app store (smart phone) or at this link: <http://tools.acc.org/ASCVD-Risk-Estimator/>
 - b. When selecting resources, I recommend targeting high quality, evidence-based sources. For example, the U.S. Preventive Services Task Force is preferable to an online news source.
- 5) Your table should elect a "spokesperson" who will enter your responses into the ARS system for your key questions.

At the end of the session:

Please take part in the [Translation to Practice](#)[®] (t2p[™]) opportunity associated with this PBL session. To participate, please **complete Step 1** of t2p[™]. You will indicate how you plan to implement what you've learned in this PBL session. This step should take **less than 5 minutes** to complete.

You can earn an additional 2 AAFP Prescribed credit for completing the t2p[™] process. The link to t2p[™] can be **accessed** at the end of the online **evaluation** for the PBL session.

Case Study Group #1

Two patients you've obtained lipid profiles on as part of routine recommended screening:

Patient	Patient 1	Patient 2
Basic Description	40-year-old African-American man	55-year-old Caucasian woman
Medical History	No HTN No DM	Treated for hypertension No DM
Family History	No family history of CVD	Mother with stroke at age 72
Social history	Does not use tobacco	Smokes cigarettes
Blood pressure	120/80	120/80
Lipid profile data	Total Cholesterol 190 HDL 48	Total Cholesterol 213 HDL 50

Key Questions:

- 1) Describe the present lipid screening recommendations for adults.
- 2) List the key components of cardiovascular risk?
- 3) Calculate the atherosclerotic cardiovascular disease (ASCVD) event risk using the ACC/AHA Pooled Cohort Equation: <http://tools.acc.org/ASCVD-Risk-Estimator/>

	Patient 1	Patient 2
	40-year-old African-American man	55-year-old Caucasian woman
10-year risk of ASCVD?		
Lifetime ASCVD risk?		
Your treatment recommendation?		

- 4) Is the 10-year event risk an absolute or relative risk? Why is this important?
- 5) For Patient #2, calculate the changes in her 10-year risk by altering the following risk factors:

Risk factor	ASCVD 10-year risk % Changing one factor	ASCVD 10-year risk % Compounding each factor
Change her age to 65		
She was African-American		
She doesn't use tobacco		
Her blood pressure is 145/85		
She develops diabetes		

Case Study Group #2

Patient	Patient 3
Basic Description	65-year-old Indian-American man (DOB 9/3/1952)
Medical History	HTN- Stage 1, amlodipine/benazepril No DM
Family History	No FH of premature ASCVD
Social history	Does not use tobacco Vegetarian, regularly exercises Associate Dean at a medical school Immigrated to U.S. 20 years ago
Blood pressure	110/70 Ht: 69 in, Wt: 172, BMI – 25
Lipid profile data	Total Cholesterol 171 HDL 44 LDL 109 Triglycerides 89

Key Questions:

- 1) Based on his history, please calculate his 10-year CVD risk using the following calculators:
 - Framingham equation: <http://cvdrisk.nhlbi.nih.gov/>
 - ACC/AHA Pooled Cohort Equation: <http://tools.acc.org/ASCVD-Risk-Estimator/>
 - Joint British Societies (JBS-3) Calculator: <http://www.jbs3risk.com/JBS3Risk.swf>

Calculator	Framingham	ACC/AHA Pooled Cohort	JBS3 Calculator
10-year risk%			

- 2) What would your recommendation be to this patient?
 - a. Is statin treatment recommended for this patient?
 - b. What other treatments (if any) would you recommend?

- 3) In a situation where you recommend a statin medication, what are reasons a patient (or a clinician) would not want to use a medication?

Case Study Group #3

Patient	Patient 4	Patient 5
Basic Description	36 year-old Caucasian woman	28 year-old Caucasian man
Medical History	HTN- Stage 1, HCTZ 12.5 mg No DM Obesity-BMI 40 Polycystic ovarian syndrome	No HTN No DM BMI 22
Family History	FH of premature ASCVD in father (CABG @ 38) Paternal GM MI 50, Paternal GGM MI age 57	FH of premature ASCVD in father (MI @ 45) Paternal GM – “heart disease”
Social history	Does not use tobacco Vegetarian, regularly exercises	Does not use tobacco Regularly exercises – 30-60 minutes 5 times/week Completed first marathon last fall
Blood pressure	120/80	116/70
Lab data	Total Cholesterol 147 HDL 40 LDL 78 VLDL 35 Triglycerides 177 hs-CRP 13.2	Total Cholesterol 180 HDL 28 LDL 124

Based on her history, please calculate her 10-year CVD risk using the following calculators:
 ACC/AHA Pooled Cohort Equation: <http://tools.acc.org/ASCVD-Risk-Estimator/>
 Reynolds Risk Score: <http://www.reynoldsriskscore.org/>

ACC/AHA Pooled Cohort	Reynolds Risk
10-year risk%:	Risk by Age 45: Risk by Age 55:
Lifetime risk%:	Risk by Age 65: Risk by Age 75:

Please calculate his lifetime CVD risk using the ACC/AHA Pooled Cohort Equation: <http://tools.acc.org/ASCVD-Risk-Estimator/>

His lifetime risk%	
Enter lifetime risk values by changing the following factors (change each one individually):	
Factor	Lifetime risk%
Woman	
Total cholesterol 170	
HDL 55	
Smoker	

- 1) What defines a family history of premature atherosclerotic cardiovascular disease (ASCVD)?
- 2) What interventions would you recommend for each patient?
 - a. What additional testing would you recommend (if any) for these patients?
 - b. Would you recommend any non-medical or medical treatment?
- 3) How does family history impact your decision making?
- 4) Would you do anything to address his low HDL?
- 5) What are the pros and cons of risk estimation calculators for patients like this?
- 6) What do your findings about altering the risk factors tell you about lifetime risk?

Case Study Group #4

Patient	Patient 6
Basic Description	48 year-old African-American man
Medical History	HTN – lisinopril 20mg, amlodipine 5 mg Type 2 DM – Hgb A1c 6.5% BMI 32
Family History	No FH of premature ASCVD Paternal GM – “heart disease”
Social history	Does not use tobacco Walks 30 minutes 3 times/week
Blood pressure	124/78
Lab data	Total Cholesterol 190 HDL 50 LDL 116 Triglycerides 120

Please calculate his 10-year CVD risk using the following calculators:

ACC/AHA Pooled Cohort Equation: <http://tools.acc.org/ASCVD-Risk-Estimator/>

- 1) Is treatment to address cholesterol indicated for this patient? Why?
- 2) What medication options (please specify doses) would you recommend?
- 3) Change the patient to a woman and recalculate the Pooled Cohort Equation. What medication options (with doses) would you recommend?
- 4) If the patient was less than 40-years-old would you recommend treatment?
- 5) What treatment would you recommend if he or she could not tolerate your initial treatment recommendation?

Case Study Group #5

Patient	Patient 7
Basic Description	68 year-old Hispanic-American man
Medical History	MI – Age 63 HTN – lisinopril 40mg, metoprolol XL 25 mg, amlodipine 10 mg TIA last year – on aspirin 325 mg BMI 28 simvastatin 40 mg
Family History	No FH of premature ASCVD Father died of unknown causes age 60 Mother with stroke age 68
Social history	Former tobacco user, quit 5 years ago Walks 30 minutes 3 times/week
Blood pressure	142/84
Lab data	Total Cholesterol 220 HDL 38 LDL 154 Triglycerides 140

- 1) Do you need to calculate his ASCVD risk? Why or why not?
- 2) What conclusions do you draw regarding his statin therapy based on his lipid profile?
- 3) What recommendations do you have regarding altering his medication regimen?
- 4) This patient comes back to your office and reports that he could not take the statin due to side effects. How do you approach that challenge? What would you recommend?
- 5) Taking a similar patient who just had an MI, what lipid treatment would you recommend?