



## Coronary Artery Disease – Plaque Burden

Thickening of the arteries in the body (atherosclerotic process) begins during adolescence. It is now believed that atherosclerosis is the body's attempt to heal endothelial inflammation or injury. First, fatty streaks form beneath the endothelium (the inner lining of the artery wall). As the fatty streak matures, it develops a lipid core that is covered by smooth muscle and connective tissue to form a fibrous cap. This is called arterial plaque. The plaque enlarges and the lumen of the vessel becomes narrowed/stenosed. Small areas of unstable plaque in the heart may rupture, releasing lipids and necrotic material into the blood stream, which causes an acute thrombus (clot). Acute obstruction, resulting from the rapidly formed clot, is thought to be the cause of many acute events and heart attacks. Areas of slowly enlarging plaque cause mechanical obstruction to blood flow and symptoms of angina.

Anatomy of the heart's blood supply varies considerably from person to person. Evaluation on an individual's heart circulation requires coronary angiogram. The major coronary arteries lie over the heart and feed the heart through smaller arteries in the wall. References to "three vessel" disease usually indicate that the left anterior descending (*LAD*), circumflex (*Cx*) and right coronary artery (*RCA*) are significantly stenosed. Angiogram reveals the *plaque burden*; that is, the number of vessels involved and their percent stenosis.

In general, patients with single-vessel disease do well with either medical or surgical intervention. For example, the symptomatic individual with limited disease who wishes to remain physically active may benefit from opening the artery with a catheter (*percutaneous intervention [PCI]*). The greater the extent of coronary atherosclerosis (*e.g. left main [LMCA] or three vessel disease*) the more compelling CABG becomes, especially if left ventricle (*LV*) function is depressed. Patients with lesser extent of disease and localized lesions are good candidates for PCI.

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Underwriting CAD risk requires detailed analysis of the extent of the disease. Disease severity is assessed by multiple factors including:

- Plaque burden by catheterization
- Number of events and stability
- Systolic LV function
- Diastolic LV function
- Exercise tolerance
- Current symptoms or abnormal stress testing (with or without scan/echo)
- Other vascular disease

For example:

56 year old non-smoking man has a history of an acute myocardial infarction (MI), followed by a cardiac catheterization, showing one vessel disease of 95% in LAD that was stented. He fully recovered with good heart function (LV normal ejection fraction) and negative stress test with favorable METS. He takes aspirin, beta blocker and has normal lipids on a statin drug. This applicant would be rated Non-smoker Plus.

56 year old non-smoking man has a history of an acute MI, followed by a cardiac catheterization showing 3 vessel disease with 95% LAD lesion, 70% in RCA, and 50% Cx. He is recovered after the stents in LAD and RCA, with good heart function (normal LV ejection fraction) and had a negative stress test with favorable METS. He is takes aspirin, beta blocker and has normal lipids on a statin drug. This applicant would be rated Table C.

To get an idea of how a client with a history of Coronary Artery Disease would be viewed in the underwriting process, feel free to use the Ask "RX"pert underwriter on the next page.

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**Coronary Artery Disease - Plaque Burden - Ask "Rx" pert underwriter**  
*(ask our experts)*

Producer \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_  
Client \_\_\_\_\_ Age/DOB \_\_\_\_\_ Sex \_\_\_\_\_

If your client has had CAD, please answer the following:

1. Please list date(s) of the CAD diagnosis: \_\_\_\_\_
2. Has your client had any of the following?\*

<input type="checkbox"/> heart attack	_____	(date)
<input type="checkbox"/> coronary angioplasty (PTCA)	_____	(date)
<input type="checkbox"/> heart failure	_____	(date)
<input type="checkbox"/> CABG	_____	(date)
<input type="checkbox"/> valve surgery	_____	(date)

3. Is your client on any medications (including aspirin)?  
 yes, please give details \_\_\_\_\_  
 no
4. Has a stress (exercise) ECG been completed?  
 yes - normal \_\_\_\_\_ (date)  
 yes - abnormal \_\_\_\_\_ (date)  
 no
5. Has your client had any chest discomfort since the treatment?\*

<input type="checkbox"/> yes, please give details	_____
<input type="checkbox"/> no	

6. Please check if your client has had any of the following:

<input type="checkbox"/> abnormal lipid levels	<input type="checkbox"/> diabetes
<input type="checkbox"/> overweight	<input type="checkbox"/> elevated homocysteine
<input type="checkbox"/> high blood pressure	<input type="checkbox"/> peripheral vascular disease
<input type="checkbox"/> irregular heart beats	
<input type="checkbox"/> cerebrovascular or carotid disease	
7. Has your client smoked cigarettes in the last 12 months?  
 yes  
 no
8. Does your client have any other major health problems (ex: cancer, etc.)?  
 yes, please give details \_\_\_\_\_  
 no

**\*Please submit a copy of any recent angiogram report and any recent stress tests.**

*After reading the Rx for Success on CAD Plaque Burden, please feel free to use this Ask "Rx" pert underwriter for an informal quote.*

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