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Staging **Atherosclerosis**

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Understanding plaque burden to aid in the evaluation and treatment of CAD

An article in the *Journal of Cardiovascular Computed Tomography* defines a novel 4-tiered atherosclerosis plaque-burden staging system to assist providers in individualizing patient diagnosis and management of coronary artery disease.[1]

WHY DOES IT MATTER?

Quantification of coronary artery disease (CAD) burden and plaque type has demonstrated to be strongest discriminant of future risk of Major Adverse Cardiac Events (MACE).[2] Atherosclerotic plaque burden also strongly correlates to stenosis severity as well as ischemia.

HOW SHOULD IT BE USED?

- Prior studies have independently shown that increasing Total Plaque Volume (TPV), Percent Atheroma Volume (PAV) as well as Non-Calcified Plaque (NCP) and Low-Density Non-Calcified Plaque (LD-NCP) are prognostic for future MACE.
- Useful for individualizing treatment regimens including pharmacological therapies for patients based on plaque volumes.

Stage Description	TPV (mm^3)	PAV (%)	Medical Therapy	Possible Examples* (GDMT = Guidelines Directed Medical Therapy)
Stage 0: No Plaque	0	0	May not be necessary	Baseline GDMT. *Consider de-escalation.*
Stage 1: Mild Plaque	>0 to 250	>0 to 5%	Guideline-directed medical therapy	Statins. Ezetimibe.
Stage 2: Moderate Plaque	>250 to 750	>5-15%	Moderately Intensive	High Intensity Statins. Ezetimibe. Rivaroxaban. Aspirin. Inclisiran. Bempedoic Acid. Others
Stage 3: Severe Plaque	>750	>15%	Most Intensive	High Intensity Statins. Ezetimibe. Rivaroxaban. Aspirin. PCSK-9 inhibitor. Colchicine. Icosapent ethyl. Inclisiran. Bempedoic Acid. Others

*Medical therapy should be prescribed by a healthcare practitioner. These examples are for illustrative purposes alone.

Sources: 1. DOI: 10.1016/j.jcct.2022.03.001; 2. Chang HJ, Lin FY, Lee SE, et al. Coronary Atherosclerotic Precursors of Acute Coronary Syndromes. J Am Coll Cardiol 2018;71(22):2511-2522. DOI: 10.1016/j.jacc.2018.02.079

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