

Personal Report Card Provided to Physicians Referring Patients With Stable Angina for Cardiac Catheterization

Choosing Wisely Canada Recommendation

Don't order or refer for percutaneous coronary intervention in patients with stable Coronary Artery Disease (CAD) who do not have high-risk features, are asymptomatic, or have not been on optimal medical therapy.

Practice Points

1. Typical angina is present when the following three criteria are present:
 - a. Retrosternal discomfort
 - b. Provoked by exercise or stress
 - c. Relieved by rest or NTG
2. The presence of one of the three criteria implies non-anginal chest pain with low probability of critical CAD; two criteria imply atypical angina with intermediate probability of critical CAD.
3. Exercise stress testing adds little to the probability of diagnosing critical disease in those without known CAD.
4. Advanced non-invasive testing (Myoview testing or coronary CT) to identify patients at high ischemic risk improves the probability of diagnosing critical CAD with catheterization.
5. The percentage of males referred for stable angina from 2014–2017 diagnosed with critical CAD was 60% and of females, 32%. Consequently, advanced non-invasive testing, particularly in women with stable angina, is advised.

In Patients WITH Established CAD	
Exercise Stress Test (EST) can be used to assess exercise tolerance and risk stratify	
Functional imaging more helpful to assess for Ischemia (Persantine or Exercise Myoview) – invasive coronary angiography (ICA) referral if high risk features	
High Risk	Large area of ischemia (particularly if anterior) <ul style="list-style-type: none"> • Multiple moderate defects • LV dysfunction with exertion (or transient ischemic dilation) • Severe LV dysfunction (if not already pre-existing)
Low Risk	Can treat with antianginals. Refer for ICA if significant symptoms despite medical therapy
No mortality benefit of ICA vs medical therapy in stable angina – referral for ICA should be <u>symptom driven or high risk features present.</u>	

In Patients WITHOUT Established CAD	
EST particularly poor at establishing significant disease in women (Our data and prior published data)	
If EST as first line test – do not refer directly for Cardiac Cath unless High Risk	
High Risk	Duke Score less than -11
	Ventricular arrhythmias (VT or VF) – ectopy with exercise – use further non-invasive tests
	Diagnostic ECG abnormality at <3min
	Prolonged ST depression >5 min into recovery
	Hypotensive BP response to exercise
Do NOT Perform EST	ST elevation
	Abnormal baseline ECG – no significant diagnostic value
	Asymptomatic – no testing indicated

Methods

1. All patients in the APPROACH database who had cardiac catheterization (CC) for stable angina from 2007–2017 were analyzed. Critical CAD was defined as ≥ 1 vessel with stenosis ≥ 70% or left main artery ≥ 50%.
2. To improve the appropriateness of referral, in summer 2019, each referring physician was sent by email and by registered mail a personal report card and detailing concerning patient work-up.

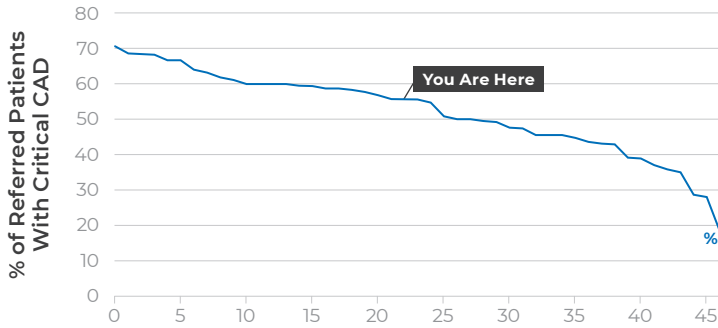
The content of the report card compared to 46 peers is presented using data from one consenting physician.

Results (Sample Personal Report)

Percentage With Critical CAD in All Referred Patients

Number of Patients Who Had CATH	Number With Critical CAD	% With Critical CAD	Tertile
174	97	55.7	Mid

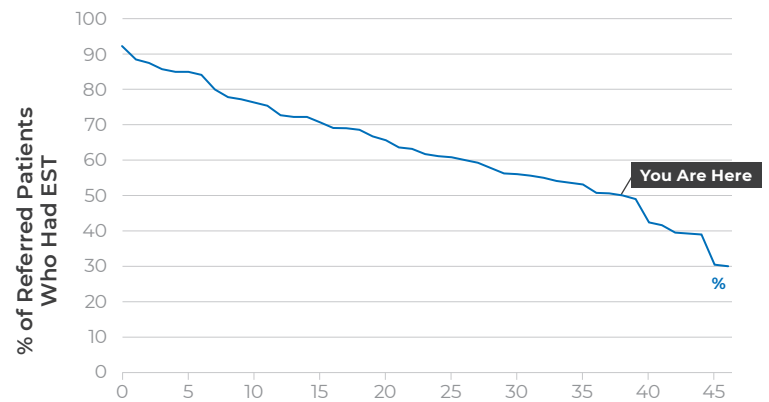
Percent of Referred Patients With Critical CAD Ranked by Physician



Percentage of All Patients Who Had Exercise Stress Test (EST)

Number of Patients Who Had EST	% With EST	Tertile
88	50.6	Low

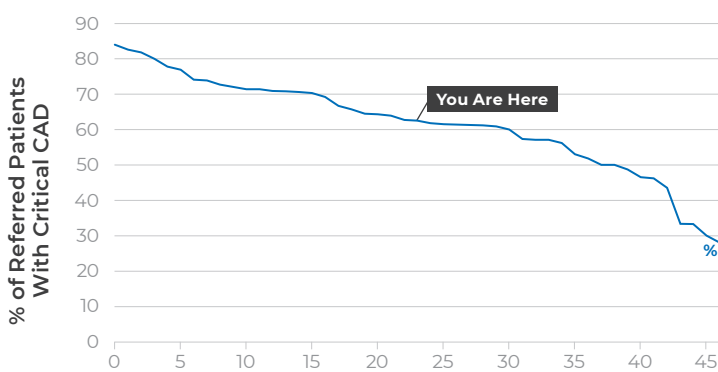
% of Referred Patients Who Had Exercise Stress Test Referred by Physician



Percentage with Critical CAD in All Referred Males

Number of Male Patients Who Had CATH	Number With Critical CAD	% With Critical CAD	Tertile
118	74	62.7	Mid

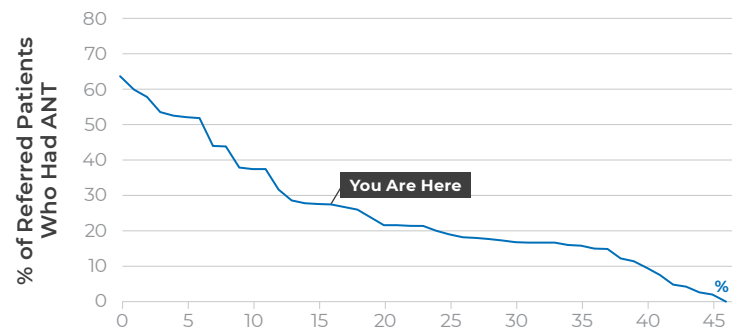
Percent of Referred Male Patients With Critical CAD Ranked by Physician



Percentage of All Patients Who Had Advanced Non-Invasive Test (Coronary CT or Myoview) (ANT)

Number of Patients Who Had ANT	% With ANT	Tertile
48	27.6	Mid

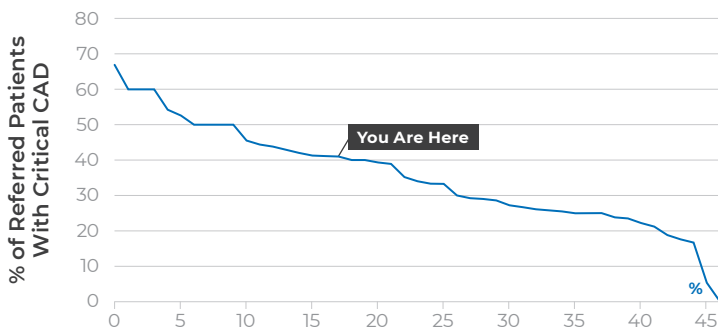
% of Referred Patients Who Had at Least One ANT Referred by Physician



Percentage with Critical CAD in All Referred Females

Number of Female Patients Who Had CATH	Number With Critical CAD	% With Critical CAD	Tertile
56	23	41.1	Mid

Percent of Referred Female Patients With Critical CAD Ranked by Physician



Conclusion

1. Invasive coronary angiography should only be undertaken in patients with stable angina with high risk features on history or on advanced non-invasive testing, provided coronary revascularization is considered an option.