BSC6.02	Elective Percutaneous Coronary Intervention (PCI)		
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Section:	7.0 Surgery	**Page:**	Page 1 of 24

The medical necessity criteria outlined in this document govern the appropriate use of non-emergent coronary revascularizations in general, but focus on non-emergent percutaneous coronary interventions (PCI) in particular.

This medical policy is not intended to address PCI for acute coronary syndrome (ACS). See Policy Guidelines section for more details.

Policy Statement

Elective (NOT emergent) coronary revascularization utilizing percutaneous coronary intervention for non-acute, stable coronary artery disease may be considered **medically necessary** when **all** of the following criteria are met:

I. The patient and cardiologist together have reviewed and signed the "Blue Shield of California CAD" decision aid
II. The patient has completed and signed the "CollaboRATE" survey
III. Documentation of clinical evaluation includes **all** of the following[2,3,4,5]:
   A. The patient exhibits chronic symptoms of Class I, II, III or IV angina (Canadian Cardiovascular Society Grading of Angina Pectoris, Class I, II, III or IV, see Policy Guidelines section) that persist despite optimal antianginal medical therapy (OAMT) (see Policy Guidelines section), as tolerated, which includes at minimum use of two of four anti-anginal classes of agents (i.e., beta blockers, calcium channel blockers, sodium channel blockers, nitrates)
   B. Symptomatic individuals with 1 or more severe (greater than or equal to 70% diameter) epicardial (non-left main) artery or intermediate (50 to 69% diameter) left main coronary artery stenosis detected by diagnostic coronary angiography (see Policy Guidelines section), or with a Fractional Flow Reserve (FFR) using Coronary Computed Tomography Angiography (CCTA) of less than or equal to 0.80
IV. Utilizing the ACC/AATS/AHA/ASE/ASNC/SCAI/SCCT/STS 2017 Appropriate Use Criteria (AUC) for Coronary Revascularization in patients with Stable Ischemic Heart Disease (SIHD), a rated level of appropriateness and the specific clinical scenario (e.g., one-vessel disease, two-vessel disease, three-vessel disease, left main disease, SIHD with prior CABG) must be documented in the medical record:
   A. The "appropriate use" score is rated level 7 – 9
   B. The "appropriate use" score is rated level is 4 – 6 ("may be appropriate") or 1 – 3 ("rarely appropriate") and includes a brief narrative in the medical record describing the clinical scenario(s) justifying the revascularization procedure. Clinical risk factors which may support the procedure include **one or more** of the following:
      1. Unusual location of obstruction(s), unusual coronary anatomy, or unusual flow dynamics
      2. Intercurrent cardiac disease (e.g., congestive heart failure, myocardial disease, arrhythmia, valvular disease)
      3. Current or recent smoking history (within one year)
      4. Difficult-to-control, or uncontrolled hypertension, or uncontrolled dyslipidemia on maximal therapy
      5. Diabetes mellitus with a first or second degree relative with premature coronary artery disease (i.e., age less than 65 with an MI or coronary intervention)
      6. Strong family history of coronary artery disease
      7. Prior PCI or CABG procedure

Elective coronary revascularization for non-acute, stable coronary artery disease is considered **not medically necessary** for all other indications, including if the patient is unwilling to comply

with recommended medical therapy, or if the patient is unlikely to benefit from the proposed procedure (e.g., limited life expectancy from concomitant disease).

NOTE: Refer to Appendix A to see the policy statement changes (if any) from the previous version.

Policy Guidelines

Emergent catheterization to treat an acute coronary syndrome does NOT require prior authorization.

Percutaneous coronary interventions (PCI) are non-surgical procedures performed using vascular access through skin which restores patency of diseased coronary arteries, performed with or without coronary stent implantation. For the sake of this policy, this includes coronary atherectomy for the treatment of coronary artery disease (CAD). Elective surgical revascularization procedures, (e.g., coronary artery bypass grafting [CABG] procedures), if reviewed, must meet these elective coronary revascularization criteria, and also meet appropriateness criteria for use of the surgical approach (see Policy Guidelines section).

Acute indications for PCI are defined as those performed in the setting of an acute coronary syndrome, including all myocardial infarctions (ST-segment elevation and non– ST-segment elevation), as well as unstable angina (see Policy Guidelines section).[7] Findings from studies comparing PCI with coronary bypass grafting (CABG) suggest that in most patients with acute CAD with multi-vessel disease or isolated proximal left anterior stenosis amenable to either treatment, CABG led to a significantly lower long-term incidence of ischemic events and the need for repeat interventions. CABG is recommended for patients with more severe disease involving large areas of the myocardium supplied by occluded vessels or significant left main coronary artery disease.

Unexpected PCI in patients with non-acute, stable CAD, being performed immediately during or following the diagnostic coronary angiography ("ad-hoc PCI"), will be retrospectively reviewed post-service. Prior authorization is not required in these cases; however, payment will only be authorized if the medical necessity criteria below, including completion of the patient surveys (*CollaboRATE* and *Blue Shield of California CAD* decision aids) and Blue Shield of California Elective PCI *Prior Authorization Request Form* checklist with ACC appropriate use criteria rating, are met. It is recommended that the surveys be administered to the patient and the Blue Shield of California Elective PCI *Prior Authorization Request Form* checklist criteria be met prior to the diagnostic coronary angiography. Prior authorization is not required if a diagnostic coronary angiogram, or CTA with FFR, has not been performed.

This medical policy is principally derived guidance from a 2017 report of the American College of Cardiology Appropriate Use Criteria Task Force (ACC), American Association for Thoracic Surgery (AATS), American Heart Association (AHA), American Society of Echocardiography (ASE), American Society of Nuclear Cardiology (ASNC), Society for Cardiovascular Angiography Interventions (SCAI), Society of Cardiovascular Computed Tomography (SCCT), Society of Thoracic Surgeons (STS), **Appropriate Use Criteria (AUC) for Coronary Revascularization in Patients with Stable Ischemic Heart Disease (SIHD),** as published in the Journal of the American College of Cardiology.[1]

Preferential Use of Coronary Artery Bypass Grafting Over Percutaneous Coronary Interventions
In certain complex clinical circumstances, including but not limited to two-vessel disease including left anterior descending stenosis, three-vessel disease, left main stenosis, or prior bypass surgery, revascularization itself is generally thought to be appropriate, but the use of percutaneous procedures may or may not be considered medically appropriate (See Tables listed in the Policy Guidelines section below). In these cases, coronary artery bypass surgery becomes medically necessary instead of PCI, therefore, additional documentation is required to justify use of PCI over CABG.

According to Singh et al other factors may influence the choice of revascularization procedures, and may be considered in appropriateness decision-making. In general, CABG is preferred in cases in which significant blockage is present in several sites in the same artery, where SYNTAX scores (see below for definition) are high, and in patients in whom there is a history of diabetes, excessive bleeding, aspirin (or clopidogrel) allergy, or left ventricular systolic dysfunction (with an ejection fraction of less than 45% or documented diastolic dysfunction). On the other hand, in cases of high stroke risk, dementia, previous CABG, or significant pulmonary disease, PCI may be preferable.[6]

Canadian Cardiovascular Society Grading of Angina Pectoris
The reference standard used for the grading of angina severity is the Canadian Cardiovascular Society system:

- **Grade I**: Ordinary physical activity does not cause angina, such as walking and climbing stairs. Angina with strenuous or rapid or prolonged exertion at work or recreation.
- **Grade II**: Slight limitation of ordinary activity. Walking or climbing stairs rapidly, walking uphill, walking or stair climbing after meals, or in cold, or in wind, or under emotional stress, or only during the few hours after awakening. Walking more than two blocks on the level and climbing more than one flight of ordinary stairs at a normal pace and in normal conditions.
- **Grade III**: Marked limitation of ordinary physical activity. Walking one or two blocks on the level and climbing one flight of stairs in normal conditions and at normal pace.
- **Grade IV**: Inability to carry on any physical activity without discomfort, anginal syndrome may be present at rest.

Unstable angina is considered to be present in patients with ischemic symptoms suggestive of acute coronary syndrome (ACS) and no elevation in troponin, with or without electrocardiogram (ECG) changes indicative of ischemia (e.g., ST segment depression or transient elevation or new T wave inversion). Three different presentations of unstable angina exist:

- Exertional angina of new onset (even if relieved with rest and requiring a consistent amount of exertion to produce symptoms, angina is considered unstable when it first occurs)
- Exertional angina that was previously stable and now occurs with less physical exertion
- Anginal symptoms at rest

In unstable angina, the cardiac enzymes remain normal or are only very minimally elevated.

Intensity of Anti-Anginal Therapy
Maximal anti-anginal therapy (referred to as "Optimal Medical Therapy" elsewhere in this document) consists of the continuous use of drugs from two of four anti-anginal classes (beta blockers, calcium channel blockers, sodium channel blockers, nitrates) titrated to maximal efficacy and/or tolerance. Minimal therapy is use of one class of anti-anginal drugs. An assumption is made that agents to treat hypertension and hyperlipidemia, as well as anti-platelet agents, are in use as indicated and also titrated to maximally efficacious and/or tolerated effect.

Coronary Anatomical Findings on Diagnostic Coronary Angiography
Typically, elective coronary revascularization procedures would have been preceded by diagnostic coronary angiography, however, significant culprit lesions may be detected on the diagnostic study that should be immediately addressed by PCI to avoid further morbidity. In such circumstances, the request for the PCI procedure may be submitted retroactively, but all criteria for "appropriate" intervention must be met.

For the purpose of the clinical scenarios listed in this policy, a "significant" coronary stenosis for an epicardial (non-left main) artery is equal to or greater than 70% luminal diameter narrowing

by visual assessment, as assessed in the "worst view" projection. For a left main stenosis, greater or equal to 50% narrowing is required.

If questions of the degree of stenosis by visual estimation are encountered, fractional flow reserve (FFR) across the stenosis may be used as an indicator of stenosis severity. With an FFR of 1.0 is widely accepted as normal, an FFR lower than 0.75-0.80 is generally considered to be associated with significant stenosis/myocardial ischemia. Intravascular plaque morphology resulting in significant stenosis may also be determined by intravascular ultrasound (IVUS).

Appropriate Use Criteria for Coronary Revascularization
The table below is taken directly from the "ACC/AATS/AHA/ASE/ASNC/SCAI/SCCT/STS 2017 Appropriate Use Criteria (AUC) for Coronary Revascularization in patients with Stable Ischemic Heart Disease (SIHD)" and is to be used for the determination of "appropriate use" in this policy. In the "Appropriate Use Score" columns, Roman numerals I, II, III and IV refer to Canadian Cardiovascular Society angina scores.[1]
(Link to Appropriate Use Criteria for Coronary Revascularization abbreviations)

Table 1. Revascularization to Improve Survival Compared with Medical Therapy

Anatomic Setting	COR	LOE
UPLM or complex CAD		
CABG and PCI	I—Heart Team approach recommended	C
CABG and PCI	IIa—Calculation of STS and SYNTAX scores	B
UPLM*		
CABG	I	B
PCI	IIa—For SIHD when both of the following are present: ▪ Anatomic conditions associated with a low risk of PCI procedural complications and a high likelihood of good long-term outcome (e.g., a low SYNTAX score of ≤22, ostial or trunk left main CAD) ▪ Clinical characteristics that predict a significantly increased risk of adverse surgical outcomes (e.g., STS-predicted risk of operative mortality ≥5%)	B
	IIa—For UA/NSTEMI if not a CABG candidate	B
	IIa—For STEMI when distal coronary flow is TIMI flow grade <3 and PCI can be performed more rapidly and safely than CABG	C
	IIb—For SIHD when both of the following are present: ▪ Anatomic conditions associated with a low to intermediate risk of PCI procedural complications and an intermediate to high likelihood of good long-term outcome (e.g., low-intermediate SYNTAX score of <33, bifurcation left main CAD) ▪ Clinical characteristics that predict an increased risk of adverse surgical outcomes (e.g., moderate—severe COPD, disability from prior stroke, or prior cardiac surgery; STS-predicted operative mortality >2%)	B
	III: Harm—For SIHD in patients (versus performing CABG) with unfavorable anatomy for PCI and who are good candidates for CABG	B
3-vessel disease with or without proximal LAD artery disease*		
CABG	I	B
	IIa—It is reasonable to choose CABG over PCI in patients with complex 3-vessel CAD (e.g., SYNTAX score >22) who are good candidates for CABG.	B
PCI	IIb—Of uncertain benefit	B
2-vessel disease with proximal LAD artery disease*		
CABG	I	B
PCI	IIb—Of uncertain benefit	B
2-vessel disease without proximal LAD artery disease*		
CABG	IIa—With extensive ischemia	B
	IIb—Of uncertain benefit without extensive ischemia	C

Anatomic Setting	COR	LOE
PCI	IIb—Of uncertain benefit	B
1-vessel proximal LAD artery disease		
CABG	IIa—With LIMA for long-term benefit	B
PCI	IIb—Of uncertain benefit	B
1-vessel disease without proximal LAD artery involvement		
CABG	III: Harm	B
PCI	III: Harm	B
LV dysfunction		
CABG	IIa—EF 35% to 50%	B
CABG	IIb—EF <35% without significant left main CAD	B
PCI	Insufficient data	
Survivors of sudden cardiac death with presumed ischemia-mediated VT		
CABG	I	B
PCI	I	C
No anatomic or physiological criteria for revascularization		
CABG	III: Harm	B
PCI	III: Harm	B

COR: Class of Recommendation; LOE: Level of Evidence

Table 1.1 One-Vessel Disease

Appropriate Use Score (1-9)
One-Vessel Disease

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
No Proximal LAD or Proximal Left Dominant LCX Involvement								
1. ■ Low-risk findings on noninvasive testing	R (2)	R (3)	R (3)	R (2)	M (4)	R (3)	A (7)	M (5)
2. ■ Intermediate- or high-risk findings on noninvasive testing	M (4)	R (3)	M (5)	M (4)	M (6)	M (4)	A (8)	M (6)
3. ■ No stress test performed or, if performed, results are indeterminate ■ FFR ≤0.80*	M (4)	R (2)	M (5)	R (3)	M (6)	M (4)	A (8)	M (6)
Proximal LAD or Proximal Left Dominant LCX Involvement Present								
4. ■ Low-risk findings on noninvasive testing	M (4)	R (3)	M (4)	M (4)	M (5)	M (5)	A (7)	A (7)
5. ■ Intermediate- or high-risk findings on noninvasive testing	M (5)	M (5)	M (6)	M (6)	A (7)	A (7)	A (8)	A (8)
6. ■ No stress test performed or, if performed, results are indeterminate ■ FFR ≤0.80	M (5)	M (5)	M (6)	M (6)	M (6)	M (6)	A (8)	A (7)

The number in parentheses next to the rating reflects the median score for that indication. *iFR measurements with appropriate normal ranges may be substituted for FFR.
A indicates appropriate; AA = antianginal; BB = beta blockers; CABG = coronary artery bypass graft; FFR = fractional flow reserve; iFR = instant wave-free ratio; LAD = left anterior descending coronary artery; LCX = left circumflex artery; M = may be appropriate; PCI = percutaneous coronary intervention; and R = rarely appropriate.

Table 1.2 Two-Vessel Disease

Appropriate Use Score (1-9)
Two-Vessel Disease

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
No Proximal LAD Involvement								
7. ■ Low-risk findings on noninvasive testing	R (3)	R (2)	M (4)	R (3)	M (5)	M (4)	A (7)	M (6)
8. ■ Intermediate- or high-risk findings on noninvasive testing	M (5)	M (4)	M (6)	M (5)	A (7)	M (6)	A (8)	A (7)
9. ■ No stress test performed or, if performed, results are indeterminate ■ FFR ≤0.80* in both vessels	M (5)	M (4)	M (6)	M (4)	A (7)	M (5)	A (8)	A (7)
Proximal LAD Involvement and No Diabetes Present								
10. ■ Low-risk findings on noninvasive testing	M (4)	M (4)	M (5)	M (5)	M (6)	M (6)	A (7)	A (7)
11. ■ Intermediate- or high-risk findings on noninvasive testing	M (6)	M (6)	A (7)	A (7)	A (7)	A (7)	A (8)	A (8)
12. ■ No stress test performed or, if performed, results are indeterminate ■ FFR ≤0.80 in both vessels	M (6)	M (6)	M (6)	M (6)	A (7)	A (7)	A (8)	A (8)
Proximal LAD Involvement with Diabetes Present								
13. ■ Low-risk findings on noninvasive testing	M (4)	M (5)	M (4)	M (6)	M (6)	A (7)	A (7)	A (8)
14. ■ Intermediate- or high-risk findings on noninvasive testing	M (5)	A (7)	M (6)	A (7)	A (7)	A (8)	A (8)	A (9)
15. ■ No stress test performed or, if performed, results are indeterminate n FFR ≤0.80 in both vessels*	M (5)	M (6)	M (6)	A (7)	A (7)	A (8)	A (7)	A (8)

The number in parentheses next to the rating reflects the median score for that indication. *iFR measurements with appropriate normal ranges may be substituted for FFR.
A indicates appropriate; AA, antianginal; BB, beta blockers; CABG, coronary artery bypass graft; FFR, fractional flow reserve; iFR, instant wave-free ratio; LAD, left anterior descending coronary artery; M, may be appropriate; PCI, percutaneous coronary intervention; and R, rarely appropriate.

Table 1.3 Three-Vessel Disease

Appropriate Use Score (1-9)
Three-Vessel Disease

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
Low Disease Complexity (e.g., Focal Stenosis, SYNTAX ≤22)								
16. ■ Low-risk findings on noninvasive testing ■ No diabetes	M (4)	M (5)	M (5)	M (5)	M (6)	M (6)	A (7)	A (7)
17. ■ Intermediate- or high-risk findings on noninvasive testing ■ No diabetes	M (6)	A (7)	A (7)	A (7)	A (7)	A (8)	A (8)	A (8)
18. ■ Low-risk findings on noninvasive testing ■ Diabetes present	M (4)	M (6)	M (5)	M (6)	M (6)	A (7)	A (7)	A (8)

Table 1.3 Three-Vessel Disease

Appropriate Use Score (1-9)
Three-Vessel Disease

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
Low Disease Complexity (e.g., Focal Stenosis, SYNTAX ≤22)								
19. ■ Intermediate- or high-risk findings on noninvasive testing ■ Diabetes present	M (6)	A (7)	M (6)	A (8)	A (7)	A (8)	A (7)	A (9)
Intermediate or High Disease Complexity (e.g. Multiple Features of Complexity as Noted Previously, SYNTAX >22)								
20. ■ Low-risk findings on noninvasive testing ■ No diabetes	M (4)	M (6)	M (4)	A (7)	M (5)	A (7)	M (6)	A (8)
21. ■ Intermediate- or high-risk findings on noninvasive testing ■ No diabetes	M (5)	A (7)	M (6)	A (7)	M (6)	A (8)	M (6)	A (9)
22. ■ Low-risk findings on noninvasive testing ■ Diabetes present	M (4)	A (7)	M (4)	A (7)	M (5)	A (8)	M (6)	A (9)
23. ■ Intermediate- or high-risk findings on noninvasive testing ■ Diabetes present	M (4)	A (8)	M (5)	A (8)	M (5)	A (8)	M (6)	A (9)

The number in parentheses next to the rating reflects the median score for that indication.
A indicates appropriate; AA = antianginal; BB = beta blockers; CABG = coronary artery bypass graft; M = may be appropriate; PCI = percutaneous coronary intervention; and SYNTAX = Synergy between PCI with Taxus and Cardiac Surgery trial.

Table 1.4 Left Main Coronary Artery Stenosis

Appropriate Use Score (1-9)
Left Main Disease

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
24. ■ Isolated LMCA disease ■ Ostial or midshaft stenosis	M (6)	A (8)	A (7)	A (8)	A (7)	A (9)	A (7)	A (9)
25. ■ Isolated LMCA disease ■ Bifurcation involvement	M (5)	A (8)	M (5)	A (8)	M (5)	A (9)	M (6)	A (9)
26. ■ LMCA disease ■ Ostial or midshaft stenosis ■ Concurrent multivessel disease ■ Low disease burden (e.g., 1–2 additional focal stenosis, SYNTAX score >22)	M (6)	A (8)	M (6)	A (9)	A (7)	A (9)	A (7)	A (9)
27. ■ Ostial or midshaft stenosis ■ Concurrent multivessel disease ■ Intermediate or high disease burden (e.g., 1–2 additional bifurcation stenosis, long stenosis, SYNTAX score >22)	M (4)	A (9)	M (4)	A (9)	M (4)	A (9)	M (4)	A (9)
28. ■ LMCA disease ■ Bifurcation involvement ■ Low disease burden in other vessels (e.g., 1–2 additional focal stenosis, SYNTAX score ≤22)	M (4)	A (8)	M (5)	A (8)	M (5)	A (9)	M (6)	A (9)

Table 1.4 Left Main Coronary Artery Stenosis

Appropriate Use Score (1-9)
Left Main Disease

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
29. ■ LMCA disease ■ Bifurcation involvement ■ Intermediate or high disease burden in other vessels (e.g., 1–2 additional bifurcation stenosis, long stenosis, SYNTAX score >22)	R (3)	A (8)	R (3)	A (9)	R (3)	A (9)	R (3)	A (9)

The number in parentheses next to the rating reflects the median score for that indication.
A indicates appropriate; AA = antianginal; BB = beta blockers; CABG = coronary artery bypass graft; LMCA = left main coronary artery; M = may be appropriate; PCI = percutaneous coronary intervention; R = rarely appropriate; and SYNTAX = Synergy between PCI with Taxus and Cardiac Surgery trial.

Table 2.1 Internal Mammary Artery to Left Anterior Descending Coronary Artery Patent and without Significant Stenosis

Appropriate Use Score (1-9)

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
Stenosis Supplying 1 Territory Disease (Bypass Graft or Native Artery) to Territory Other Than Anterior								
30. ■ Low-risk findings on noninvasive testing	R (3)	R (1)	R (3)	R (2)	M (6)	R (3)	A (7)	M (4)
31. ■ Intermediate- or high-risk findings on noninvasive testing	M (5)	R (3)	M (5)	R (3)	A (7)	M (4)	A (8)	M (5)
32. ■ No stress test performed or, if performed, results are indeterminate ■ FFR ≤ 0.80*	M (4)	R (3)	M (4)	R (3)	M (6)	M (4)	A (8)	M (5)
Stenosis Supplying 2 Territories (Bypass Graft or Native Artery, Either 2 Separate Vessels or Sequential Graft Supplying 2 Territories) Not Including Anterior Territory								
33. ■ Low-risk findings on noninvasive testing	R (3)	R (2)	M (4)	R (3)	M (6)	R (3)	A (7)	M (5)
34. ■ Intermediate- or high-risk findings on noninvasive testing	M (5)	R (3)	M (5)	M (4)	A (7)	M (5)	A (8)	M (6)

The number in parentheses next to the rating reflects the median score for that indication. *iFR measurements with appropriate normal ranges may be substituted for FFR.
A indicates appropriate; AA = antianginal; BB = beta blockers; CABG = coronary artery bypass graft; FFR = fractional flow reserve; iFR = instant wave-free ratio; IMA = internal mammary artery; LAD = left anterior descending coronary artery; LCX = left circumflex artery; M = may be appropriate; PCI = percutaneous coronary intervention; and R = rarely appropriate.

Table 2.2 Internal Mammary Artery to Left Anterior Descending Coronary Artery Not Patent

Appropriate Use Score (1-9)

	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
Stenosis Supplying 1 Territory Disease (Bypass Graft or Native Artery)–Anterior (LAD) Territory								
35. ■ Low-risk findings on noninvasive testing	M (5)	R (3)	M (5)	R (3)	M (6)	M (4)	A (7)	M (5)

Table 2.2 Internal Mammary Artery to Left Anterior Descending Coronary Artery Not Patent

Appropriate Use Score (1-9)	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
Stenosis Supplying 1 Territory Disease (Bypass Graft or Native Artery)–Anterior (LAD) Territory								
36. ■ Intermediate- or high-risk findings on noninvasive testing	M (6)	M (4)	M (6)	M (4)	A (7)	M (5)	A (8)	M (6)
37. ■ No stress test performed or, if performed, results are indeterminate ■ FFR ≤ 0.80*	M (5)	M (4)	M (6)	M (4)	A (7)	M (5)	A (8)	M (6)
Stenosis Supplying 2 Territories (Bypass Graft or Native Artery, Either 2 Separate Vessels or Sequential Graft Supplying 2 Territories) LAD Plus Other Territory								
38. ■ Low-risk findings on noninvasive testing	M (5)	M (4)	M (6)	M (4)	A (7)	M (5)	A (7)	M (6)
39. ■ Intermediate- or high-risk findings on noninvasive testing	M (6)	M (5)	A (7)	M (6)	A (7)	A (7)	A (8)	A (8)
Stenosis Supplying 3 Territories (Bypass Graft or Native Arteries, Separate Vessels, Sequential Grafts, or Combination Thereof) LAD Plus 2 Other Territories								
40. ■ Low-risk findings on noninvasive testing	M (5)	M (5)	M (6)	M (5)	M (6)	M (6)	A (7)	A (7)
41. ■ Intermediate- or high-risk findings on noninvasive testing	A (7)	A (7)	A (7)	A (7)	A (7)	A (7)	A (8)	A (8)

The number in parentheses next to the rating reflects the median score for that indication. *iFR measurements with appropriate normal ranges may be substituted for FFR.
A indicates appropriate; AA = antianginal; BB = beta blockers; CABG = coronary artery bypass graft; FFR = fractional flow reserve; iFR = instant wave-free ratio; IMA = internal mammary artery; LAD = left anterior descending coronary artery; LCX = left circumflex artery; M = may be appropriate; PCI = percutaneous coronary intervention; and R = rarely appropriate.

Table 3.1 Stable Ischemic Heart Disease Undergoing Procedures for Which Coronary Revascularization May Be Considered

Appropriate Use Score (1-9)	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
Patients Undergoing Renal Transplantation, No Diabetes								
42. ■ One- or two-vessel CAD, no proximal LAD involvement, with low-risk noninvasive findings	R (3)	R (2)	M (4)	R (3)	M (6)	M (4)	A (7)	M (5)
43. ■ One- or two-vessel CAD, no proximal LAD involvement, with intermediate- or high-risk noninvasive findings	M (5)	M (4)	M (6)	M (5)	A (7)	M (5)	A (8)	M (6)
44. ■ One- or two-vessel CAD, including proximal LAD, with low-risk noninvasive findings	M (5)	M (4)	M (6)	M (5)	M (6)	M (6)	A (8)	A (7)
45. ■ One- or two-vessel CAD, including proximal LAD, with intermediate- or high-risk noninvasive findings	M (6)	M (6)	A (7)	A (7)	A (7)	A (7)	A (8)	A (8)
46. ■ Left main and/or three-vessel disease, with intermediate- or high-risk noninvasive findings (e.g., SYNTAX ≤22)	M (6)	A (7)	A (7)	A (7)	A (7)	A (7)	A (8)	A (8)
47. ■ Left main and/or three-vessel disease, with intermediate- or high-risk noninvasive findings (e.g., SYNTAX >22)	M (5)	A (7)	M (6)	A (8)	M (6)	A (8)	M (6)	A (9)

Table 3.1 Stable Ischemic Heart Disease Undergoing Procedures for Which Coronary Revascularization May Be Considered

Appropriate Use Score (1-9)	Asymptomatic				Ischemic Symptoms			
	Not on AA Therapy or With AA Therapy		Not on AA Therapy		On 1 AA Drug (BB Preferred)		On ≥2 AA Drugs	
Indication	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**	**PCI**	**CABG**
Patients Undergoing Renal Transplantation, Diabetes Present								
48. ■ One- or two-vessel CAD, no proximal LAD involvement, with low-risk noninvasive findings	R (3)	R (3)	M (4)	R (3)	M (5)	M (4)	A (7)	M (6)
49. ■ One- or two-vessel CAD, no proximal LAD involvement, with intermediate- or high-risk noninvasive findings	M (5)	M (4)	M (5)	M (4)	M (6)	M (5)	A (7)	A (7)
50. ■ One- or two-vessel CAD, including proximal LAD, with low-risk noninvasive findings	M (5)	M (5)	M (5)	M (6)	M (5)	A (7)	A (7)	A (7)
51. ■ One- or two-vessel CAD, including proximal LAD, with intermediate- or high-risk noninvasive findings	M (6)	M (6)	M (6)	A (7)	M (6)	A (7)	A (7)	A (8)
52. ■ Left main and/or three-vessel disease, with intermediate- or high-risk noninvasive findings (e.g., SYNTAX ≤22)	M (6)	A (8)	M (6)	A (8)	M (6)	A (8)	A (7)	A (9)
53. ■ Left main and/or three-vessel disease, with intermediate- or high-risk noninvasive findings (e.g., SYNTAX >22)	M (5)	A (8)	M (5)	A (8)	M (5)	A (9)	M (5)	A (9)
Patient Who Will Undergo a Percutaneous Valve Procedure (TAVR, MitraClip, Others)								
54. ■ One- or two-vessel CAD, no proximal LAD involvement, with low-risk noninvasive findings	M (4)		M (4)		M (6)		A (8)	
55. ■ One- or two-vessel CAD, no proximal LAD involvement, with intermediate- or high-risk noninvasive findings	A (7)		A (7)		A (7)		A (8)	
56. ■ One- or two-vessel CAD, including proximal LAD, with low-risk noninvasive findings	M (6)		M (6)		A (7)		A (8)	
57. ■ One- or two-vessel CAD, including proximal LAD, with intermediate- or high-risk noninvasive findings	A (7)		A (7)		A (8)		A (9)	
58. ■ Left main and/or three-vessel disease, with intermediate- or high-risk noninvasive findings (e.g., SYNTAX ≤22)	A (8)		A (8)		A (8)		A (9)	
59. ■ Left main and/or three-vessel disease, with intermediate- or high-risk noninvasive findings (e.g., SYNTAX >22)	A (7)		A (7)		A (8)		A (9)	

The number in parentheses next to the rating reflects the median score for that indication. *iFR measurements with appropriate normal ranges may be substituted for FFR.
A indicates appropriate; AA = antianginal; BB, beta blockers; CABG = coronary artery bypass graft; CAD = coronary artery disease; LAD = left anterior descending coronary artery; M = may be appropriate; PCI = percutaneous coronary intervention; and R = rarely appropriate; SYNTAX = Synergy between PCI with Taxus and Cardiac Surgery trial; and TAVR, transcatheter aortic valve replacement.

Syntax Scores

The SYNTAX Score is based on the SYNTAX (Synergy between PCI with TAXUS drug-eluting stent and Cardiac Surgery) trial, which was designed to compare revascularization with either CABG or PCI using paclitaxel-eluting stents for three-vessel disease or left main disease (either isolated left main disease or left main disease with one-, two-, or three-vessel disease involving other arteries). Based on review of coronary angiographic studies, the SYNTAX score considers 11 measures of coronary lesion complexity, including location of lesion, coronary arterial system dominance, length of lesions, presence of heavy calcification, thrombus, total occlusion or diffuse disease, number of diseased segments, vessel tortuosity, and location at a bifurcation, trifurcation or aorto-ostial locus. The SYNTAX trial results indicated that, for more severe CAD

(SYNTAX scores greater than 22 for three-vessel or left main coronary disease), CABG offered a survival advantage over PCI, and it reduced the need for a repeat intervention and overall adverse cardiovascular events up to 4 years after revascularization.

Coding

The following list of CPT and HCPCS codes may be used for different types of coronary revascularization utilizing percutaneous coronary intervention, but this list of codes may not be all inclusive:

CPT

- **92920:** Percutaneous transluminal coronary angioplasty; single major coronary artery or branch
- **92921:** Percutaneous transluminal coronary angioplasty; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
- **92924:** Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; single major coronary artery or branch
- **92925:** Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
- **92928:** Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch
- **92929:** Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
- **92933:** Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch
- **92934:** Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
- **92937:** Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel
- **92938:** Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (List separately in addition to code for primary procedure)
- **92941:** Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty, including aspiration thrombectomy when performed, single vessel
- **92943:** Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; single vessel
- **92944:** Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (List separately in addition to code for primary procedure)
- **92978:** Endoluminal imaging of coronary vessel or graft using intravascular ultrasound (IVUS) or optical coherence tomography (OCT) during diagnostic evaluation and/or therapeutic intervention including imaging supervision, interpretation and report; initial vessel (List separately in addition to code for primary procedure)
- **92979:** Endoluminal imaging of coronary vessel or graft using intravascular ultrasound (IVUS) or optical coherence tomography (OCT) during diagnostic evaluation and/or

therapeutic intervention including imaging supervision, interpretation and report; each additional vessel (List separately in addition to code for primary procedure)

HCPCS

- **C9600:** Percutaneous transcatheter placement of drug eluting intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch
- **C9601:** Percutaneous transcatheter placement of drug-eluting intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)
- **C9602:** Percutaneous transluminal coronary atherectomy, with drug eluting intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch
- **C9603:** Percutaneous transluminal coronary atherectomy, with drug-eluting intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)
- **C9604:** Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel
- **C9605:** Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (list separately in addition to code for primary procedure)
- **C9607:** Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; single vessel
- **C9608:** Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (list separately in addition to code for primary procedure)

Description

Percutaneous coronary interventions (PCI) is a non-surgical procedure used to treat narrowing (stenosis) of the coronary arteries of the heart found in coronary artery disease. After accessing the blood stream through the femoral or radial artery, the procedure uses coronary catheterization to visualize the blood vessels on X-ray imaging, which allows an interventional cardiologist to perform a coronary angioplasty, using a balloon catheter in which a deflated balloon is advanced into the obstructed artery and inflated to relieve the narrowing, performed with or without coronary stent implantation.

Related Policies

- Cardiac Applications of Positron Emission Tomography Scanning

Benefit Application

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

Some state or federal mandates (e.g., Federal Employee Program [FEP]) prohibits plans from denying Food and Drug Administration (FDA)-approved technologies as investigational. In these instances, plans may have to consider the coverage eligibility of FDA-approved technologies on the basis of medical necessity alone.

Regulatory Status

Percutaneous coronary interventions (PCI) are surgical procedures, therefore are not regulated by the U.S. Food and Drug Administration (FDA).

Rationale

Background
The medical necessity criteria outlined in this document govern the appropriate use of non-emergent coronary revascularizations in general, but focus on non-emergent percutaneous coronary interventions (PCI) in particular.

Percutaneous coronary interventions (PCI) are non-surgical procedures performed using vascular access through skin which restores patency of diseased coronary arteries, performed with or without coronary stent implantation. For the sake of this policy, this includes coronary atherectomy for the treatment of coronary artery disease (CAD). Elective surgical revascularization procedures, (e.g., coronary artery bypass grafting [CABG] procedures), if reviewed, must meet these elective coronary revascularization criteria, and also meet appropriateness criteria for use of the surgical approach (see Policy Guidelines section).

This medical policy is not intended to address PCI for acute coronary syndrome (ACS).
Acute indications for PCI are defined as those performed in the setting of an acute coronary syndrome, including all myocardial infarctions (ST-segment elevation and non– ST-segment elevation), as well as unstable angina (see Policy Guidelines section).[7] Findings from studies comparing PCI with coronary bypass grafting (CABG) suggest that in most patients with acute CAD with multi-vessel disease or isolated proximal left anterior stenosis amenable to either treatment, CABG led to a significantly lower long-term incidence of ischemic events and the need for repeat interventions. CABG is recommended for patients with more severe disease involving large areas of the myocardium supplied by occluded vessels or significant left main coronary artery disease.

Unexpected PCI in patients with non-acute, stable CAD, being performed immediately during or following the diagnostic coronary angiography ("ad-hoc PCI"), will be retrospectively reviewed post-service. Prior authorization is not required in these cases; however, payment will only be authorized if the medical necessity criteria below, including completion of the patient surveys (*CollaboRATE* and *Blue Shield of California CAD* decision aids) and Blue Shield of California Elective PCI *Prior Authorization Request Form* checklist with ACC appropriate use criteria rating, are met. It is recommended that the surveys be administered to the patient and the Blue Shield of California Elective PCI *Prior Authorization Request Form* checklist criteria be met prior to the diagnostic coronary angiography. Prior authorization is not required if a diagnostic coronary angiogram, or CTA with FFR, has not been performed.

This medical policy is principally derived guidance from a 2017 report of the American College of Cardiology Appropriate Use Criteria Task Force (ACC), American Association for Thoracic Surgery (AATS), American Heart Association (AHA), American Society of Echocardiography (ASE), American Society of Nuclear Cardiology (ASNC), Society for Cardiovascular Angiography Interventions (SCAI), Society of Cardiovascular Computed Tomography (SCCT), Society of Thoracic Surgeons (STS), **Appropriate Use Criteria (AUC) for Coronary Revascularization in Patients with Stable Ischemic Heart Disease (SIHD),** as published in the Journal of the American College of Cardiology.[1]

Literature Review

Shared Decision Making (SDM)

Shared decision making (SDM) is promoted as an ideal model to incorporate in the treatment plan between patient and physician. This is based on the premise that the best medical decision for an individual patient incorporates the patient's preferences and values through the process of information sharing and planning. This idea involves at least two participants-the clinician and the patient.[9-14] It represents the optimal physician-patient communication. Patients most likely to perceive their physicians as providing excellent care are those experiencing their preferred decision-making style with their primary physicians.[15,16] Studies show that patient satisfaction, medication compliance, and health outcomes are improved by shared decision making.[17-19]

On July 19, 2015, the first joint International Shared Decision-Making/International Society for Evidence-Based Health Care (ISDM/ISEHC) Conference met in Sydney, Australia with over 300 people from around the globe to share knowledge and inspire action to improve the entire health care experience. Highlights of this meeting included:

- "Informed consent" is gaining importance connected with the use of the SDM, which includes a collaborative conversation around the patient's informed preferences and the best available scientific evidence.
- Aligned incentives are necessary to maximize SDM, but not necessarily monetary incentives.
- Increasing in interest and gaining support is the inclusion of family engagement in the decision-making process with the patient/family/care team (called a triad) rather than the patient/care team (called a dyad). The discussion was how to make this a reality, as it has long been felt the family needed to be part of the SDM, but not easily implemented.
- Development of learning programs/greater communication skills for medical students was repeatedly discussed, looking for ways to include training for these as learned skills to build conversations around patient preferences and evidence-based scientific medicine/practice. [20]

Use of decision aids can promote shared decision making, and may improve patients understanding and enable them to make decisions that are fully informed and consistent with their preferences, values and goals. Development of a decision aid (Blue Shield of California "Blue Shield of California CAD" decision aid) to promote shared decision making between clinicians and patients regarding the choice of PCI+ optimal medical therapy (OMT) vs. OMT for treatment of stable CAD. The selection of PCI+OMT vs. OMT alone for stable CAD represents a preference-sensitive decision where comparable, alternative treatments exist. The decision aid is intended for use following stress testing and upstream from diagnostic angiography; if diagnostic angiography is performed, the minority of patients in whom a choice of surgery is then relevant would no longer utilize the decision aid. The resulting decision aid is intended to be nondirective, encouraging clinicians to create a conversation with patients using their own communication styles, while simultaneously ensuring that key information is conveyed and that patient preferences are elicited.[21-25]

Optimal antianginal medical therapy is defined as the use of at least 2 classes of therapies to reduce anginal symptoms. ACC/AHA guidelines suggest that beta-blockers should be considered as initial therapy for chronic stable angina. Current practice guidelines indicate low-risk patients with chronic stable angina should be treated initially with optimal medical therapy (OMT) and lifestyle modification.[26-31]

Current guidelines for the management of stable angina emphasize risk factor modification, namely smoking cessation, exercise, diabetes mellitus management, lipid lowering, antianginal, and antihypertensive therapies. Despite the best efforts of the clinician, all patients may not achieve target goals for risk factor modification. However, a plan of care to address risk factors is assumed to be occurring in patients represented in the indications.[31]

Hospitals and clinicians are encouraged to contribute PCI data to a national Cardiovascular Data Registry (The NCDR CathPCI Registry).

CollaboRATE

Patient-centered health care is a central component of current health policy agendas. Shared decision making (SDM) is considered to be the pinnacle of patient engagement and methods to promote this are becoming commonplace. However, the measurement of SDM continues to prove challenging. Reviews have highlighted the need for a patient-reported measure of SDM that is practical, valid, and reliable to assist implementation efforts. In consultation with patients, CollaboRATE was developed, a 3-item measure of the SDM process.[28] Barr et al (2014) completed a study identifying the need for scalable patient-reported measure of the SDM process. In the current project, the study assessed the psychometric properties of CollaboRATE. A representative sample of the US population was recruited online and was randomly allocated to view 1 of 6 simulated doctor-patient encounters in January 2013. Three dimensions of SDM were manipulated in the encounters: (1) explanation of the health issue, (2) elicitation of patient preferences, and (3) integration of patient preferences. Participants then completed CollaboRATE (possible scores 0-100) in addition to 2 other patient-reported measures of SDM: the 9-item Shared Decision Making Questionnaire (SDM-Q-9) and the Doctor Facilitation subscale of the Patient's Perceived Involvement in Care Scale (PICS). A subsample of participants was resurveyed between 7 and 14 days after the initial survey. This study assessed CollaboRATE's discriminative, concurrent, and divergent validity, intrarater reliability, and sensitivity to change. The final sample consisted of 1341 participants. CollaboRATE demonstrated discriminative validity, with a significant increase in CollaboRATE score as the number of core dimensions of SDM increased from zero (mean score: 46.0, 95% CI: 42.4-49.6) to 3 (mean score 85.8, 95% CI: 83.2-88.4). CollaboRATE also demonstrated concurrent validity with other measures of SDM, excellent intrarater reliability, and sensitivity to change; however, divergent validity was not demonstrated. The fast and frugal nature of CollaboRATE lends itself to routine clinical use. Further assessment of CollaboRATE in real-world settings is required.[12]

Elwyn et al (2013) completed a study with an objective of measuring the process of shared decision making is a challenge, which constitutes a barrier to research and implementation. The aim of the study was to report the development of CollaboRATE, brief patient-reported measure of shared decision making. The following stages were utilized: (1) item formulation; (2) cognitive interviews; (3) item refinement; and (4) pilot testing of final items. Participants were over 18 years old and recruited from the public areas of the Dartmouth-Hitchcock Medical Center. The key finding of this study is that developing a brief patient-reported measure of shared decision making requires a move away from terms such as 'decisions', 'options' and 'preferences'. Although technically correct, these terms act as barriers. They are often unfamiliar, and they also implicitly assume that patients are willing to take active roles in decision making; whereas patients are often unaware that decisions are required, or have taken place, never mind feel that they could or should have participated in them. The outcome of this study concluded that these methods have allowed the development of a brief, patient-reported measure of shared decision making that is highly accessible to intended users.[33]

The principles of shared decision making are well documented but there is a lack of guidance about how to accomplish the approach in routine clinical practice. The aim is to translate existing conceptual descriptions into a three-step model that is practical, easy to remember, and can act as a guide to skill development. Achieving shared decision making depends on building a good relationship in the clinical encounter so that information is shared and patients are supported to deliberate and express their preferences and views during the decision making process. To accomplish these tasks, a model was proposed of how to do shared decision making that is based on choice, option and decision talk. The model has three steps: a) introducing choice, b) describing options, often by integrating the use of patient decision support, and c) helping patients explore preferences and make decisions. This model rests on supporting a process of deliberation, and on understanding that decisions should be influenced

by exploring and respecting "what matters most" to patients as individuals, and that this exploration in turn depends on them developing informed preferences.[32]

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American Society of Nuclear Cardiology; Society of Cardiovascular CT. ACCF/SCAI/STS/AATS/AHA/ASNC/HFSA/SCCT 2012 appropriate use criteria for coronary revascularization focused update: a report of the American College of Cardiology Foundation. J Thorac Cardiovasc Surg. 2012; 143 (4): 780-803.
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33. Elwyn G, Barr PJ, Grande SW et al. Developing CollaboRATE: a fast and frugal patient-reported measure of shared decision making in clinical encounters. Patient Educ Couns. 2013;93(1):102-7.

Documentation for Clinical Review

Please provide the following documentation:

- History and physical and/or consultation notes including:
  - Angina description (Canadian Cardiovascular Society Grading of Angina Pectoris, Class I, II, III or IV)
  - Documentation of 1 or more severe (greater than or equal to 70% diameter) epicardial (non-left main) artery or intermediate (50 to 69% diameter) left main coronary artery stenosis detected by diagnostic coronary angiography, or with a Fractional Flow Reserve (FFR) using Coronary Computed Tomography Angiography (CCTA) of less than or equal to 0.80
- 2017 "Appropriate Use Criteria for Coronary Revascularization" (AUC) score documented by the requesting physician
  - If the AUC score is 7 – 9 ("appropriate use"), (the cardiologist must document the score and indication in the medical records)
  - If the AUC score is 4 – 6 ("may be appropriate") or 1 – 3 ("rarely appropriate"), the cardiologist must also include a brief narrative describing the clinical scenario(s) justifying the revascularization procedure. Clinical risk factors which may support the procedure include **one or more** of the following:
    - Unusual location of obstruction(s), unusual coronary anatomy, or unusual flow dynamics noted by the cardiologist
    - Intercurrent cardiac disease (e.g., congestive heart failure, myocardial disease, arrhythmia, valvular disease)
    - Current or recent smoking history (within one year)
    - Cardiologist documentation of difficult-to-control uncontrolled hypertension on maximal therapy or uncontrolled dyslipidemia on maximal therapy
    - Diabetes mellitus with a first or second degree relative with premature coronary artery disease (i.e., age less than 65, MI or coronary intervention)
    - Strong family history of coronary artery disease
    - Prior PCI or CABG procedure
- Pertinent past procedural and surgical history
- Radiology report(s) (i.e., MRI, FFRCT, CCTA)
- Blue Shield of California CAD Decision Aid ("Let's Talk Coronary Artery Disease") at bsca.com/provider completed and signed by the cardiologist and patient
- CollaboRATE survey by the patient at bsca.com/provider completed and signed by the patient

Post Service (in addition to the above, please include the following):

- In addition to the required Prior Authorization documentation, please include:
  - Results/reports of tests done to support the need for PCI
  - Procedure report for PCI

Coding

This Policy relates only to the services or supplies described herein. Benefits may vary according to product design; therefore, contract language should be reviewed before applying the terms of the Policy. Inclusion or exclusion of codes does not constitute or imply member coverage or provider reimbursement.

Type	Code	Description
CPT®	92920	Percutaneous transluminal coronary angioplasty; single major coronary artery or branch
	92921	Percutaneous transluminal coronary angioplasty; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
	92924	Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; single major coronary artery or branch
	92925	Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
	92928	Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch
	92929	Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
	92933	Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch
	92934	Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)
	92937	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel
	92938	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (List separately in addition to code for primary procedure)
	92941	Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty, including aspiration thrombectomy when performed, single vessel
	92943	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; single vessel
	92944	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary

Type	Code	Description
		artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (List separately in addition to code for primary procedure)
	92978	Endoluminal imaging of coronary vessel or graft using intravascular ultrasound (IVUS) or optical coherence tomography (OCT) during diagnostic evaluation and/or therapeutic intervention including imaging supervision, interpretation and report; initial vessel (List separately in addition to code for primary procedure)
	92979	Endoluminal imaging of coronary vessel or graft using intravascular ultrasound (IVUS) or optical coherence tomography (OCT) during diagnostic evaluation and/or therapeutic intervention including imaging supervision, interpretation and report; each additional vessel (List separately in addition to code for primary procedure)
HCPCS	C1874	Stent, coated/covered, with delivery system
	C9600	Percutaneous transcatheter placement of drug eluting intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch
	C9601	Percutaneous transcatheter placement of drug-eluting intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)
	C9602	Percutaneous transluminal coronary atherectomy, with drug eluting intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch
	C9603	Percutaneous transluminal coronary atherectomy, with drug-eluting intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)
	C9604	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel
	C9605	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (list separately in addition to code for primary procedure)
	C9607	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; single vessel
	C9608	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (list separately in addition to code for primary procedure)

Policy History

This section provides a chronological history of the activities, updates and changes that have occurred with this Medical Policy.

Effective Date	Action
04/17/2017	Custom Policy
12/01/2017	Policy revision without position change
02/01/2018	Policy revision without position change
02/01/2019	Title change from Elective Revascularization Utilizing Percutaneous Coronary Intervention for Non-Acute, Stable Coronary Artery Disease Policy revision without position change
10/01/2019	Administrative update
12/01/2019	Policy revision without position change
04/01/2020	Annual review. Policy statement, guidelines, and documentation for clinical review updated. Coding update.
04/01/2021	Annual review. No change to policy statement.

Definitions of Decision Determinations

Medically Necessary: Services that are Medically Necessary include only those which have been established as safe and effective, are furnished under generally accepted professional standards to treat illness, injury or medical condition, and which, as determined by Blue Shield, are: (a) consistent with Blue Shield medical policy; (b) consistent with the symptoms or diagnosis; (c) not furnished primarily for the convenience of the patient, the attending Physician or other provider; (d) furnished at the most appropriate level which can be provided safely and effectively to the patient; and (e) not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of the Member's illness, injury, or disease.

Investigational/Experimental: A treatment, procedure, or drug is investigational when it has not been recognized as safe and effective for use in treating the particular condition in accordance with generally accepted professional medical standards. This includes services where approval by the federal or state governmental is required prior to use, but has not yet been granted.

Split Evaluation: Blue Shield of California/Blue Shield of California Life & Health Insurance Company (Blue Shield) policy review can result in a split evaluation, where a treatment, procedure, or drug will be considered to be investigational for certain indications or conditions, but will be deemed safe and effective for other indications or conditions, and therefore potentially medically necessary in those instances.

Prior Authorization Requirements (as applicable to your plan)

Within five days before the actual date of service, the provider must confirm with Blue Shield that the member's health plan coverage is still in effect. Blue Shield reserves the right to revoke an authorization prior to services being rendered based on cancellation of the member's eligibility. Final determination of benefits will be made after review of the claim for limitations or exclusions.

Questions regarding the applicability of this policy should be directed to the Prior Authorization Department at (800) 541-6652, or the Transplant Case Management Department at (800) 637-2066 ext. 3507708 or visit the provider portal at www.blueshieldca.com/provider.

Disclaimer: This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. Blue Shield of California may consider published peer-reviewed scientific literature, national

guidelines, and local standards of practice in developing its medical policy. Federal and state law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over medical policy and must be considered first in determining covered services. Member contracts may differ in their benefits. Blue Shield reserves the right to review and update policies as appropriate.

Appendix A

POLICY STATEMENT (No changes)	
BEFORE	**AFTER**
Elective Percutaneous Coronary Intervention (PCI) BSC6.02 **Policy Statement:** **Elective** (NOT emergent) coronary revascularization utilizing percutaneous coronary intervention for non-acute, stable coronary artery disease may be considered **medically necessary** when **all** of the following criteria are met: • The patient and cardiologist together have reviewed and signed the "Blue Shield of California CAD" decision aid • The patient has completed and signed the "CollaboRATE" survey • Documentation of clinical evaluation includes **all** of the following[2,3,4,5]: o The patient exhibits chronic symptoms of Class I, II, III or IV angina (Canadian Cardiovascular Society Grading of Angina Pectoris, Class I, II, III or IV, see Policy Guidelines section) that persist despite optimal antianginal medical therapy (OAMT) (see Policy Guidelines section), as tolerated, which includes at minimum use of two of four anti-anginal classes of agents (i.e., beta blockers, calcium channel blockers, sodium channel blockers, nitrates) o Symptomatic individuals with 1 or more severe (greater than or equal to 70% diameter) epicardial (non-left main) artery or intermediate (50 to 69% diameter) left main coronary artery stenosis detected by diagnostic coronary angiography (see Policy Guidelines section), or with a Fractional Flow Reserve (FFR) using Coronary Computed Tomography Angiography (CCTA) of less than or equal to 0.80 • Utilizing the ACC/AATS/AHA/ASE/ASNC/SCAI/SCCT/STS 2017 Appropriate Use Criteria (AUC) for Coronary Revascularization in patients with Stable Ischemic Heart Disease (SIHD), a rated level of appropriateness and the specific clinical scenario (e.g., one-vessel disease, two-vessel disease, three-vessel disease, left main disease, SIHD with prior CABG) must be documented in the medical record:	**Elective Percutaneous Coronary Intervention (PCI) BSC6.02** **Policy Statement:** **Elective** (NOT emergent) coronary revascularization utilizing percutaneous coronary intervention for non-acute, stable coronary artery disease may be considered **medically necessary** when **all** of the following criteria are met: I. The patient and cardiologist together have reviewed and signed the "Blue Shield of California CAD" decision aid II. The patient has completed and signed the "CollaboRATE" survey III. Documentation of clinical evaluation includes **all** of the following[2,3,4,5]: A. The patient exhibits chronic symptoms of Class I, II, III or IV angina (Canadian Cardiovascular Society Grading of Angina Pectoris, Class I, II, III or IV, see Policy Guidelines section) that persist despite optimal antianginal medical therapy (OAMT) (see Policy Guidelines section), as tolerated, which includes at minimum use of two of four anti-anginal classes of agents (i.e., beta blockers, calcium channel blockers, sodium channel blockers, nitrates) B. Symptomatic individuals with 1 or more severe (greater than or equal to 70% diameter) epicardial (non-left main) artery or intermediate (50 to 69% diameter) left main coronary artery stenosis detected by diagnostic coronary angiography (see Policy Guidelines section), or with a Fractional Flow Reserve (FFR) using Coronary Computed Tomography Angiography (CCTA) of less than or equal to 0.80 IV. Utilizing the ACC/AATS/AHA/ASE/ASNC/SCAI/SCCT/STS 2017 Appropriate Use Criteria (AUC) for Coronary Revascularization in patients with Stable Ischemic Heart Disease (SIHD), a rated level of appropriateness and the specific clinical scenario (e.g., one-vessel disease, two-vessel disease, three-vessel disease, left main disease, SIHD with prior CABG) must be documented in the medical record: A. The "appropriate use" score is rated level 7 – 9

POLICY STATEMENT (No changes)	
BEFORE	**AFTER**
o The "appropriate use" score is rated level 7 – 9 o The "appropriate use" score is rated level is 4 – 6 ("may be appropriate") or 1 – 3 ("rarely appropriate") and includes a brief narrative in the medical record describing the clinical scenario(s) justifying the revascularization procedure. Clinical risk factors which may support the procedure include **one or more** of the following: ▪ Unusual location of obstruction(s), unusual coronary anatomy, or unusual flow dynamics ▪ Intercurrent cardiac disease (e.g., congestive heart failure, myocardial disease, arrhythmia, valvular disease) ▪ Current or recent smoking history (within one year) ▪ Difficult-to-control, or uncontrolled hypertension, or uncontrolled dyslipidemia on maximal therapy ▪ Diabetes mellitus with a first or second degree relative with premature coronary artery disease (i.e., age less than 65 with an MI or coronary intervention) ▪ Strong family history of coronary artery disease ▪ Prior PCI or CABG procedure Elective coronary revascularization for non-acute, stable coronary artery disease is considered **not medically necessary** for all other indications, including if the patient is unwilling to comply with recommended medical therapy, or if the patient is unlikely to benefit from the proposed procedure (e.g., limited life expectancy from concomitant disease).	B. The "appropriate use" score is rated level is 4 – 6 ("may be appropriate") or 1 – 3 ("rarely appropriate") and includes a brief narrative in the medical record describing the clinical scenario(s) justifying the revascularization procedure. Clinical risk factors which may support the procedure include **one or more** of the following: 1. Unusual location of obstruction(s), unusual coronary anatomy, or unusual flow dynamics 2. Intercurrent cardiac disease (e.g., congestive heart failure, myocardial disease, arrhythmia, valvular disease) 3. Current or recent smoking history (within one year) 4. Difficult-to-control, or uncontrolled hypertension, or uncontrolled dyslipidemia on maximal therapy 5. Diabetes mellitus with a first or second degree relative with premature coronary artery disease (i.e., age less than 65 with an MI or coronary intervention) 6. Strong family history of coronary artery disease 7. Prior PCI or CABG procedure Elective coronary revascularization for non-acute, stable coronary artery disease is considered **not medically necessary** for all other indications, including if the patient is unwilling to comply with recommended medical therapy, or if the patient is unlikely to benefit from the proposed procedure (e.g., limited life expectancy from concomitant disease).