

Patient Last name _____
 Patient First name _____
 Date of Birth _____ (m/d/yy)
 Med. Rec. # _____
 Soc. Sec. No. _____
 Zip code of residence _____
 Physician 1 _____
 Date of admission _____ (m/d/yy)
 Received in transfer*0=no 1=yes 9=NA
 Date of PTCA _____ (m/d/yy)
 Date of Discharge _____ (m/d/yy)

DEMOGRAPHICS, HISTORY & COMORBIDITY

Sex0=male 1=female
 Height (cm)
 Weight (kg)
 Family History*0=no 1=yes 9=NA
 Current Smoker*0=no 1=yes 9=NA
 Hypertension*0=no 1=yes 9=NA
 Hypercholesterolemia*0=no 1=yes 9=NA
 COPD*0=no 1=yes 9=NA
 Renal failure prior to PCI*0=no 1=yes 9=NA
 Cancer (not nonmelanoma skin)*0=no 1=yes 9=NA
 History of bleeding disorder*0=no 1=yes 9=NA
 Liver Disease*0=no 1=yes 9=NA
 Diabetes*0=no 1=w/o seq* 2=w/seq*
If DM, rx?0=none 1=diet 2=oral meds
 3=insulin 4=oral & insulin
 Vascular disease*0=no 1=cerebro. 2=low ext. 3=both
 CHF*0=no 1=this admit 2=hx of 3=both
 Creatinine(last pre-procedure) (mg/dL)
 Previous MI* 0=no 1=yes Most recent: _____ (m/d/yy)
 Prev. PCI* 0=no 1=yes Most recent: _____ (m/d/yy)
 Prev. CABG 0=no 1=yes Most recent: _____ (m/d/yy)

CARDIAC ANATOMY & FUNCTION

Natives with ≥70% Proximal*: LAD CX RCA
 (circle all that apply) Mid/Distal*: LAD CX RCA
 Dominance R=Right L=Left B=Balanced
 LM stenosis (%) (0 if none)
 LVEDP of PCW (mmHg)
 Ejection Fraction* (%)
If prior CABG,
 # distal anast. #grafts w ≥70% stenosis

INDICATION
 Primary indication for PCI* (1=Asymptomatic CAD 2=Stable angina 3=Unstable angina 4=Post-MI angina 5=Post-MI anatomy 6=Therapy for a non-Q wave or ST elevation MI 7=Cardiogenic shock 8=Other (specify) _____
If indication=2, then CCS* class (1, 2, 3, 4)
If indication=3 or 4, then angina at rest .. 0=no 1=yes 9=NA
If indication=4, 5 or 6, then MI Date: _____ (m/d/yy)
If indication=6, was this an ST elevation (STE) or new LBBB?0=no 1=yes
IF STE/LBBB, Select one (mutually exclusive):
 A) **Primary PCI**= Patient proceeds directly to PCI from ER/CCU/outside hospital without pre-procedure thrombolytic
 B) **Rescue PCI**= PCI performed for treatment of ongoing ischemia* within 24 hrs of an initial planned strategy of thrombolysis.
 C) **Facilitated PCI**= Planned PCI within 24 hrs of using thrombolytics and/or a GP IIb/IIIa inhibitor started prior to the cath lab with the *intent* of improving initial vessel patency.
IF STE/LBBB, record **Time Intervals**:
 a) If applicable, from presentation at outside hospital to arrival at your hospital: _____ hours OR _____ minutes
 b) From arrival at your hospital to first balloon inflation; _____ hours OR _____ minutes

THERAPY	Pre	During	Post
ASA≤24hrs(√)			
Clopidogrel/Thienopyridines (√)			
IV Heparin(√)			
LMW Heparin(√)			
Direct Thrombin Inhibitor (√)			
IV NTG (√)			
Thrombolytic, full dose(√)			
Thrombolytic, <full dose(√)			
IABP or PCCA (√)			
Anti-IIb/IIIa			
Aggrastat (√)			
Integrilin(√)			
Reopro(√)			
Other(√)			
Coumadin (√)			

CARDIAC ENZYMES	CPK	%MB	TnT	TnI
Last value pre-PCI*				
Post 1*				
Post 2*				

POST PROCEDURE LABS
 Highest post-procedure CR w/in 7 days (mg/dL)

PRIORITY
 Priority at procedure* 1=Emergent 2=Urgent 3=Non-urgent
 Ad Hoc PCI w/cath.* 0=no 1=yes 9=NA
 Intend complete revascularization* 0=no 1=yes 9=NA
 Accomplish complete revascularization 0=no 1=yes 9=NA

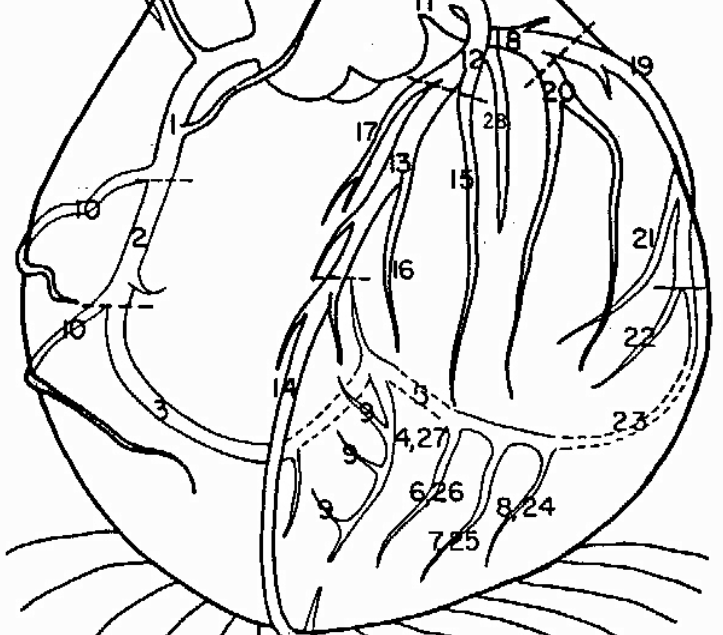
PROCEDURE	#1	#2	#3	#4	#5
Location (use CASS map)*					
If in graft*: G(SVG), L(IMA), R(IMA), A(arterial, other)					
Category (1/2/3/4)*					
ACC Type* (A/B1/B2/C)					
Collaterals (A/B/N)*					
Pre stenosis (%)					
Post stenosis (%)					
Thrombus present (1/2/3)*					
Moderate/Severe Dissection (✓)*					
Device 1 (B/S/A/R/L/T/AJ/RAD/CB/I/RCS/TCS/OCS)§					
Device 2 (B/S/A/R/L/T/AJ/RAD/CB/I/RCS/TCS/OCS)§					
Device 3 (B/S/A/R/L/T/AJ/RAD/CB/I/RCS/TCS/OCS)§					
Why Other(s) (P/AC/TC/SO)*					
Distal protection device (✓)					
Not crossed or engaged (✓)					

§Devices: B=Balloon, S=Stent, A=Atherectomy, R=Rotablator, L=Laser, T=TEC, AJ=Angiojet, RAD=Radiation, CB=Cutting Balloon, I=IVUS, RCS=Rapamycin coated stent, TCS=Taxol coated stent, OCS=Other coated stent

SIDEBAR (where appropriate , circle all that apply)
 Fluro used for access site puncture 0=no 1=yes
 Highest ACT during procedure seconds
 Sheath(s) location R fem art L fem art R fem vein
 L fem vein Brachial art Radial art
 NA
 Largest arterial sheath placed French
 Hemostasis method (circle all that apply):
 A - Angioseal C - C-clamp D - Duett
 F - Femostop M - Manual pressure P - Perclose
 S - Syvek V - Vasoseal
 O - Other

OUTCOMES	In cath lab	Out of cath lab
Acute closure*	0=no 1=yes 9=NA	0=no 1=yes 9=NA
Emergent CABG*	0 1 9	0 1 9
Planned CABG*	0 1 9	
CVA*	0 1 9	0 1 9
Arrhyth. requiring therapy*	0 1 9	0 1 9
MI related		
•Ischemic symptoms*	0 1 9	0 1 9
•New Q wave or LBBB*	0 1 9	0 1 9
•New ST-TW changes*	0 1 9	0 1 9
Re-look for symptoms*		0 1 9
Repeat PCI*		0 1 9
Nonemergent CABG*		0 1 9
Access site vascular injury*	0 1 9	0 1 9
Bleeding requiring transfusion*	0 1 9	0 1 9
•Related to access site injury*	0 1 9	0 1 9
Distal cholest. embolization*	0 1 9	0 1 9
Renal failure*		0 1 9
In-hospital death	0 1 9	0 1 9

- ANATOMIC LOCATION CODES**
- | | |
|----------------|-----------------|
| 1. Prox RCA | 15. 1st Diag |
| 2. Mid RCA | 16. 2nd Diag |
| 3. Dist RCA | 17. 1st Septal |
| 4. R PDA | 18. Prox CX |
| 5. RPLS | 19. Dist CX |
| 6. 1st RPL | 20. 1st Ob Marg |
| 7. 2nd RPL | 21. 2nd Ob Marg |
| 8. 3rd RPL | 22. 3rd Ob Marg |
| 9. Inf. Septal | 23. L Av |
| 10. Ac Marg | 24. 1st LPL |
| 11. LMCA | 25. 2nd LPL |
| 12. Prox LAD | 26. 3rd LPL |
| 13. Mid LAD | 27. LPDA |
| 14. Dist LAD | 28. Ramus |



CASS MAP

Definitions

PATIENT INFORMATION

Received in transfer: Received in transfer from another hospital where the patient was admitted or from an outside ER where the patient was evaluated prior to transfer.

DEMOGRAPHICS, HISTORY and COMORBIDITY

Family history: Myocardial infarction, PCI or CABG in parents, siblings, aunts, uncles ≤ 55 years of age

Current smoker: Smoked at least 1/2 pack per day over the last year

Hypertension: Told had high blood pressure by doctor and treated with diet or drugs

Hypercholesterolemia: Told had high cholesterol by doctor and/or treated with medication

COPD: COPD or asthma requiring inhalers, theophyllines/aminophyllines or steroids

Renal failure prior to PCI: On peritoneal or hemodialysis

Cancer: Physician statement in medical record indicating leukemia, lymphoma, or solid cancer as a current medical problem

History of bleeding disorder: Hemophilia, thrombocytopenia, DIC

Liver Disease: Cirrhosis, chronic active hepatitis (CAH), primary biliary cirrhosis, with or without sequelae: ascites or esophageal varices or portal hypertension or hepatic encephalopathy

Diabetes: Documented in medical record or by patient history

Diabetes without sequelae: On oral hypoglycemic or insulin

Diabetes with sequelae: Renal disease, retinopathy, peripheral neuropathy, gastroparesis, peripheral circulatory disease

Vascular Disease: cerebrovascular=prior CVA, prior TIA, carotid stenosis by history or carotid bruit; low(er) ext(remity)=claudication, amputation, prior lower extremity bypass, absent pedal pulses, or lower extremity ulcers

CHF prior to PCI: MD statement in chart indicating CHF during admission or prior to admission but before the PCI. Manifest by ≥ 1 feature including exertional dyspnea or fatigue, bilateral pedal edema, orthopnea, PND, rales, pulmonary edema, or pulmonary congestion on x-ray.

Previous MI: Physician statement in medical record indicating prior MI or documented in chart by EKG or enzymes on prior admits, transfers are part of current admit.

CARDIAC ANATOMY & FUNCTION

Proximal: LAD-any lesion proximal to the 1st septal perforator; **CX**- any lesion proximal to OM1; **RCA**-any lesion proximal to RV marginal branch.

Ejection Fraction: Most recent prior to PCI, including during the current hospitalization.

INDICATION

Asymptomatic CAD: Patient has no symptoms off medication but a) is s/p cardiac arrest in the absence of an MI or b) has severe ischemia on medication as manifest by ≥ 1 mm ST depression or ≥ 1 reversible thallium defect(s) or reduction in ejection fraction at low level exercise.

Stable angina: Patient is asymptomatic only when treated with anti-anginal medication or has a stable pattern of symptoms when treated with anti-anginal medication, but angina significantly interferes with quality of life or medication is poorly tolerated

Unstable angina: New onset angina, rest angina, angina of increasing frequency and/or intensity, angina lasting ≥ 20 minutes irrespective of medication, not occurring within 2 weeks of an MI.

Post-infarction angina: Angina with ischemic EKG changes and/or CHF at >24 hours but ≤ 2 weeks after a documented MI.

Post-infarction anatomy: Patient has a significant residual lesion in an infarct-related artery that is not causing angina and/or CHF

Therapy for a non-Q wave or ST elevation MI: PCI within 24 hours of an MI documented biochemically by a) Troponin T or I greater than decision limit; b) CK-MB $>2x$ normal on one occasion or $>$ normal on two occasions; c) total CK $>2x$ normal AND ischemic symptoms and/or development of pathological Q waves and/or ECG changes of ischemia.

Cardiogenic shock: BP less than 80 mmHg requiring treatment with pressors and/or inotropes

Canadian Cardiovascular Society Functional Class: **1**=Ordinary physical activity does not cause angina, such as walking and climbing stairs; **2**=Slight limitation of ordinary activity. Angina when 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. Angina when walking more than 2 blocks on the level and climbing more than one flight of ordinary stairs at a normal pace and in normal conditions; **3**=Marked limitation of ordinary activity. Angina when walking one to two blocks on the level and climbing one flight of stairs in normal conditions and at normal pace; **4**=Inability to carry on any physical activity without discomfort. Anginal syndrome may be present at rest.

CARDIAC ENZYMES

CPK or Troponin T or Troponin I: Last value pre-PCI = Obtained within 12 hours of procedure; **Post 1**= the 1st value obtained on all patients by the next morning; **Post 2**=the 2nd or highest value obtained after Post 1.

PRIORITY

Priority: Emergent=factors dictate PCI be performed immediately to avoid unnecessary morbidity or death; **Urgent**=factors require that patient stay in hospital until PCI is performed. The risk of immediate morbidity and mortality is not present;

Non-urgent=factors indicate that patient could be discharged to return electively for PCI

Ad Hoc PCI w/cath: A diagnostic cardiac catheterization followed by a PCI during the same visit to the cath lab.

Intended Complete Revascularization: A PCI of all significant stenoses feeding viable myocardium or all stenoses that would ideally be bypassed at surgery.

PROCEDURE

Location: Use number to indicate lesion location, see CASS map (enter one location only, i.e. 1 or 2, not 1-2)

If in graft: Indicate type of graft for vessel with lesion e.g., G=saphenous vein graft or L=left internal mammary artery.

If in graft: Identify location by vessel segment to which it is anastomosed.

Category: **1**=original, no previous PCI; **2**=restenosis of lesion with prior PCI; **3**=re-occlusion acutely in same hospitalization; **4**=second attempt of a lesion that initially was unsuccessfully dilated

ACC Type: (choose one)	A:	Discrete (<10 mm length); concentric; readily accessible; <45° bend; smooth contour; little or no calcification; not totally occluded; not ostial; no branch involvement; no thrombus	
		<u>Characteristics for B lesions</u>	
	B1 = 1 characteristic (see list)	-Tubular (10-20 mm length) -Eccentric	-Total occlusions <3 months old; -Ostial in location;
	B2 =>2 characteristics (see list)	-Moderate tortuosity of proximal segment -45°<bend<90° -Irregular contour -Moderate to heavy calcification	-Bifurcation lesions requiring double guides; -Some thrombus present;
	C:	Diffuse (>2 cm length); excess proximal tortuosity; extreme angulation >90°; unable to protect major side branches; total occlusion >3 mo.; degenerative vein grafts with friable lesions	

Collaterals: **A**=yes, feeding to target vessel beyond stenosis; **B**=yes, arising from target vessel beyond stenosis; **C**=no collaterals

Thrombus present: Presence of intraluminal filling defects: 1=pre; 2=post; 3=pre and post

Moderate/Severe Dissection: Flow limiting, spiral, dye hang-up ≥ 2 vessel diameters; not flaps, divets or mild haziness

Why Others: **P**=planned, particularly the planned use of a stent; **AC**=acute closure; **TC**=threatened closure; **SO**=suboptimal result

OUTCOMES

Acute closure: Complete occlusion of an angioplastied vessel at the time the patient leaves the lab

Emergent CABG: Performed to treat a) unstable angina or CHF requiring IV NTG or IABP; b) acute closure; c) tamponade

Planned CABG: The CABG is considered planned, rather than emergent, if the intent of the intervention was to stabilize the patient for transit to the OR

CVA: Documentation by MD of a new, focal neurological deficit which appears and is still at least partially evident more than 24 hours after its onset, occurring during or following the PCI and established prior to discharge

Arrhythmia requiring therapy: Significant new cardiac arrhythmias requiring either medications, pacing or electrical shock

MI related:

Ischemic symptoms: Typical chest pain/discomfort and/or dyspnea and/or nausea and/or diaphoresis and/or hypotension

New Q wave or LBBB: A new Q wave in V1-V3 or ≥ 30 ms seconds in other leads, (Q-wave must be >1 mm in depth, and in two contiguous leads)

New ST-TW changes: ST segment elevations or depressions or T wave abnormalities that persist through discharge

Re-look for symptoms: Unplanned return to catheterization lab for coronary angiography. No intervention was performed.

Repeat PCI: Repeat percutaneous coronary intervention during the same hospitalization

Nonemergent CABG: Performed following an unsuccessful angioplasty in a stable patient

Access site arterial injury: Pseudoaneurysm, thrombosis, AV fistula, hematoma or other related problems requiring a procedural intervention (e.g., thrombin injection, ultrasound-guided compression) or surgery

Bleeding requiring transfusion: Any transfusion received during the hospitalization but prior to CABG

Related to access site injury: Was the bleeding requiring transfusion secondary to an obvious access site injury such as a large hematoma, a retroperitoneal bleed or in the setting of a surgical repair to the access site

Distal cholesterol embolization: Evidence of livido reticularis or ischemia of the toes with or without renal insufficiency

Renal failure: Acute renal insufficiency resulting in an increase in serum creatinine to >2mg/dL or a 50% or greater increase over abnormal baseline prior to procedure or requiring dialysis.