

Supplemental Material

Table S1. ICD 9 and ICD 10 codes for comorbidities and outcomes.

CONDITION	ICD9-CM	ICD10-CM	ICD9-PCS	ICD10-PCS	CPT / HCPCS
Prior Percutaneous Coronary Intervention = prior drug-eluting stent (first or second-generation), bare metal stent, or balloon angioplasty					
First-generation drug-eluting stent			36.07	0270346, 027034Z, 0720356, 027035Z, 0270366, 027036Z, 0270376, 027037Z	C1874, C1875 OR [(G0290, G0291 before 2014) OR (C9600, C9601, C9602, C9603, C9604, C9605, C9606, C9607, C9608 from 2013 on)]
Second-generation drug-eluting stent			36.07	0270346, 027034Z, 0720356, 027035Z, 0270366, 027036Z, 0270376, 027037Z	C1874, C1875 OR [(G0290, G0291 before 2014) OR (C9600, C9601, C9602, C9603, C9604, C9605, C9606, C9607, C9608 from 2013 on)]
Bare metal stent			36.06	02703D6, 02703DZ, 02703E6, 02703EZ, 02703F6, 02703FZ, 02703G6, 02703GZ	C1876, C1877 OR [(92980 or 92981 before 2014) OR (92928, 92929, 92933, 92934, 92937, 92938, 92941, 92943, or 92944 from 2013 on) AND no DES C codes]
PCI with balloon angioplasty			0.66	02703Z6, 02703ZZ	92920, 92921
Prior coronary artery bypass surgery (CABG)			36.1	02100A3, 02100A8, 02100A9,	33510-33516, 33517-33523,

			02100AC, 02100AF, 02100AW, 0210093, 0210098, 0210099, 021009C, 021009F, 021009W	33530, 33533- 33536
Stroke	433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 436	I63		
Myocardial Infarction	410	I21		
Major Bleed	379.23, 423.0, 430, 431, 432, 568.81, 719.1 456.0, 459.0, 530.21, 530.7, 530.82, 531.00, 531.20, 531.40, 531.60, 531.01, 531.21, 531.41, 531.61, 532.00, 532.20, 532.40, 532.60, 532.01, 532.21, 532.41, 532.61, 533.00, 533.20, 533.40, 533.60, 533.01, 533.21, 533.41, 533.61, 534.00, 534.20, 534.40, 534.60, 534.01, 534.21, 534.41, 534.61, 535.01, 535.11, 535.21, 535.31, 535.41, 535.51, 535.61, 535.71, 537.83, 562.12, 562.13, 569.3, 569.85, 578.0, 578.1, 578.9, 784.8, 786.3	H43.1, I31.2, I60, I61, I62, K66.1, M25.0, K22.11, K22.6 , K25.0, K25.2, K25.4, K25.6, K26.0, K26.2, K26.4, K26.6, K27.0, K27.2, K27.4, K27.6, K28.0, K28.2, K28.4, K28.6, K29.01, K29.21, K29.31, K29.41, K29.51, K29.61, K29.71, K29.81, K29.91, K31.811, K55.21, K57.01, K57.13, K57.21, K57.31, K57.33, K57.41, K57.51, K57.53, K57.81, K57.91, K57.93, K62.5, K92.1, K92.2, R04.1, R04.8, R04.89, R04.9		

Moderate Bleed	596.7, 599.7, 784.7	04.0, R31	
Cardiac Death		I20-I25, I30-I52, R99	
Vascular Death		I26-I28, I60-I89	
Non-Cardiovascular Death		All not specified in cardiac or vascular	
Chronic kidney disease	585	N18	
Diabetes	250	E08, E09, E10, E11, E13	
Peripheral Artery Disease	440.2	I70.2, I70.3, I70.4, I70.5, I70.6, I70.6, I70.92	
Hypertension	401	I10, I15, I16	
Chronic Obstructive Pulmonary Disease (COPD)	490, 491, 492, 494, 496	J41, J42, J43, J44	
Congestive Heart Failure	428	I50	
Angina	413	I20.1, I20.8, I20.9, I25.11, I25.70, I2571, I25.72, I25.73, I25.75, I25.76, I25.79	
Cancer	140 - 209.3, 209.7	C00-C26, C30-C34, C37-C41, C43-C58, C60-C85, C7A, C88, C90-C96, D45	
Chemotherapy	V58.1	Z51.11, Z51.12	964, 96535, 96538, GA0498, J9, Q0083, Q0084, Q0085, 4180F, 9955, C8953, C8954, C8955, G0070, G0355, G0359, G0361, G8372, G8373, G9829, J7150, Q0083, Q0084, Q0085,

			S9329, S9330, Z0904
Radiotherapy	V58.0	Z51.0,	77371, 77372, 77373, 77381, 77385, 77386, 7740, 77410, 77411, 77412, 77413, 77414, 77416, 77417, 77418, 77420, 77422, 77423 ,77424, 77425, 77427, 7743, 7746, 77499, 775, 77761, 77762, 77763, 77771, 77772, 77773, G0174, G0256, G0261, G6003, G6004, G6005, G6006, G6007, G6008, G6009, G6010, G6011, G6012, G6013, G6014, G6015, G6016, 0082T, 4165F, 4818F, 4812F, Z0903
Anemia	281, 283, 284, 285	D51, D52, D53, D59, D60, D61, D62, D63, D64	
Acute Coronary Syndrome	410, 411.1, 411.8	I21, I20.0	

Table S2. Variables entered & selected by regression for the propensity to stop DAPT.

2.1 Variables Entered Into Models for Each Time Period

Sex,
Age at start month,
Current Smoker at index PCI
Acute Coronary Syndrome (7-days before to 14-days after index PCI)
Acute Coronary Syndrome between index PCI and start of time period
Major Bleed prior to index PCI,
Major Bleed between index PCI and start of time period
Comorbidities from 5 years before index PCI to start of time period
 Anemia
 Angina
 Cancer and Chemotherapy or Radiation Therapy
 Congestive Heart Failure
 Chronic Kidney Disease
 Chronic Obstructive Pulmonary Disease
 Diabetes Mellitus requiring Insulin
 Diabetes Mellitus requiring Oral Medications
 Hypertension
 Peripheral Artery Disease
Medication use in the month prior to the start of the time period
 Angiotensin Converting Enzyme Inhibitor
 Antiarrhythmic agent
 Anticoagulant
 Statin
 Antilipemic Drug (other than statin)
 Angiotensin Receptor Blocker
 Calcium Channel Blocker
 Digitalis
 Diuretic
 Glucocorticoid
 Non-Steroidal Anti-inflammatory agent (NSAID)
 Proton Pump Inhibitor
Average blood chemistry value (month prior to start of time period or most recent value if no measure in a given month)
 Estimated Glomerular Filtration Rate
 Glucose
 Hemoglobin
 Total Cholesterol
Procedural Variables
 Stented artery
 Fluoroscopy time
 Contrast volume
 Number of stents
 Platelet count

2.2 Variables Retained by Models

Time Period	Prediction Variables Retained
1-5 months	Age, acute coronary syndrome at index PCI, congestive heart failure, calcium channel blocker, proton pump inhibitor, estimated glomerular filtration rate (eGFR), glucose, hemoglobin, total cholesterol, platelet count, fluoroscopy time, contrast volume
6-9 months	Age, statin therapy, beta-blocker, glucose, hemoglobin, total cholesterol, platelet count, contrast volume
10-12 months	Age, eGFR, glucose, total cholesterol, fluoroscopy time, contrast volume
13-18 months	Age, acute coronary syndrome between index PCI and 13 months after PCI, angina, beta-blocker, eGFR, glucose, hemoglobin, total cholesterol, platelet count, fluoroscopy time, contrast volume

Table S3. Univariable Comparison of Excluded versus Included Subjects.

	Excluded	Included	
Risk factor	n=4,640	n=40,882	p-value
Age, mean(SD)	66.3 (9.2)	65.2 (8.8)	<.0001
Male, n(%)	4,574 (98.6)	40,211 (98.4)	0.2629
Anemia, n(%)	1,326 (28.6)	7,924 (19.4)	<.0001
Angina, n(%)	1,857 (40.0)	12,832 (31.4)	<.0001
CHF, n(%)	1,645 (35.5)	9,621 (23.5)	<.0001
CKD, n(%)	1,186 (25.6)	7,113 (17.4)	<.0001
COPD, n(%)	1,679 (36.2)	12,491 (30.6)	<.0001
Diabetes + Insulin, n(%)	2,047 (44.1)	14,398 (35.2)	<.0001
Diabetes + OralHyp, n(%)	2,136 (46.0)	16,751 (41.0)	<.0001
Htn, n(%)	4,298 (92.6)	36,715 (89.8)	<.0001
PAD, n(%)	548 (11.8)	2,587 (6.3)	<.0001
Cancer+Chem/Rad, n(%)	225 (4.8)	1,623 (4.0)	0.0040
Prior MI, n(%)	914 (19.7)	3,034 (7.4)	<.0001
Prior CABG, n(%)	167 (3.6)	1,415 (3.5)	0.6268

Table S4. Sensitivity analysis restricting outcomes to within 2 years of each time period.

Short-Term Outcomes within 2 Years

Death

Start Month	End Date	DAPT DC Events/ 1,000 PM	On DAPT Events/ 1,000 PM	Crude			IPTW Adjusted		
				Hazard Ratio	95% Confidence Limit		Hazard Ratio	95% Confidence Limit	
1-5	Start Month + 24m	7.65	3.49	2.71	2.37	3.09	2.54	2.22	2.90
6-9	Start Month + 24m	8.61	3.35	2.95	2.61	3.32	2.86	2.53	3.23
10-12	Start Month + 24m	3.13	3.41	1.02	0.93	1.12	1.07	0.97	1.17
13-18	Start Month + 24m	3.28	4.00	1.01	0.94	1.08	1.07	0.99	1.15

Myocardial Infarction

Start Month	End Date	DAPT DC Events/ 1,000 PM	On DAPT Events/ 1,000 PM	Crude			IPTW Adjusted		
				Hazard Ratio	95% Confidence Limit		Hazard Ratio	95% Confidence Limit	
1-5	Start Month + 24m	2.73	4.26	0.82	0.66	1.03	0.80	0.64	1.00
6-9	Start Month + 24m	2.89	3.07	1.07	0.87	1.32	1.04	0.84	1.29
10-12	Start Month + 24m	1.62	2.95	0.64	0.56	0.73	0.65	0.57	0.74
13-18	Start Month + 24m	2.15	3.47	0.84	0.76	0.92	0.87	0.79	0.95

Major Bleeding

Start Month	End Date	DAPT DC Events/ 1,000 PM	On DAPT Events/ 1,000 PM	Crude			IPTW Adjusted		
				Hazard Ratio	95% Confidence Limit		Hazard Ratio	95% Confidence Limit	
1-5	Start Month + 24m	2.38	2.48	1.12	0.88	1.43	1.07	0.84	1.36
6-9	Start Month + 24m	2.42	1.92	1.41	1.12	1.76	1.32	1.05	1.67
10-12	Start Month + 24m	1.33	1.77	0.87	0.75	1.00	0.89	0.77	1.03
13-18	Start Month + 24m	1.28	2.10	0.80	0.71	0.90	0.83	0.74	0.94

Cardiac Death

Start Month	End Date	DAPT DC Events/ 1,000 PM	On DAPT Events/ 1,000 PM	Crude			IPTW Adjusted		
				Hazard Ratio	95% Confidence Limit		Hazard Ratio	95% Confidence Limit	
1-5	Start Month + 24m	3.18	1.49	2.60	2.12	3.19	2.54	2.06	3.12
6-9	Start Month + 24m	2.78	1.41	2.26	1.83	2.79	2.23	1.80	2.75
10-12	Start Month + 24m	1.04	1.41	0.84	0.71	0.99	0.88	0.74	1.03
13-18	Start Month + 24m	1.11	1.72	0.82	0.72	0.92	0.87	0.76	0.98

Vascular Death

Start Month	End Date	DAPT DC Events/ 1,000 PM	On DAPT Events/ 1,000 PM	Crude			IPTW Adjusted		
				Hazard Ratio	95% Confidence Limit		Hazard Ratio	95% Confidence Limit	
1-5	Start Month + 24m	0.38	0.16	3.03	1.71	5.36	2.99	1.68	5.33
6-9	Start Month + 24m	0.70	0.13	5.33	3.53	8.04	5.14	3.37	7.84
10-12	Start Month + 24m	0.15	0.13	1.26	0.83	1.91	1.30	0.86	1.98
13-18	Start Month + 24m	0.15	0.14	1.21	0.85	1.74	1.34	0.93	1.93

Non-Cardiovascular Death

Start Month	End Date	DAPT DC Events/ 1,000 PM	On DAPT Events/ 1,000 PM	Crude			IPTW Adjusted		
				Hazard Ratio	95% Confidence Limit		Hazard Ratio	95% Confidence Limit	
1-5	Start Month + 24m	4.16	1.91	2.71	2.27	3.24	2.44	2.03	2.92
6-9	Start Month + 24m	5.25	1.86	3.26	2.80	3.81	3.14	2.68	3.68
10-12	Start Month + 24m	1.93	1.88	1.13	1.00	1.28	1.18	1.04	1.33
13-18	Start Month + 24m	1.99	2.01	1.17	1.06	1.28	1.23	1.11	1.35

Table S5. Interaction models assessing DAPT discontinuation within subgroups of patients with PCI for acute coronary syndromes.

Interaction of ACS at Index (7-days before to 14-days after index)

Death

Start Months	Index ACS			No Index ACS			Interaction Term p-value
	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	IPTW Hazard Ratio (95% CL)	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	IPTW Hazard Ratio (95% CL)	
1-5	6.864	3.690	1.96 (1.70, 2.28)	6.725	3.398	2.15 (1.79, 2.58)	0.7145
6-9	7.467	3.626	2.17 (1.90, 2.48)	7.194	3.360	2.25 (1.91, 2.65)	0.9426
10-12	3.207	3.733	0.95 (0.87, 1.03)	2.978	3.533	0.92 (0.84, 1.01)	0.6808
13-18	3.358	4.184	0.92 (0.86, 0.98)	3.487	3.738	1.03 (0.96, 1.11)	0.0282

Major Bleed

Start Months	Index ACS			No Index ACS			Interaction Term p-value
	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	IPTW Hazard Ratio (95% CL)	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	IPTW Hazard Ratio (95% CL)	
1-5	1.868	1.867	0.93 (0.71, 1.22)	2.309	1.490	1.50 (1.10, 2.05)	0.0236
6-9	1.815	1.631	1.04 (0.80, 1.36)	1.929	1.301	1.38 (1.02, 1.87)	0.2234
10-12	1.136	1.605	0.79 (0.68, 0.91)	1.007	1.284	0.86 (0.74, 1.01)	0.4069
13-18	1.149	1.850	0.76 (0.68, 0.85)	1.110	1.390	0.91 (0.80, 1.04)	0.0392

MI

Start Months	Index ACS			No Index ACS			Interaction Term p-value
	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	IPTW Hazard Ratio (95% CL)	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	IPTW Hazard Ratio (95% CL)	
1-5	3.256	3.655	0.90 (0.73, 1.10)	2.218	1.913	1.19 (0.87, 1.62)	0.4614
6-9	2.931	2.864	0.99 (0.80, 1.22)	1.984	1.849	1.10 (0.82, 1.47)	0.7023
10-12	1.924	2.838	0.76 (0.68, 0.85)	1.282	1.890	0.75 (0.66, 0.86)	0.9640
13-18	2.197	3.220	0.83 (0.76, 0.90)	1.555	2.076	0.88 (0.79, 0.98)	0.4104

Table S6. Interaction models assessing DAPT discontinuation within subgroups of patients according to use of anticoagulants.

Effect Modification: Anticoagulation

Death

Start Months	Anticoagulant			No Anticoagulant			Interaction Term p-value
	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	Hazard Ratio (95% CL)	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	Hazard Ratio (95% CL)	
1-5	8.921	4.574	2.13(1.60, 2.83)	4.175	2.573	2.04 (1.77, 2.34)	0.0121
6-9	15.627	7.136	1.74 (1.37, 2.20)	5.372	2.935	2.26 (2.00, 2.55)	0.2485
10-12	7.354	7.683	1.00 (0.85, 1.17)	2.533	3.121	0.87 (0.80, 0.94)	0.0006
13-18	7.279	7.352	1.00 (0.88, 1.14)	2.849	3.376	0.93(0.87, 0.99)	0.0586

Major Bleed

Start Months	Anticoagulant			No Anticoagulant			Interaction Term p-value
	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	Hazard Ratio (95% CL)	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	Hazard Ratio (95% CL)	
1-5	2.819	2.310	1.45 (0.97, 2.17)	1.296	1.287	1.06 (0.82, 1.38)	0.0418
6-9	3.556	3.357	0.84 (0.53, 1.32)	1.574	1.301	1.26 (1.00, 1.59)	0.8957
10-12	2.804	3.266	0.88 (0.68, 1.14)	0.944	1.338	0.75 (0.66, 0.86)	0.1970
13-18	2.865	3.306	1.02 (0.83, 1.26)	0.980	1.474	0.74 (0.67, 0.82)	0.0011

MI

Start Months	Anticoagulant			No Anticoagulant			Interaction Term p-value
	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	Hazard Ratio (95% CL)	DAPT DC # Events/ 1,000 PM	On DAPT # Events/ 1,000 PM	Hazard Ratio (95% CL)	
1-5	3.637	3.788	1.27 (0.82, 1.97)	2.440	2.269	1.05 (0.87, 1.28)	0.5269
6-9	3.510	3.911	0.82 (0.51, 1.31)	2.530	2.298	1.10 (0.90, 1.33)	0.6034
10-12	2.897	4.104	0.88 (0.68, 1.14)	1.546	2.333	0.74 (0.67, 0.81)	0.0824
13-18	2.888	4.379	0.93 (0.76, 1.15)	1.903	2.559	0.83 (0.77, 0.90)	0.6123

Figure S1. Event curves in subgroups of clopidogrel versus ticagrelor or prasugrel.

