

TEMPORAL TRENDS AND PREDICTORS OF P2Y₁₂ INHIBITOR SELECTION AND SWITCHING FOLLOWING PERCUTANEOUS CORONARY INTERVENTION IN ACUTE CORONARY SYNDROME PATIENTS

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Table S1. International Classification of Disease 9 & 10 Clinical Modifications, Current Diagnosis Procedure Codes, and Healthcare Common Procedure Coding System Codes¹⁻³International Classification of Disease 9 & 10 Clinical Modifications, Current Diagnosis Procedure Codes, and Healthcare Common Procedure Coding System Codes. This table is adapted from Kumar et al,¹⁻³ You et al,⁴ Preuss et al⁵, and Alonso et al.⁶

Characteristic	ICD-9-CM or -PCS Codes	ICD-9-CM or -PCS Codes
Acute coronary syndrome	ST-Elevation Myocardial Infarction (STEMI): 410, 410.01, 410.02, 410.1, 410.11, 410.12, 410.2, 410.21, 410.22, 410.3, 410.31, 410.32, 410.4, 410.41, 410.42, 410.5, 410.51, 410.52, 410.7, 410.72, 410.8, 410.81, 410.82 Non-ST-elevation acute coronary syndrome (NSTEMI-ACS): 410.71, 410.9, 410.91, 410.92	STEMI: I21, I21.0, I21.1, I21.2, I21.3 NSTEMI-ACS: I20.0, I21.A, I21.A1, I21.A9, I21.4, I21.9
Percutaneous coronary intervention	0066, 3601, 3602, 3603, 3605, 3606, 3607, 3609	0270346, 027034Z, 0270356, 027035Z, 0270366, 27036Z, 0270376, 027037Z, 02703D6, 02703DZ, 02703ZZ, 0270046, 0271346, 027134Z, 0271356, 027135Z, 0271366, 027136Z, 0271376, 027137Z, 02713D6, 02713DZ, 02714E6, 02713EZ, 02714EZ, 02723FZ, 02733GZ, 02713E6, 02723F6, 02733G6, 0272366, 0273376, 027236Z, 027337Z, 02C03ZZ, 02C13ZZ 02C23ZZ, 02C33ZZ, 02C03Z6, 02C13Z6, 02C23Z6, 02C33Z6, 92980, 92981, 92982, 92984, 92920, 92924, 92925, 92921, 92928, 92929, 92933, 92934, 37184, 37185, 37186, 37187, 37188, C9600, C9601, C9602, C9603, G0290, G0291
Drug-eluting stents (any position)	3607	0270346, 027034Z, 0270356, 027035Z, 0270366, 027036Z, 0270376, 027037Z, 0271346, 027134Z, 0271356, 027135Z, 0271366, 027136Z, 0271376, 027137Z, 0272346, 027234Z, 0272356, 027235Z, 0272366, 027236Z, 0272376, 027237Z, 0273346, 027334Z, 0273356, 027335Z, 0273366, 027336Z, 0273376, 027337Z, 0270446, 027044Z, 0270456, 027045Z, 0270466, 027046Z, 0270476, 027047Z, 0271446, 027144Z, 0271456, 027145Z, 0271466, 027146Z, 0271476, 027147Z, 0272446, 027244Z, 0272456, 027245Z, 0272466, 027246Z, 0272476, 027247Z, 0273446, 027344Z, 0273456, 027345Z, 0273466, 027346Z, 0273476, 027347Z
Bare-metal stents (any position)	3606	02703D6, 02703DZ, 02703E6, 02703EZ, 02703F6, 02703FZ, 02703G6, 02703GZ, 02713D6, 02713DZ, 02713E6, 02713EZ, 02713F6, 02713FZ, 02713G6, 02713GZ, 02723D6, 02723DZ, 02723E6, 02723EZ, 02723F6, 02723FZ, 02723G6, 02723GZ, 02733D6, 02733DZ, 02733E6, 02733EZ, 02733F6, 02733FZ, 02733G6, 02733GZ, 02704D6, 02704DZ, 02704E6, 02704EZ, 02704F6, 02704FZ, 02704G6, 02704GZ, 02714D6, 02714DZ, 02714E6, 02714EZ, 02714F6, 02714FZ, 02714G6, 02714GZ, 02724D6, 02724DZ, 02724E6, 02724EZ, 02724F6, 02724FZ, 02724G6, 02724GZ, 02734D6, 02734DZ, 02734E6, 02734EZ, 02734F6, 02734FZ, 02734G6, 02734GZ
Coronary artery bypass graft	361, 3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3619, 362, 0210	021009W, 02100A3, 02100A8, 02100A9, 02100AC, 02100AF, 02100AW, 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33520, 33521, 33522, 33523, 33530, 33533, 33534, 33535, 33536, 33545, 92937, 92938, C9604, C9605, C9606

Fibrinolysis	9910, 3604	3E07, 3E07017, 3E07317, 3E07017, 3E07317, 3E08017, 3E08317, J2993, J2995, J2997, J0350, J3101, 32561, 32562, 86590, 36593
Hypertension (HAS-BLED)	401.0, 401.1, 401.2, 401.3, 401.4, 401.5, 401.6, 401.7, 401.8, 401.9, 402.0, 402.1, 402.2, 402.3, 402.4, 402.5, 402.6, 402.7, 402.8, 402.9, 403.0, 403.1, 403.2, 403.3, 403.4, 403.5, 403.6, 403.7, 403.8, 403.9, 404.0, 404.1, 404.2, 404.3, 404.4, 404.5, 404.6, 404.7, 404.8, 404.9, 405.0, 405.1, 405.2, 405.3, 405.4, 405.5, 405.6, 405.7, 405.8, 405.9	I10.0, I10.1, I10.2, I10.3, I10.4, I10.5, I10.6, I10.7, I10.8, I10.9, I11.0, I11.1, I11.2, I11.3, I11.4, I11.5, I11.6, I11.7, I11.8, I11.9, I12.0, I12.1, I12.2, I12.3, I12.4, I12.5, I12.6, I12.7, I12.8, I12.9, I13.0, I13.1, I13.2, I13.3, I13.4, I13.5, I13.6, I13.7, I13.8, I13.9, I15.0, I15.1, I15.2, I15.3, I15.4, I15.5, I15.6, I15.7, I15.8, I15.9
Abnormal Liver Function (HAS-BLED)	070.22, 070.23, 070.32, 070.33, 070.44, 070.54, 070.6, 070.9, 456.0, 456.1, 456.2, 456.3, 456.4, 456.5, 456.6, 456.7, 456.8, 456.9, 570, 571, 572.0, 572.1, 572.2, 572.3, 572.4, 572.5, 572.6, 572.7, 572.8, 572.9, V42.7	B18.0, B18.1, B18.2, B18.3, B18.4, B18.5, B18.6, B18.7, B18.8, B18.9, K70.0, K70.1, K70.2, K70.3, K70.4, K70.5, K70.6, K70.7, K70.8, K70.9, K71.0, K71.1, K71.2, K71.3, K71.4, K71.5, K71.6, K71.7, K71.8, K71.9, K73.0, K73.1, K73.2, K73.3, K73.4, K73.5, K73.6, K73.7, K73.8, K73.9, K74.0, K74.1, K74.2, K74.3, K74.4, K74.5, K74.6, K74.7, K74.8, K74.9, K76.0, K76.2, K76.3, K76.4, K76.5, K76.6, K76.7, K76.8, K76.9
Abnormal Renal Function (HAS-BLED)	403.01, 403.11, 403.91, 404.02, 404.03, 404.12, 404.13, 404.92, 404.93, 582.0, 582.1, 582.2, 582.4, 582.81, 582.89, 582.9, 583.0, 583.1, 583.2, 583.3, 583.4, 583.5, 583.6, 583.7, 585.1, 585.2, 585.3, 585.4, 585.5, 585.6, 585.9, 586, 588.0, V42.0, V45.1, V56.0, V56.1, V56.2, V56.3, V56.31, V56.32, V56.8, V56.9	I12.0, I13.1, N03.2, N03.3, N03.4, N03.5, N03.6, N03.7, N05.2, N05.3, N05.4, N05.5, N05.6, N05.7, N18.0, N18.1, N18.2, N18.3, N18.4, N18.5, N18.6, N18.7, N18.8, N18.9, N19, N25.0, Z49.0, Z49.1, Z49.2, Z49.3, Z49.4, Z94.0, Z99.2, E85.3, N18.5, T82.4
Stroke History (HAS-BLED)	362.34, 430, 431, 432.0, 432.1, 432.9, 433.0, 433.1, 433.2, 433.3, 433.8, 433.9, 434.0, 434.1, 434.9, 435.0, 435.1, 435.2, 435.3, 435.8, 435.9, 436, 437.0, 437.1, 437.2, 437.3, 437.4, 437.5, 437.6, 437.7, 437.8, 437.9, 438.0, 438.1, 438.2, 438.3, 438.4, 438.5, 438.6, 438.7, 438.8, 438.9	I60.0, I60.1, I60.2, I60.3, I60.4, I60.5, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.7, I61.8, I61.9, I62.0, I62.1, I62.2, I62.3, I62.4, I62.5, I62.6, I62.7, I62.8, I62.9, I63.0, I63.1, I63.2, I63.3, I63.4, I63.5, I63.6, I63.7, I63.8, I63.9, I64, I65.0, I65.1, I65.2, I65.3, I65.4, I65.5, I65.6, I65.7, I65.8, I65.9, I66.0, I66.1, I66.2, I66.3, I66.4, I66.5, I66.6, I66.7, I66.8, I66.9, I67.0, I67.1, I67.2, I67.3, I67.4, I67.5, I67.6, I67.7, I67.8, I67.9, I68.0, I68.1, I68.2, I68.3, I68.4, I68.5, I68.6, I68.7, I68.8, I68.9, I69.0, I69.1, I69.2, I69.3, I69.4, I69.5, I69.6, I69.7, I69.8, I69.9, G45.0, G45.1, G45.2, G45.3, G45.4, G45.8, G45.9, G46.0, G46.1, G46.2, G46.3, G46.4, G46.7, G46.8
Bleeding History (HAS-BLED)	280.0, 280.1, 280.8, 280.9, 281.0, 281.1, 281.2, 281.3, 281.4, 281.8, 281.9, 282.0, 282.1, 282.2, 282.3, 282.4, 282.5, 282.6, 282.7, 282.8, 282.9, 283.0, 283.1, 283.2, 283.9, 284.0, 284.1, 284.2, 284.8, 284.9, 285.1, 285.2, 285.3, 285.8, 285.9	A39.1, D50, D62, D63, D65, D66, D67, D68.0, D68.1, D68.2, D68.3, D68.4, D68.5, D68.6, D68.8, D68.9, D69.0, D69.1, D69.2, D69.3, D69.4, D69.5, D69.6, D69.8, D69.9, E07.8, E27.4, H11.3, H31.3, H35.6, H43.1, H45.0, H92.2, I60.0, I60.1, I60.2, I60.3, I60.4, I60.5, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.7, I61.8, I61.9, I62.0, I62.1, I62.2, I62.3, I62.4, I62.5, I62.6, I62.7, I62.8, I62.9, I69.0, I69.1, I69.2, I78.0, I85.0, I98.3, K22.6, K22.8, 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, K29.0, K31.8, K55.2, K55.8, K57.0, K57.1, K57.2, K57.3, K57.4, K57.5, K57.8, K57.9, K62.5, K76.2, K92.2, N42.1, N92.0, N92.1, N92.2, N92.4, N93.8, N93.9, N95.0, O99.0, R04.0, R04.1, R04.2, R04.8, R04.9, R58, S06.2, S06.3, S06.4, S06.5, S06.6, S06.8, T79.2, T81.0

Alcohol Abuse (HAS-BLED)	265.2, 291.1, 291.2, 291.3, 291.5, 291.6, 291.7, 291.8, 291.9, 303.0, 303.9, 305.0, 357.5, 425.5, 535.3, 571.0, 571.1, 571.2, 571.3, 980.0, 980.1, 980.2, 980.3, 980.8, 980.9, V11.3	E52, F10.0, F10.1, F10.2, F10.3, F10.4, F10.5, F10.6, F10.7, F10.8, F10.9, G31.2, G62.1, G72.1, I42.6, K29.2, K70.0, K70.1, K70.2, K70.3, K70.4, K70.9, K71.0, K71.1, K71.2, K71.3, K71.4, K71.5, K71.6, K71.7, K71.8, K71.9, K86.0, T51.0, T51.1, T51.2, T51.3, T51.8, T51.9, Z50.2, Z71.4, Z72.1
Sudden Cardiac Death	427.5, 427.41, 427.42, 427.4	I46.2, I46.8, I46.9
Hospitalization for Heart Failure	428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41, 428.42, 428.43	I50.1, I50.20, I50.21, I50.22, I50.23, I50.30, I50.31, I50.32, I50.33, I50.40, I50.41, I50.42, I50.43

Table S2. Baseline medication history

Drug Class	Drugs
Anticoagulant agents	• Warfarin (Coumadin, Jantoven) • DOACs: Apixaban (Eliquis), Dabigatran (Pradaxa), Rivaroxaban (Xarelto), Edoxaban (Savaysa, Lixiana), Betrixaban (Bevyxxa) • Heparin: Heparin sodium, Enoxaparin (Lovenox, Clexane), Dalteparin (Fragmin), Tinzaparin (Innohep)
CV agents	• Beta-blockers: Atenolol (Tenormin), Metoprolol (Lopressor, Toprol-XL), Propranolol (Inderal) • Angiotensin-converting enzyme inhibitors (ACE inhibitors): Lisinopril (Prinivil, Zestril), Enalapril (Vasotec), Ramipril (Altace), Captopril (Capoten), Benazepril (Lotensin), Perindopril (Coversyl), Quinapril (Accupril), Moexipril (Univasc), Trandolapril (Mavik) • Angiotensin receptor blockers (ARBs): Losartan (Cozaar), Valsartan (Diovan), Irbesartan (Avapro), Telmisartan (Micardis), Candesartan (Atacand), Olmesartan (Benicar) • Calcium channel blockers: Amlodipine (Norvasc), Nifedipine (Procardia, Adalat), Verapamil (Calan, Verelan), Diltiazem (Cardizem) • Diuretics: Hydrochlorothiazide (HCTZ) (Microzide), Furosemide (Lasix), Chlorthalidone (Hygroton), Spironolactone (Aldactone), Bumetanide (Bumex), Torsemide (Demadex) • Statins: Atorvastatin (Lipitor), Simvastatin (Zocor), Rosuvastatin (Crestor), Pravastatin (Pravachol), Lovastatin (Mevacor, Altoprev), Fluvastatin (Lescol) • Combinations: Amlodipine/Benazepril (Lotrel), Amlodipine/Olmesartan (Azor), Amlodipine/Valsartan (Exforge), Aliskiren/Amlodipine (Tekamlo), Aliskiren/HCTZ (Tekturna HCT), Atenolol/Chlorthalidone (Tenoretic), Bisoprolol/HCTZ (Ziac), Enalapril/HCTZ (Vaseretic), Irbesartan/HCTZ (Avalide), Lisinopril/HCTZ (Prinzide, Zestoretic), Losartan/HCTZ (Hyzaar), Metoprolol/HCTZ (Lopressor HCT), Olmesartan/Amlodipine/HCTZ (Tribenzor), Telmisartan/Amlodipine (Twynsta), and Valsartan/HCTZ (Diovan HCT)
Antidiabetic agents	• Alpha-glucosidase inhibitors: Acarbose (Precose, Glucobay), Miglitol (Glyset) • Biguanides: Metformin (Glucophage), Metformin Extended-Release (Glucophage XR, Fortamet, Glumetza) • Sulfonylureas: Glimepiride (Amaryl), Glyburide (Micronase, Diabeta), Glipizide (Glucotrol), Glipizide Extended-Release (Glucotrol XL), Chlorpropamide (Diabinese) • Meglitinides: Repaglinide (Prandin), Nateglinide (Starlix) • DPP-4 Inhibitors: Sitagliptin (Januvia), Saxagliptin (Onglyza), Linagliptin (Tradjenta), Alogliptin (Nesina) • GLP-1 Receptor Agonists: Exenatide (Byetta, Bydureon), Liraglutide (Victoza), Lixisenatide (Lyxumia), Semaglutide (Ozempic), Dulaglutide (Trulicity) • SGLT2 Inhibitors: Canagliflozin (Invokana), Dapagliflozin (Farxiga), Empagliflozin (Jardiance) • Insulins: Insulin Lispro (Humalog), Insulin Aspart (Novolog), Insulin Glulisine (Apidra), Regular Insulin (Humulin R), NPH Insulin (Humulin N), Insulin Detemir (Levemir), Insulin Glargine (Lantus, Basaglar, Toujeo) • Combinations: Metformin/Saxagliptin (Kombiglyze XR), Metformin/Sitagliptin (Janumet, Janumet XR), Metformin/Alogliptin (Kazano), Metformin/Dapagliflozin (Xigduo XR), Metformin/Canagliflozin (Invokamet, Invokamet XR), Metformin/Empagliflozin (Synjardy, Synjardy XR), Metformin/Ertugliflozin (Segluromet), Pioglitazone/Glimepiride (Duetact), Pioglitazone/Metformin (Actoplus Met, Actoplus Met XR)
Analgesics & Antacids	• Proton pump inhibitors: Dexlansoprazole (Dexilant), Esomeprazole (Nexium), Lansoprazole (Prevacid), Omeprazole (Prilosec), Pantoprazole (Protonix), Rabeprazole (Aciphex) • H2 receptor antagonists: Cimetidine (Tagamet), Famotidine (Pepcid), Ranitidine (Zantac) • NSAIDs: Celecoxib (Celebrex), Diclofenac (Voltaren), Meloxicam (Mobic), Naproxen (Naprosyn), Etodolac (Lodine), Ketorolac (Toradol), Ibuprofen (prescription-strength formulations)

Table S3. Exploratory subgroup analysis of initial P2Y12 inhibitor selection and recorded ticagrelor-to-clopidogrel switching by ACS subtype.

ACS subtype	Total patients	Ticagrelor initiation, n (%)	Clopidogrel initiation, n (%)	Ticagrelor initiators, n	Recorded switch to clopidogrel, n (%)	30-day switching, %	90-day switching, %	180-day switching, %	365-day switching, %
NSTE-ACS	34,076	11,261 (33.0)	22,815 (67.0)	11,261	3,476 (30.9)	14.4	21.0	25.4	30.9
STEMI	23,543	10,760 (45.7)	12,783 (54.3)	10,760	3,443 (32.0)	19.7	25.2	28.2	32.0

Note: Initial P2Y12 inhibitor selection differed by ACS subtype (chi-square $p < 0.001$). Among ticagrelor initiators, Kaplan-Meier curves for recorded ticagrelor-to-clopidogrel switching differed by ACS subtype (log-rank $p = 0.0007$). Switching proportions are observed cumulative proportions.

ACS acute coronary syndrome, *NSTE-ACS* non-ST-elevation acute coronary syndrome, *STEMI* ST-elevation myocardial infarction.