

Appendix 2. Administrative databases and codes used

Variable	Administrative codes used	Dataset Used
CVD composite (1)		
Myocardial infarction	ICD-9: 410.X ICD-10: I21.X, I22.X	DAD
Angina	ICD-9: 411.X, 413.X ICD-10: I20.X, I24.X	
Transient ischemic attack	ICD-9: 435.X ICD-10: G45, G45.0, G45.1, G45.2, G45.3, G45.8, G45.9 (NOT G45.4)	
Acute ischemic stroke	ICD-9: 433.X, 434.X, 436.X, 362.3X (NOT 433.X0, 434.X0) ICD-10: I63.X, I64.X, H34.1	
Heart failure	ICD-9: 428.X ICD-10: I50.X	Physician Claims DAD
Ischemic Heart Disease	ICD-9: 410.X, 411.X, 412.X, 413.X, 414.X ICD-10: I25.X	
Percutaneous coronary intervention	CCP: 51.59A, 51.59C, 51.59D, 51.59E, 51.59F	Physician Claims
Coronary artery bypass graft	CCP: 48.12, 48.12A, 48.13, 48.13A, 48.14, 48.14A, 48.15A, 48.15B, 48.15C, 48.15D, 48.15E, 48.15F, 48.15G	
Statin Use		
Statin use	ATC: C10AA	ABC PIN
Elixhauser Comorbidities (2)		
Congestive Heart Failure	ICD-9: 398, 402, 404, 425, 428, 398.9, 402.0, 402.1, 402.9, 404.0, 404.1, 404.9, 425.4, 425.5, 425.6, 425.8, 425.9 ICD-10: I43, I50, I099, I110, I130, I132, I255, I420, I425, I426, I427, I428, I429, P290	Physician Claims DAD Emergency Department
Cardiac Arrhythmias	ICD-9: 426, 427, 785, 996, 426.0, 426.1, 426.7, 426.9, 427.0, 427.1, 427.2, 427.3, 427.4, 427.6, 427.7, 427.8,	Physician Claims DAD Emergency Department

	427.9, 785.0, 996.0, V45.0, V53.3 ICD-10: I47, I48, I49, I441, I442, I443, I456, I459, R000, R001, R008, T821, Z450, Z950	
Valvular Disease	ICD-9: 093, 746, 394, 395, 396, 397, 424, 093.2, V42.2, V43.3 ICD-10: I05, I06, I07, I08, I34, I35, I36, I37, I38, I39, A520, I091, I098, Q230, Q231, Q232, Q233, Z952, Z953, Z954	Physician Claims DAD Emergency Department
Pulmonary Circulation Disorders	ICD-9: 415, 417, 416, 415.0, 415.1, 417.0, 417.8, 417.9 ICD-10: I26, I27, I280, I288, I289	Physician Claims DAD Emergency Department
Peripheral Vascular Disorders	ICD-9: 093, 437, 443, 447, 557, 440, 441, 093.0, 437.3, 443.1, 443.2, 443.3, 443.4, 443.5, 443.6, 443.7, 443.8, 443.9, 447.1, 557.1, 557.9, V43.4 ICD-10: I70, I71, I731, I738, I739, I771, I790, I792, K551, K558, K559, Z958, Z959	Physician Claims DAD Emergency Department
Hypertension	ICD-9: 401, 402, 403, 404, 405 ICD-10: I10, I11, I12, I13, I15	Physician Claims DAD Emergency Department
Paralysis	ICD-9: 334, 344, 342, 343, 334.1, 344.0, 344.1, 344.2, 344.3, 344.4, 344.5, 344.6, 344.9 ICD-10: G81, G82, G041, G114, G801, G802, G830, G831, G832, G833, G834, G839	Physician Claims DAD Emergency Department

Other Neurological Disorders	<p>ICD-9: 331, 332, 333, 336, 348, 780, 784, 334, 335, 340, 341, 345, 331.9, 332.0, 332.1, 333.4, 333.5, 333.9, 336.2, 348.1, 348.3, 780.3, 784.3</p> <p>ICD-10: G10, G11, G12, G13, G20, G21, G22, G32, G35, G36, G37, G40, G41, R56, G254, G255, G312, G318, G319, G931, G934, R470</p>	<p>Physician Claims DAD Emergency Department</p>
Chronic Pulmonary Disease	<p>ICD-9: 416, 506, 508, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 416.8, 416.9, 506.4, 508.1, 508.8</p> <p>ICD-10: J40, J41, J42, J43, J44, J45, J46, J47, J60, J61, J62, J63, J64, J65, J66, J67, I278, I279, J684, J701, J703</p>	<p>Physician Claims DAD Emergency Department</p>
Diabetes	<p>ICD-9: 250</p> <p>ICD-10: E10, E11, E12, E13, E14</p>	<p>Physician Claims DAD Emergency Department</p>
Hypothyroidism	<p>ICD-9: 240, 246, 243, 244, 240.9, 246.1, 246.8</p> <p>ICD-10: E00, E01, E02, E03, E890</p>	<p>Physician Claims DAD Emergency Department</p>
Renal Failure	<p>ICD-9: 403, 404, 588, 585, 586, V56, 403.0, 403.1, 403.9, 404.0, 404.1, 404.9, 588.0, V42.0, V45.1</p> <p>ICD-10: N18, N19, I120, I131, N250, Z490, Z491, Z492, Z940, Z992</p>	<p>Physician Claims DAD Emergency Department</p>
Liver Disease	<p>ICD-9: 070, 456, 572, 573, 570, 571, 070.2, 070.3, 070.4, 070.5, 070.6, 070.9, 456.0, 456.1, 456.2, 572.2, 572.3, 572.4, 572.5, 572.6,</p>	<p>Physician Claims DAD Emergency Department</p>

	572.7, 572.8, 573.3, 573.4, 573.8, 573.9, V42.7 ICD-10: B18, I85, K70, K72, K73, K74, I864, I982, K711, K713, K714, K715, K717, K760, K762, K763, K764, K765, K766, K767, K768, K769, Z944	
Peptic Ulcer Disease Excluding Bleeding	ICD-9: 531, 532, 533, 534, 531.7, 531.9, 532.7, 532.9, 533.7, 533.9, 534.7, 534.9 ICD-10: K257, K259, K267, K269, K277, K279, K287, K289	Physician Claims DAD Emergency Department
HIV/AIDS	ICD-9: 042, 043, 044 ICD-10: B20, B21, B22, B24	Physician Claims DAD Emergency Department
Lymphoma	ICD-9: 203, 238, 200, 201, 202, 203.0, 238.6 ICD-10: C81, C82, C83, C84, C85, C88, C96, C900, C902	Physician Claims DAD Emergency Department
Solid Tumor Cancer with or without metastasis	ICD-9: 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199 ICD-10: C00, C01, C02, C03, C04, C05, C06, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C30, C31, C32, C33, C34, C37,	Physician Claims DAD Emergency Department

	C38, C39, C40, C41, C43, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, 97	
Rheumatoid Arthritis	ICD-9: 701, 710, 711, 719, 728, 729, 446, 714, 720, 725, 701.0, 710.0, 710.1, 710.2, 710.3, 710.4, 710.8, 710.9, 711.2, 719.3, 728.5, 728.8, 729.3 ICD-10: M05, M06, M08, M30, M32, M33, M34, M35, M45, L940, L941, L943, M120, M123, M310, M311, M312, M313, M461, M468, M469	Physician Claims DAD Emergency Department
Coagulopathy	ICD-9: 287, 286, 287.1, 287.3, 287.4, 287.5 ICD-10: D65, D66, D67, D68, D691, D693, D694, D695, D696	Physician Claims DAD Emergency Department
Obesity	ICD-9: 278, 278.0 ICD-10: E66	Physician Claims DAD Emergency Department
Weight loss	ICD-9: 783, 799, 260, 261, 262, 263, 783.2, 799.4 ICD-10: E40, E41, E42, E43, E44, E45, E46, R64, R634	Physician Claims DAD Emergency Department
Fluid and Electrolyte Disorders	ICD-9: 253, 276, 253.6 ICD-10: E86, E87, E222	Physician Claims DAD Emergency Department
Blood Loss Anemia	ICD-9: 280.0 ICD-10: D500	Physician Claims DAD Emergency Department
Deficiency Anemia	ICD-9: 280, 281, 280.1, 280.2, 280.3, 280.4, 280.5, 280.6, 280.7, 280.8, 280.9	Physician Claims DAD Emergency Department

	ICD-10: D51, D52, D53, D508, D509	
Alcohol Abuse	ICD-9: 265, 291, 303, 305, 357, 425, 535, 571, 980, 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, V11.3 ICD-10: F10, E52, T51, G621, I426, K292, K700, K703, K709, Z502, Z714, Z721	Physician Claims DAD Emergency Department
Drug Abuse	ICD-9: 305, 292, 304, 305.2, 305.3, 305.4, 305.5, 305.6, 305.7, 305.8, 305.9, V65.4 ICD-10: F11, F12, F13, F14, F15, F16, F18, F19, Z715, Z722	Physician Claims DAD Emergency Department
Psychoses	ICD-9: 293, 296, 295, 297, 298, 293.8, 296.0, 296.1, 296.4, 296.5 ICD-10: F20, F22, F23, F24, F25, F28, F29, F302, F312, F315	Physician Claims DAD Emergency Department
Depression	ICD-9: 300, 309, 311, 296.2, 296.3, 296.5, 300.4 ICD-10: F32, F33, F204, F313, F314, F315, F341, F412, F432	Physician Claims DAD Emergency Department

ABC, Alberta Blue Cross; ATC, Anatomical Therapeutic Chemical coding; CCP, Canadian Classification of Diagnostic, Therapeutic, and Surgical Procedures; DAD, discharge abstract database; ICD, International Statistical Classification of Diseases and Related Health Problems; PIN, Pharmaceutical Information Network.

References:

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2. Quan H, Sundararajan V, Halfon P, Fong A, Burnand B, Luthi JC, et al. Coding algorithms for defining comorbidities in ICD-9-CM and ICD-10 administrative data. *Med Care*. 2005;43(11):1130-9.