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	
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)	DAD
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
Ischemic Heart Disease	ICD-9: 410.X, 411.X, 412.X, 413.X, 414.X ICD-10: I25.X	DAD
Percutaneous coronary intervention	CCP: 51.59A, 51.59C, 51.59D, 51.59E,51.59F	
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	Physician Claims
	Statin Use	
Statin use	ATC: C10AA	ABC PIN
E	lixhauser 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,	Physician Claims DAD Emergency Department
Conding Ambuth	I130, I132, I255, I420, I425, I426, I427, I428, I429, P290 ICD-9: 426, 427, 785, 996, 426.0, 426.1, 426.7, 426.9,	Physician Claims
Cardiac Arrhythmias	427.0, 427.1, 427.2, 427.3, 427.4, 427.6, 427.7, 427.8,	DAD Emergency Department

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	427.9, 785.0, 996.0, V45.0,	
	V53.3	
	707 40 74 7 740 740 7444	
	ICD-10: I47, I48, I49, I441,	
	1442, 1443, 1456, 1459,	
	R000, R001, R008, T821,	
	Z450, Z950	
	ICD-9: 093, 746, 394, 395,	!
	396, 397, 424, 093.2, V42.2,	
	V43.3	
		Physician Claims
Valvular Disease	ICD-10: I05, I06, I07, I08,	DAD
	134, 135, 136, 137, 138, 139,	Emergency Department
	A520, I091, I098, Q230,	
	Q231, Q232, Q233, Z952,	
	Z953, Z954	
	ICD-9: 415, 417, 416, 415.0,	
	415.1, 417.0, 417.8, 417.9	Physician Claims
Pulmonary Circulation Disorders		DAD
	ICD-10: I26, I27, I280, I288,	Emergency Department
	I289	
	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,	Physician Claims
Peripheral Vascular Disorders	V43.4	DAD
		Emergency Department
	ICD-10: I70, I71, I731, I738,	
	1739, 1771, 1790, 1792,	
	K551, K558, K559, Z958,	
	Z959	
	ICD-9: 401, 402, 403, 404,	
Hypertension	405	Physician Claims
		DAD
	ICD-10: I10, I11, I12, I13,	Emergency Department
	115	
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	Physician Claims
		DAD
	ICD-10: G81, G82, G041,	Emergency Department
	G114, G801, G802, G830,	Emergency Department
	G831, G832, G833, G834,	
	G839	

Other Neurological Disorders	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 ICD-10: G10, G11, G12, G13, G20, G21, G22, G32, G35, G36, G37, G40, G41, R56, G254, G255, G312, G318, G319, G931, G934, R470	Physician Claims DAD Emergency Department
Chronic Pulmonary Disease	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 ICD-10: J40, J41, J42, J43, J44, J45, J46, J47, J60, J61, J62, J63, J64, J65, J66, J67, I278, I279, J684, J701, J703	Physician Claims DAD Emergency Department
Diabetes	ICD-9: 250 ICD-10: E10, E11, E12, E13, E14	Physician Claims DAD Emergency Department
Hypothyroidism	ICD-9: 240, 246, 243, 244, 240.9, 246.1, 246.8 ICD-10: E00, E01, E02, E03, E890	Physician Claims DAD Emergency Department
Renal Failure	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 ICD-10: N18, N19, I120, I131, N250, Z490, Z491, Z492, Z940, Z992	Physician Claims DAD Emergency Department
Liver Disease	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,	Physician Claims DAD Emergency Department

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	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	
	ICD-9: 531, 532, 533, 534,	
	531.7, 531.9, 532.7, 532.9,	
	533.7, 533.9, 534.7, 534.9	Physician Claims
Peptic Ulcer Disease Excluding	333.7, 333.9, 334.7, 334.9	DAD
Bleeding	ICD 10, V257, V250, V267	
_	ICD-10: K257, K259, K267,	Emergency Department
	K269, K277, K279, K287,	
	K289	
	ICD-9: 042, 043, 044	Physician Claims
HIV/AIDS		DÃD
	ICD-10: B20, B21, B22,	Emergency Department
	B24	Emergency Department
	ICD-9: 203, 238, 200, 201,	
	202, 203.0, 238.6	Physician Claims
Lymphomo		DAD
Lymphoma	ICD-10: C81, C82, C83,	
	C84, C85, C88, C96, C900,	Emergency Department
	C902	
	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,	Physician Claims
Solid Tumor Cancer with or without metastasis	185, 186, 187, 188, 189,	DAD
	190, 191, 192, 193, 194,	Emergency Department
	195, 196, 197, 198, 199	Emergency Department
	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,	
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C50, C51, C52, C53, C54, C55, C55, C57, C58, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, 97			
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 ICD-9: 701, 710, 711, 719, 728, 729, 446, 714, 720, 725, 701.0, 710.0, 710.1, 710.8, 710.2, 710.3, 710.4, 710.8, 710.9, 711.2, 719.3, 728.5, 728.8, 729.3 Rheumatoid Arthritis			
C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, 97 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 Rheumatoid Arthritis			
C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, 97			
C71, C72, C73, C74, C75, C76, C76, C77, C78, C79, C80, 97			
C76, C77, C78, C79, C80, 97			
97 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 Physician Claims DAD Emergency Department			
ICD-9: 701, 710, 711, 719, 728, 729, 446, 714, 720, 725, 701.0, 710.0, 710.1, 710.3, 710.4, 710.8, 710.9, 711.2, 719.3, 728.5, 728.8, 729.3 Physician Claims DAD Emergency Department		C76, C77, C78, C79, C80,	
T28, 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 Physician Claims DAD		97	
T25, 701.0, 710.0, 710.1, 710.2, 710.3, 710.4, 710.8, 710.9, 711.2, 710.3, 710.4, 710.8, 710.9, 711.2, 719.3, 728.5, 728.8, 729.3 Physician Claims DAD Emergency Department		ICD-9: 701, 710, 711, 719,	
T10.2, 710.3, 710.4, 710.8, 710.9, 711.2, 719.3, 728.5, 728.8, 729.3 Physician Claims DAD Emergency Department		728, 729, 446, 714, 720,	
T10.9, 711.2, 719.3, 728.5, 728.8, 729.3 Physician Claims DAD Emergency Department		725, 701.0, 710.0, 710.1,	
T28.8, 729.3		710.2, 710.3, 710.4, 710.8,	
T28.8, 729.3		710.9, 711.2, 719.3, 728.5,	
Rheumatoid Arthritis			Physician Claims
ICD-10: M05, M06, M08, M30, M32, M33, M34, M35, M45, L940, L941, L943, M120, M123, M310, M311, M312, M313, M461, M468, M469	Rheumatoid Arthritis	-	
M30, M32, M33, M34, M35, M45, L940, L941, L943, M120, M123, M310, M311, M312, M313, M461, M468, M469		ICD-10: M05, M06, M08,	Emergency Department
M45, L940, L941, L943, M120, M123, M310, M311, M312, M313, M461, M468, M469			8 7 1
M120, M123, M310, M311, M312, M313, M461, M468, M469 ICD-9: 287, 286, 287.1, 287.3, 287.4, 287.5 Physician Claims DAD Emergency Department Physician Claims D			
M312, M313, M461, M468, M469 ICD-9: 287, 286, 287.1, 287.3, 287.4, 287.5 Physician Claims DAD Emergency Department			
M469 ICD-9: 287, 286, 287.1, 287.3, 287.4, 287.5 Physician Claims DAD Emergency Department			
CD-9: 287, 286, 287.1, 287.3, 287.4, 287.5 Physician Claims DAD Emergency Department DAD Eme			
Coagulopathy Coagulopathy			
Coagulopathy ICD-10: D65, D66, D67, D68, D691, D693, D694, D695, D696 ICD-9: 278, 278.0 Physician Claims DAD Emergency Department ICD-10: E66 ICD-9: 783, 799, 260, 261, 262, 263, 783.2, 799.4 Weight loss ICD-10: E40, E41, E42, E43, E44, E45, E46, R64, R634 ICD-9: 253, 276, 253.6 Physician Claims DAD Emergency Department ICD-10: E40, E41, E42, E43, E44, E45, E46, R64, R634 ICD-9: 253, 276, 253.6 Physician Claims DAD Emergency Department ICD-10: E86, E87, E222 ICD-10: E86, E87, E222 ICD-10: D500 ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims DAD Emergency Department ICD-9: 280, 281, 280.1, Physician Claims DAD Emergency Department DAD			
CD-10: D65, D66, D67, D68, D691, D693, D694, D695, D696 Emergency Department		287.3, 287.4, 287.3	Physician Claims
D68, D691, D693, D694, D695, D696 Emergency Department	Coagulopathy	ICD 10, D65, D66, D67	DAD
D695, D696 ICD-9: 278, 278.0 Physician Claims DAD ICD-10: E66 Emergency Department			Emergency Department
ICD-9: 278, 278.0 Physician Claims DAD			
Obesity ICD-10: E66 Emergency Department Weight loss ICD-9: 783, 799, 260, 261, 262, 263, 783.2, 799.4 Physician Claims DAD Emergency Department Weight loss 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 Physician Claims DAD Emergency Department ICD-10: E86, E87, E222 Emergency Department Blood Loss Anemia ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, DAD Physician Claims DAD Emergency Department Deficiency Anemia ICD-9: 280, 281, 280.1, DAD Physician Claims DAD Emergency Department		1	DI ' CI '
ICD-10: E66 Emergency Department	01 4	ICD-9: 2/8, 2/8.0	
ICD-9: 783, 799, 260, 261, 262, 263, 783.2, 799.4 Physician Claims DAD Emergency Department	Obesity	ICD 10 F((
Weight loss 262, 263, 783.2, 799.4 Physician Claims DAD Emergency Department ICD-10: E40, E41, E42, E43, E44, E45, E46, R64, R634 Emergency Department Fluid and Electrolyte Disorders ICD-9: 253, 276, 253.6 Physician Claims DAD Emergency Department ICD-10: E86, E87, E222 Emergency Department Blood Loss Anemia ICD-9: 280.0 Physician Claims DAD Emergency Department ICD-9: 280, 281, 280.1, Deficiency Anemia ICD-9: 280, 281, 280.1, Physician Claims DAD Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD			Emergency Department
Weight loss ICD-10: E40, E41, E42, E43, E44, E45, E46, R64, R634 ICD-9: 253, 276, 253.6 Fluid and Electrolyte Disorders ICD-10: E86, E87, E222 ICD-10: E86, E87, E222 ICD-9: 280.0 Blood Loss Anemia ICD-10: D500 ICD-10: D500 Emergency Department DAD Physician Claims DAD Emergency Department ICD-9: 280, 281, 280.1, Physician Claims DAD ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims DAD Emergency Department ICD-9: 280, 281, 280.1, Physician Claims Deficiency Anemia	Weight loss		
Weight loss ICD-10: E40, E41, E42, E43, E44, E45, E46, R64, R634 DAD Emergency Department Fluid and Electrolyte Disorders ICD-9: 253, 276, 253.6 Physician Claims DAD Emergency Department ICD-10: E86, E87, E222 Emergency Department ICD-9: 280.0 Physician Claims DAD Emergency Department ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Deficiency Anemia Physician Claims DAD Emergency Department Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD		262, 263, 783.2, 799.4	Physician Claims
CD-10: E40, E41, E42, E43, E44, E45, E46, R64, R634 ICD-9: 253, 276, 253.6 Physician Claims DAD ICD-10: E86, E87, E222 Emergency Department ICD-9: 280.0 Physician Claims DAD ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims DAD ICD-9: 280, 281, 280.1, DAD Physician Claims DAD ICD-9: 280, 281, 280.1, DAD ICD-9: 280, 280.3, 280.4, 280.5, DAD ICD-9: 280, 280.3, 280.4, 280.5, DAD ICD-9: 280, 280.4, 280.5, DAD		TOD 10 D10 - 11 - 15	
E43, E44, E45, E46, R64, R634 ICD-9: 253, 276, 253.6 Physician Claims DAD ICD-10: E86, E87, E222 Emergency Department ICD-9: 280.0 Physician Claims DAD ICD-10: D500 Emergency Department ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims DAD ICD-9: 280, 281, 280.1, Physician Claims Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD DAD			
Fluid and Electrolyte Disorders Fluid and Electrolyte Disorders ICD-9: 253, 276, 253.6 Physician Claims DAD Emergency Department ICD-9: 280.0 Physician Claims DAD ICD-10: D500 Emergency Department ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims DAD Emergency Department ICD-9: 280, 281, 280.1, Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD			
Fluid and Electrolyte Disorders ICD-10: E86, E87, E222 Emergency Department ICD-9: 280.0 Physician Claims DAD ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD			
ICD-10: E86, E87, E222 Emergency Department ICD-9: 280.0 Physician Claims DAD ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD	Fluid and Electrolyte Disorders	ICD-9: 253, 276, 253.6	
ICD-9: 280.0 Physician Claims DAD ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD			
Blood Loss Anemia DAD ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD			
ICD-10: D500 Emergency Department ICD-9: 280, 281, 280.1, Physician Claims Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD	Blood Loss Anemia	ICD-9: 280.0	
ICD-9: 280, 281, 280.1, Physician Claims Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD			
Deficiency Anemia 280.2, 280.3, 280.4, 280.5, DAD		ICD-10: D500	Emergency Department
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280.6, 280.7, 280.8, 280.9 Emergency Department		280.2, 280.3, 280.4, 280.5,	DAD
		280.6, 280.7, 280.8, 280.9	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	Physician Claims DAD Emergency Department
	ICD-10: F10, E52, T51, G621, I426, K292, K700, K703, K709, Z502, Z714, Z721	
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.

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