

Supplementary Material

Costs of major complications in people with and without diabetes in Tasmania, Australia

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Table S1: Definitions of diabetes-related complications

Main groups	Subgroups	ICD-10-AM/ACHI codes
Cardiovascular disease (CVD)	Myocardial infarction (MI)	I21*, I22*, I23*, I25.2
	Heart failure	I50*
	Ischaemic heart disease	I24*, I25* (excluding I25.2)
	Angina pectoris	I20*
	Other cardiovascular complications ^a	I46*, I47*, I48*, I49*, I70*, I71*
Cerebrovascular disease	Stroke	I61*, I63*, I65*, I66*
	Transient ischaemic attack (TIA)	I645*
Peripheral Vascular Disease	Lower extremity amputations (LEA)	44367-01, 44367-02, 44338-00, 44358-00, 90557-00, 44361-00, 44364-00, 44364-01, 44361-01, 44370-00, 44373-00, 44367-00, 44367-01, 44367-02
	Foot ulcer/gangrene	L97*, S91.3*, E10.73, E11.73, E13.73, E14.73, E10.52, E11.52, E12.52, E13.52, E14.52, A48.0
	Other peripheral vascular complications ^a	E10.51, E11.51, E12.51, E13.51, E14.51, I70.21*, I73.9, I72.4
Renal disease	Transplant	Z94.0, T86.1*
	Dialysis	Z49.0, Z49.1, Z49.2, Z99.2, T82.4
	Kidney failure	N18.0, N18.5, N18.8, N18.90, N19*
	Nephropathy	E10.21, E10.22, E11.21, E11.22, E13.21, E13.22, E14.21, E14.22, N18.91, N18.1, N18.2, N18.3, N18.4
	Other kidney complications ^a	E10.2*, E11.2*, E12.2*, E13.2*, E14.2* (excluding diabetic nephropathy) N00*, N03*, N04*, N05*
Ophthalmic complications	Blindness and low vision	H54*
	Vitreous hemorrhage	H43.1*
	Retinopathy	E10.31*, E10.32*, E10.33*, E10.34*, E10.35*, E11.31*, E11.32*, E11.33*, E11.34*, E11.35*, E13.31*, E13.32*, E13.33*, E13.34*, E13.35*, E14.31*, E14.32*, E14.33*, E14.34*, E14.35*, H35.0*, H36.0*, H35.2*
	Other ophthalmic complications ^a	E10.3*, E11.3*, E12.3*, E13.3*, E14.3* (excluding diabetic retinopathy) H35.6*, H35.8*, H35.9, H33*, H35.35*
Neuropathy		E10.4*, E11.4*, E12.4*, E13.4*, E14.4*, G90.8, G90.9, G99.0, G56*, G57*, G60.9, G73.3, H49*, I95.1, K59.1, N31.9, M14.6*, S04*
Metabolic complication	Hyperglycaemia	E10.0*, E11.0*, E13.0*, E14.0*, E10.65, E11.65, E13.65, E14.65
	Hypoglycaemia	E10.64*, E11.64*, E13.64*, E14.64*
	Acidosis	E10.1*, E11.1*, E12.1*, E13.1*, E14.1*

ICD-10-AM, International Statistical Classification of Diseases and Related Health problems 10th Revision Australian Modification; ACHI, Australian Classification of Health Interventions

Complications in each main group were presented in hierarchical order of severity, based on the Diabetes Complications Severity Index.

^a Some of the complications in these sections have severity scores higher than the complications right above them, but they are not very prevalent and therefore kept under these sections for simplicity

Table S2: Annual hospital, ED and pathology costs per person with and without diabetes, by complications

Complications	Hospital		ED		Pathology	
	People with diabetes Mean (95% CI) ^a	People without diabetes Mean (95% CI) ^a	People with diabetes Mean (95% CI) ^a	People without diabetes Mean (95% CI) ^a	People with diabetes Mean (95% CI) ^a	People without diabetes Mean (95% CI) ^a
First year recorded^b						
<i>Cardiovascular disease</i>						
Fatal MI	14,003 (10,163, 18,784)	11,013 (8,500, 15,380)	1,354 (1,211, 1,510)	1,445 (1,274, 1,640)	156 (120, 198)	127 (97, 173)
Non-fatal MI	27,436 (26,219, 28,744)	21,542 (20,713, 22,425)	2,796 (2,686, 2,898)	2,374 (2,301, 2,451)	594 (564, 621)	406 (385, 426)
Heart failure	24,396 (23,002, 25,887)	20,897 (19,682, 22,161)	2,309 (2,210, 2,406)	2,047 (1,957, 2,144)	675 (641, 706)	545 (516, 579)
Ischaemic heart disease	27,700 (25,551, 30,006)	25,476 (23,628, 27,619)	870 (742, 1,033)	717 (627, 826)	590 (542, 640)	470 (435, 504)
Angina pectoris	16,135 (14,927, 17,499)	11,923 (11,091, 12,837)	1,852 (1,756, 1,966)	1,640 (1,560, 1,739)	442 (417, 467)	315 (296, 334)
Other cardiovascular complications	15,658 (14,260, 17,112)	12,923 (11,818, 13,984)	1,644 (1,561, 1,731)	1,554 (1,500, 1,605)	406 (378, 435)	315 (298, 337)
<i>Cerebrovascular disease</i>						
Fatal stroke	11,762 (9,179, 16,000)	10,164 (8,445, 11,935)	1,356 (1,137, 1,546)	1,299 (1,129, 1,468)	109 (79, 152)	69 (48, 92)
Non-fatal stroke	25,422 (23,963, 26,952)	21,870 (20,869, 22,966)	1,883 (1,812, 1,953)	1,861 (1,796, 1,928)	476 (449, 504)	371 (349, 392)
TIA	11,485 (10,199, 12,903)	7,966 (7,110, 9,006)	2,036 (1,899, 2,204)	1,615 (1,544, 1,700)	383 (351, 419)	263 (245, 287)
<i>Peripheral Vascular Disease</i>						
LEA	61,154 (55,986, 65,983)	29,463 (20,357, 39,633)	1,666 (1,489, 1,835)	1,183 (867, 1,608)	756 (672, 845)	503 (339, 769)
Foot ulcer/gangrene	27,547 (24,938, 30,385)	13,515 (11,468, 15,920)	1,722 (1,586, 1,892)	1,252 (1,138, 1,398)	534 (482, 588)	257 (218, 309)
Other peripheral vascular complications	11,815 (9,641, 14,005)	6,999 (5,307, 9,352)	1,074 (879, 1,267)	1,040 (818, 1,366)	351 (303, 409)	237 (197, 283)
<i>Renal disease</i>						
Transplant	44,339 (30,296, 64,222)	33,480 (7,136, 80,675)	956 (524, 1,389)	622 (0, 1,244)	3,192 (2,486, 4,005)	2,532 (1,273, 3,950)
Dialysis	75,290 (68,399, 82,844)	63,727 (53,468, 76,563)	1,703 (1,456, 1,943)	1,588 (1,228, 2,079)	1,158 (1,043, 1,282)	967 (788, 1,158)
Kidney failure	22,938 (18,049, 29,963)	16,644 (12,604, 21,737)	1,274 (997, 1,597)	1,020 (674, 1,405)	692 (521, 892)	541 (399, 726)
Nephropathy	13,424 (10,722, 16,738)	23,688 (15,407, 35,970)	1,009 (814, 1,231)	1,380 (895, 2,058)	699 (590, 830)	811 (521, 1,176)
Other kidney complications	23,668 (20,002, 27,653)	19,602 (14,265, 26,170)	2,218 (1,825, 2,674)	1,227 (827, 1,673)	958 (801, 1,109)	1,009 (748, 1,316)

<i>Ophthalmic complications</i>						
Blindness and low vision	11,205 (6,734, 17,193)	14,620 (8,485, 23,531)	1,423 (988, 1,908)	1,995 (1,444, 2,872)	313 (212, 445)	522 (320, 838)
Vitreous haemorrhage	12,313 (9,342, 16,088)	8,360 (4,612, 14,870)	769 (523, 1,079)	595 (244, 1,032)	323 (221, 490)	97 (36, 231)
Retinopathy	13,649 (10,847, 17,778)	7,065 (1,067, 14,753)	859 (616, 1,156)	699 (244, 1,289)	267 (205, 341)	87 (15, 205)
Other ophthalmic complications	9,672 (8,612, 11,267)	6,881 (5,294, 8,973)	560 (488, 635)	648 (528, 776)	273 (246, 309)	130 (106, 164)
<i>Neuropathy</i>	13,713 (12,453, 15,123)	10,124 (9,130, 11,315)	1,511 (1,387, 1,659)	1,213 (1,122, 1,327)	413 (380, 451)	283 (264, 309)
<i>Metabolic complication</i>						
Hyperglycaemia	21,383 (19,420, 23,582)		2,046 (1,871, 2,248)		481 (443, 526)	
Hypoglycaemia	21,930 (19,832, 24,181)		2,374 (2,198, 2,579)		557 (503, 620)	
Acidosis	19,502 (17,490, 22,036)		2,402 (2,241, 2,620)		439 (393, 485)	
<i>No complication</i>	3,833 (3,647, 4,004)	1,171 (1,124, 1,216)	270 (260, 281)	140 (136, 144)	219 (215, 222)	83 (82, 85)
<i>Second year^c</i>						
<i>Cardiovascular disease</i>						
Non-fatal MI	7,554 (6,642, 8,594)	4,001 (3,491, 4,533)	911 (829, 1,003)	528 (476, 583)	319 (297, 341)	187 (173, 203)
Heart failure	9,009 (7,938, 10,270)	6,288 (5,527, 7,137)	900 (815, 1,002)	751 (667, 838)	386 (358, 418)	271 (245, 300)
Ischaemic heart disease	3,826 (2,953, 4,860)	3,024 (2,288, 3,870)	462 (357, 603)	356 (269, 446)	267 (234, 307)	188 (161, 220)
Angina pectoris	4,463 (3,833, 5,152)	3,509 (2,936, 4,125)	707 (626, 821)	505 (429, 581)	261 (242, 283)	180 (164, 200)
Other cardiovascular complications	5,555 (4,644, 6,657)	3,049 (2,682, 3,501)	557 (488, 629)	434 (391, 475)	255 (234, 277)	172 (159, 186)
<i>Cerebrovascular disease</i>						
Non-fatal stroke	5,163 (4,429, 6,086)	3,798 (3,172, 4,498)	553 (480, 624)	482 (414, 553)	273 (247, 304)	185 (165, 203)
TIA	4,895 (4,024, 5,963)	3,148 (2,587, 3,847)	720 (593, 910)	445 (382, 524)	262 (235, 294)	162 (146, 178)
<i>Peripheral Vascular Disease</i>						
LEA	14,484 (11,601, 17,565)	4,959 (2,148, 9,529)	910 (738, 1,120)	548 (236, 1,046)	420 (352, 482)	252 (158, 390)
Foot ulcer/gangrene	8,552 (6,864, 10,863)	4,098 (2,759, 5,665)	828 (704, 980)	494 (380, 658)	364 (317, 434)	158 (132, 193)
Other peripheral vascular complications	6,155 (4,311, 8,331)	4,000 (2,765, 5,593)	558 (436, 693)	419 (297, 558)	231 (188, 276)	149 (121, 186)
<i>Renal disease</i>						

Transplant	18,543 (6,944, 35,860)	45,150 (0, 119,214)	439 (161, 796)	223 (0, 1,115)	1,003 (721, 1,311)	835 (487, 1,203)
Dialysis	55,453 (47,575, 66,843)	40,047 (30,896, 49,915)	1,507 (1,194, 1,808)	1,178 (849, 1,524)	868 (757, 981)	707 (538, 881)
Kidney failure	12,174 (6,262, 23,121)	7,979 (2,762, 17,214)	750 (281, 1,505)	796 (382, 1,305)	798 (469, 1,242)	452 (222, 771)
Nephropathy	8,582 (5,909, 12,184)	4,135 (1,366, 8,338)	932 (697, 1,312)	650 (210, 1,436)	565 (463, 720)	353 (233, 512)
Other kidney complications	6,839 (3,761, 12,191)	7,842 (1,972, 17,233)	833 (542, 1,242)	875 (183, 1,956)	377 (303, 460)	513 (295, 831)
<i>Ophthalmic complications</i>						
Blindness and low vision	4,085 (1,644, 8,159)	10,153 (3,133, 22,220)	532 (191, 986)	756 (284, 1,629)	192 (120, 295)	394 (179, 749)
Vitreous hemorrhage	4,773 (2,918, 7,028)	4,580 (172, 14,726)	603 (338, 1,020)	498 (11, 1,762)	325 (157, 703)	157 (33, 398)
Retinopathy	6,225 (3,304, 12,157)	3,225 (1,180, 7,316)	466 (322, 646)	622 (0, 940)	244 (192, 302)	111 (55, 203)
Other ophthalmic complications	5,104 (4,285, 5,989)	2,823 (1,641, 4,280)	514 (442, 598)	244 (143, 358)	261 (234, 292)	107 (83, 134)
<i>Neuropathy</i>	7,180 (5,958, 8,707)	4,445 (3,682, 5,330)	808 (669, 965)	482 (418, 566)	321 (291, 356)	188 (172, 207)
<i>No complication</i>	1,917 (1,812, 2,050)	1,219 (1,165, 1,273)	193 (185, 203)	145 (141, 150)	143 (140, 146)	86 (85, 87)

ED, Emergency Department; LEA, Lower extremity amputations; MI, Myocardial infarction; TIA, Transient ischemic attack

^a derived using bootstrapping method

^b within 12 months from the first time diagnosed with the complications

^c within 12 months from the end of the first year when the complications occurred