

SUPPLEMENTARY MATERIAL

Table A1. Definition of CV complications (ICD-9-MC)*,‡

	SPANISH ICD CODES (ICD-9-MC)
CV COMPLICATIONS	
Death due to CV event	410.xx; 427.5; 398.91; 411.xx; 428.xx; 346.6; 435.x; 436.xx; 437.1; 414.02; 414.03; 414.04; 414.06; 414.07; 996.0; 249.7; 250.7; 415.1; 433.xx; 434.xx; 440.xx; 443.xx; 444.xx; 445.xx; 447.1; 557.0; 593.81; 785.50; 17.55; 39.2; 38.08
Non-fatal AMI	410.xx
Non-fatal stroke	346.6; 431.xx; 432.xx; 432.9; 433.x1; 434.x1; 435.xx; 436.xx; 437.1
Unstable angina	413.xx
Heart failure	398.91; 404.11; 404.13; 411.89; 433.x1; 428.xx
Revascularisation	00.66; 17.55; 36.x
RISK FACTORS	
Smoker	305.1x, V15.82
Obesity	278.xx
Hypertension	401.xx
Disorders of lipid metabolism	272.4

* Indicated with .x or .xx when all available digits for that code are included.

ICD-9-MC, Spanish international classification of disease, ninth revision, clinical modification; CV, cardiovascular; AMI, acute myocardial infarction.

‡ Codes selected in consultation with a documentalist expert in codification and with the collaboration of a group of clinical experts, based on the description of these CV complications in the SUSTAIN-6 study [52].

Table A2. Socio-demographic and epidemiological characteristics of hospitalised patients according to presence of T2DM – Unmatched T2DM and Non-DM groups.

	T2DM	Non-DM
Hospital discharges - N (%)	96 122 (34.71%)	180 803 (65.29%)
Patients – n	83 591	163 531
Gender - n (%) ^a		
Men	54 722 (56.93%)	103 386 (57.18%)
Women	41 398 (43.07%)	77 411 (42.82%)
Age [years]		
Mean (SD)	75.37 (10.91)	74.37 (13.68)
Median [Q1; Q3]	77.00 [68.00;83.00]	78.00 [65.00;85.00]
Age [years] - n (%)		
35-60	10 635 (11.06%)	33 452 (18.50%)
61-70	18 518 (19.27%)	29 181 (16.14%)
71-80	30 872 (32.12%)	43 891 (24.28%)
≥81	36 097 (37.55%)	74 279 (41.08%)
Smoker - n (%)	22 930 (23.86%)	51 060 (28.24%)
Obesity - n (%)	16 583 (17.25%)	17 103 (9.46%)
Hypertension - n (%)	53 714 (55.88%)	82 154 (45.44%)
Disorders of lipid metabolism - n (%)	40 729 (42.37%)	49 795 (27.54%)
Charlson Comorbidity Index ^b		
Low	9 130 (9.50%)	18 617 (10.30%)
Medium	55 095 (57.32%)	115 355 (63.80%)
High	31 897 (33.18%)	46 831 (25.90%)
LOHS [days]		
Mean (SD)	8.19 (7.98)	8.02 (9.30)
Median [Q1; Q3]	6.00 [4.00;10.00]	6.00 [3.00;10.00]
Direct costs APR-DRG [euros]		
Mean (SD)	€ 5908 (4952)	€ 6194 (6622)
Median [Q1; Q3]	€ 4753 [3859;6169]	€ 4753 [3859;6913]

a. No data on 8 hospital discharges.

b. Low: no disease; Medium: 1-2 diseases; High: 3 or more diseases.

DM, diabetes mellitus; LOHS, length of hospital stay; T2DM, type 2 diabetes mellitus; SD, standard deviation; Q1, first quartile; Q3, third quartile.

Table A3. Socio-demographic and epidemiological characteristics of hospitalised patients according to CV complications and presence of T2DM – Matched T2DM and Non-DM groups.

	Death from CV cause			Non-fatal AMI			Non-fatal stroke		
	T2DM	Non-DM	p-value	T2DM	Non-DM	p-value	T2DM	Non-DM	p-value
Hospital discharges - N (%)	8258 (50.00%)	8258 (50.00%)	<i>NA</i>	14 195 (50.00%)	14 195 (50.00%)	<i>NA</i>	20 102 (50.00%)	20 102 (50.00%)	<i>NA</i>
Gender - n (%)									
Men	3914 (47.40%)	3914 (47.40%)	1	9920 (69.88%)	9920 (69.88%)	1	11 440 (56.91%)	11 440 (56.91%)	1
Women	4344 (52.60%)	4344 (52.60%)		4275 (30.12%)	4275 (30.12%)		8662 (43.09%)	8662 (43.09%)	
Age [years]									
Mean (SD)	81.52 (8.79)	81.52 (8.79)	1	70.51 (11.82)	70.51 (11.82)	1	75.01 (10.59)	75.01 (10.59)	1
Median [Q1; Q3]	83.00[77.00;88.00]	83.00[77.00;88.00]		72.00[62.00;80.00]	72.00[62.00;80.00]		77.00[68.00;83.00]	77.00[68.00;83.00]	
Age [years] - n (%)									
35-60	250 (3.03%)	250 (3.03%)	1	3153 (22.21%)	3153 (22.21%)	1	2182 (10.85%)	2182 (10.85%)	1
61-70	681 (8.25%)	681 (8.25%)		3525 (24.83%)	3525 (24.83%)		3949 (19.64%)	3949 (19.64%)	
71-80	2182 (26.42%)	2182 (26.42%)		4164 (29.33%)	4164 (29.33%)		6945 (34.55%)	6945 (34.55%)	
≥81	5145 (62.30%)	5145 (62.30%)		3353 (23.62%)	3353 (23.62%)		7026 (34.95%)	7026 (34.95%)	
Smoker - n (%)	996 (12.06%)	1010 (12.23%)	0.760	5447 (38.37%)	6228 (43.87%)	<0.001	4474 (22.26%)	4979 (24.77%)	<0.001
Obesity - n (%)	968 (11.72%)	495 (5.99%)	<0.001	2607 (18.37%)	1510 (10.64%)	<0.001	2327 (11.58%)	1248 (6.21%)	<0.001
Hypertension - n (%)	3967 (48.04%)	3166 (38.34%)	<0.001	8333 (58.70%)	6854 (48.28%)	<0.001	13 387 (66.6%)	10 956 (54.5%)	<0.001
Disorders of lipid metabolism - n (%)	2671 (32.34%)	1456 (17.63%)	<0.001	6853 (48.28%)	5034 (35.46%)	<0.001	8569 (42.63%)	5822 (28.96%)	<0.001
Charlson Comorbidity Index^a									
Low	3410 (41.29%)	3830 (41.29%)	<0.001	7958 (56.06%)	9423 (66.38%)	<0.001	10 338 (51.43%)	10 959 (54.52%)	0.010
Medium	3564 (43.16%)	3204 (38.80%)		4310 (30.36%)	3537 (24.92%)		7412 (36.87%)	6981 (34.73%)	
High	1284 (15.55%)	1224 (14.82%)		1927 (13.58%)	1235 (8.70%)		2352 (11.70%)	2162 (10.76%)	

a. Low: no disease; Medium: 1-2 diseases; High: 3 or more diseases.

CV, cardiovascular; AMI, acute myocardial infarction; DM, diabetes mellitus; T2DM, type 2 diabetes mellitus; SD, standard deviation; Q1, first quartile; Q3, third quartile; NA, not applicable.

Table A3. Continued: Socio-demographic and epidemiological characteristics of hospitalised patients according to CV complications and presence of T2DM – Matched T2DM and Non-DM groups.

	Unstable angina			Heart failure			Revascularisation		
	T2DM	Non-DM	p-value	T2DM	Non-DM	p-value	T2DM	Non-DM	p-value
Hospital discharges - N (%)	2082 (50.00%)	2082 (50.00%)	<i>NA</i>	40 684 (50.00%)	40 684 (50.00%)	<i>NA</i>	20 054 (50.00%)	20 054 (50.00%)	<i>NA</i>
Gender - n (%)									
Men	1259 (60.47%)	1259 (60.47%)	1	19 718 (48.47%)	19 718 (48.47%)	1	15 046 (75.03%)	15 046 (75.03%)	1
Women	823 (39.53%)	823 (39.53%)		20 966 (51.53%)	20 966 (51.53%)		5008 (24.97%)	5008 (24.97%)	
Age [years]									
Mean (SD)	71.94 (10.52)	71.94 (10.52)	1	78.97 (9.42)	78.97 (9.42)	1	68.46 (10.44)	68.46 (10.44)	1
Median [Q1; Q3]	73.00 [65.00;80.00]	73.00 [65.00;80.00]		81.00 [74.00;86.00]	81.00 [74.00;86.00]		69.00 [61.00;77.00]	69.00 [61.00;77.00]	
Age [years] - n(%)									
35-60	329 (15.80%)	329 (15.80%)	1	1997 (4.91%)	1997 (4.91%)	1	4789 (23.88%)	4789 (23.88%)	1
61-70	563 (27.04%)	563 (27.04%)		5200 (12.78%)	5200 (12.78%)		6229 (31.06%)	6229 (31.06%)	
71-80	682 (32.76%)	682 (32.76%)		12 779 (31.41%)	12 779 (31.41%)		6327 (31.55%)	6327 (31.55%)	
≥81	508 (24.40%)	508 (24.40%)		20 708 (50.90%)	20 708 (50.90%)		2709 (13.51%)	2709 (13.51%)	
Smoker - n (%)	600 (28.82%)	678 (32.56%)	<0.001	6534 (16.06%)	7241 (17.80%)	<0.001	8359 (41.68%)	9228 (46.02%)	<0.001
Obesity - n (%)	393 (18.88%)	227 (10.90%)	<0.001	7928 (19.49%)	4945 (12.15%)	<0.001	3789 (18.89%)	2186 (10.9%)	<0.001
Hypertension - n (%)	1302 (62.54%)	1089 (52.31%)	<0.001	19 235 (47.28%)	16 519 (40.6%)	<0.001	12 509 (62.38%)	10 004 (49.89%)	<0.001
Disorders of lipid metabolism - n (%)	1074 (51.59%)	789 (37.90%)	<0.001	15 067 (37.03%)	9084 (22.33%)	<0.001	10 627 (52.99%)	7924 (39.51%)	<0.001
Charlson Comorbidity Index ^a									
Low	1050 (50.43%)	1247 (59.89%)	<0.001	14 425 (35.46%)	17 037 (41.88%)	<0.001	3810 (19.00%)	3613 (19.00%)	<0.001
Medium	786 (37.75%)	670 (32.18%)		19 121 (47.00%)	17 336 (42.61%)		13 022 (64.93%)	14 277 (71.19%)	
High	246 (11.82%)	165 (7.93%)		7138 (17.54%)	6311 (15.51%)		3222 (16.07%)	2164 (10.79%)	

a. Low: no disease; Medium: 1-2 diseases; High: 3 or more diseases. CV, cardiovascular; AMI, acute myocardial infarction; DM, diabetes mellitus; T2DM, type 2 diabetes mellitus; SD, standard deviation; Q1, first quartile; Q3, third quartile; NA, not applicable.

Table A4. LOHS and APR-DRG direct costs of hospital discharges attributable to CV complications by DM status and age – Matched T2DM and Non-DM groups–

		Age [years]							
		35-60	61-70	71-80	≥81	35-60	61-70	71-80	≥81
		LOHS [days] (mean [SD])				Direct costs APR-DRG [euros] mean (SD)			
Death from CV cause	N*	250	681	2182	5145	250	681	2182	5145
	T2DM	9.75 (13.33)	11.35 (15.31)	9.88 (11.55)	7.9 (8.72)	€ 13 011 (15 805)	€ 10 686 (12 375)	€ 8567 (9858)	€ 6007 (4148)
	Non-DM	11.80 (29.66)	12.53 (17.59)	11.09 (14.10)	8.14 (9.56)	€ 20 107 (28 027)	€ 14 163 (18 736)	€ 10 953 (15 445)	€ 6333 (6495)
	T2DM vs. Non-DM	-17.37%	-9.42%	-10.91%	-2.95%	-35.29%	-24.55%	-21.78%	-5.16%
	p-value	0.696	0.240	0.158	0.582	0.102	0.002	<0.001	0.578
Non-fatal AMI	N*	3153	3525	4164	3353	3153	3525	4164	3353
	T2DM	6.28 (5.79)	7.72 (7.37)	8.25 (7.33)	8.03 (5.96)	€ 7350 (5655)	€ 7305 (5120)	€ 6951 (4558)	€ 5950 (2869)
	Non-DM	5.81 (7.34)	6.57 (7.49)	7.67 (7.56)	7.85 (6.57)	€ 6990 (5806)	€ 7144 (5254)	€ 7108 (5487)	€ 6197 (3099)
	T2DM vs. Non-DM	8.09%	17.50%	7.56%	2.29%	5.14%	2.26%	-2.21%	-3.99%
	p-value	<0.001	<0.001	<0.001	<0.001	<0.001	0.045	0.985	0.028
Non-fatal stroke	N*	2182	3949	6945	7026	2182	3949	6945	7026
	T2DM	9.02 (10.98)	8.61 (9.35)	8.70 (8.72)	8.67 (8.83)	€ 5901 (5926)	€ 5806 (5897)	€ 5701 (4301)	€ 5518 (3031)
	Non-DM	9.16 (13.32)	8.84 (12.33)	8.77 (9.67)	8.58 (8.34)	€ 6283 (7833)	€ 6089 (6250)	€ 6109 (5502)	€ 5593 (3299)
	T2DM vs. Non-DM	-1.53%	-2.60%	-0.80%	1.05%	-6.08%	-4.65%	-6.69%	-1.35%
	p-value	0.132	<0.001	0.024	0.209	<0.001	0.001	0.873	0.750
Unstable angina	N*	329	563	682	508	329	563	682	508
	T2DM	4.39 (3.46)	4.85 (4.58)	5.23 (4.67)	5.72 (4.85)	€ 3341 (1449)	€ 3494 (1831)	€ 3385 (1278)	€ 3298 (1248)
	Non-DM	4.08 (3.73)	4.36 (3.94)	5.07 (4.84)	5.30 (4.31)	€ 3334 (2309)	€ 3203 (1413)	€ 3369 (2162)	€ 3309 (1465)
	T2DM vs. Non-DM	7.60%	11.24%	3.16%	7.92%	0.20%	9.07%	0.47%	-0.34%
	p-value	0.134	0.071	0.462	0.162	0.002	<0.001	<0.001	0.134
Heart failure	N*	1997	5200	12 779	20 708	1997	5200	12 779	20 708
	T2DM	9.16 (8.37)	8.86 (7.39)	8.52 (7.37)	7.86 (6.47)	€ 5159 (3592)	€ 5040 (4166)	€ 4664 (2835)	€ 4393 (1499)
	Non-DM	10.20 (15.30)	9.59 (10.19)	8.99 (8.71)	8.03 (6.83)	€ 6206 (9048)	€ 5575 (6998)	€ 4818 (3770)	€ 4414 (1845)
	T2DM vs. Non-DM	-10.20%	-7.61%	-5.23%	-2.12%	-16.87%	-9.59%	-3.19%	-0.47%

	p-value	0.704	0.640	0.039	0.319	0.730	0.136	0.002	0.000
Revascularisation	N*	4789	6229	6327	2709	4789	6229	6327	2709
	T2DM	6.60 (7.02)	8.00 (8.96)	8.85 (9.68)	8.24 (7.58)	€ 8794 (7029)	€ 9399 (7060)	€ 9883 (7642)	€ 8874 (5836)
	Non-DM	5.98 (6.90)	7.50 (11.95)	8.55 (10.73)	8.24 (9.01)	€ 8477 (8228)	€ 9439 (9650)	€ 10 413 (10 404)	€ 9453 (7896)
	T2DM vs. Non-DM	10.4%	6.7%	3.5%	0.00%	3.74%	-0.42%	-5.09%	-6.13%
	p-value	<0.001	<0.001	<0.001	0.050	0.000	0.000	0.006	0.343

*The table shows the number of hospital discharges for the T2DM group. Results corresponding to the matched cohorts, so the number of hospital discharges in the T2DM and Non-DM group is the same.

CV, cardiovascular; DM, diabetes mellitus; LOHS, length of hospital stay; T2DM, type 2 diabetes mellitus; AMI, acute myocardial infarction; SD, standard deviation.

Table A5. LOHS and APR-DRG direct costs of hospital discharges attributable to CV complications by DM status and sex – Matched T2DM and Non-DM groups–

		Sex			
		Men		Women	
		LOHS [days] mean(SD)		Direct costs APR-DRG [euros] mean (SD)	
Death from CV cause	N*	3914	4344	3914	4344
	T2DM	9.19 (10.86)	8.38 (10.00)	€ 8079 (9087)	€ 6562 (6201)
	Non-DM	10.17 (13.73)	8.69 (11.89)	€ 10 310 (15 218)	€ 7091 (8804)
	T2DM vs. Non-DM	-9.64%	-3.57%	-21.64%	-7.46%
	p-value	0.02	0.794	<0.001	0.513
Non-fatal AMI	N*	9920	4275	9920	4275
	T2DM	7.46 (6.73)	8.02 (6.80)	€ 7086 (5016)	€ 6438 (3767)
	Non-DM	6.82 (7.25)	7.50 (7.43)	€ 7025 (5076)	€ 6530 (4999)
	T2DM vs. Non-DM	9.38%	6.93%	0.88%	-1.40%
	p-value	<0.001	<0.001	0.117	0.069
Non-fatal stroke	N*	11 440	8662	11 440	8662
	T2DM	8.60 (9.10)	8.85 (9.22)	€ 5836 (5004)	€ 5472 (3725)
	Non-DM	8.78 (10.85)	8.73 (9.48)	€ 6145 (5815)	€ 5678 (4662)
	T2DM vs. Non-DM	-2.05%	1.37%	-5.03%	-3.63%
	p-value	<0.001	0.000	0.033	0.088
Unstable angina	N*	1259	823	1259	823
	T2DM	5.11 (4.65)	5.13 (4.36)	€ 3406 (1469)	€ 3356 (1468)
	Non-DM	4.81 (4.53)	4.73 (4.02)	€ 3379 (2050)	€ 3190 (1500)
	T2DM vs. Non-DM	6.24%	8.46%	0.81%	5.20%
	p-value	0.04	0.100	<0.001	<0.001
Heart failure	N*	19 718	20 966	19 718	20 966
	T2DM	8.34 (7.09)	8.18 (6.91)	€ 4722 (2990)	€ 4482 (2082)
	Non-DM	8.95 (9.31)	8.35 (7.72)	€ 4986 (4696)	€ 4580 (3409)
	T2DM vs. Non-DM	-6.82%	-2.03%	-5.29%	-2.14%
	p-value	<0.001	0.407	0.891	<0.001
Revascularisation	N*	15 049	5008	15 049	5008
	T2DM	7.87 (8.66)	8.26 (8.58)	€ 9384 (7237)	€ 9194 (6696)

	Non-DM	7.48 (10.37)	7.84 (9.65)	€ 9472 (9495)	€ 9660 (9064)
	T2DM vs. Non-DM	5.21%	5.36%	-0.93%	-4.82%
	p-value	<0.001	<0.001	<0.001	0.054

*The table shows the number of hospital discharges for the T2DM group. Results corresponding to matched cohorts so the number of hospital discharges in the T2DM and Non-DM groups is the same.

CV, cardiovascular; DM, diabetes mellitus; LOHS, length of hospital stay; T2DM, type 2 diabetes mellitus; AMI, acute myocardial infarction; SD, standard deviation.