

Online-Only Supplemental Material

Table S1. Classification scheme for glucose-lowering medications. For GLP-1 receptor agonists, SGLT2 inhibitors, and DPP-4 inhibitors, date of first FDA approval are presented parenthetically.

Medication class	Included agents
GLP-1 receptor agonists	Exenatide (04/2005) Liraglutide (01/2010) Albiglutide (05/2014) Dulaglutide (09/2014) Lixisenatide (07/2016) Semaglutide (12/2017)
SGLT-2 inhibitors	Canagliflozin (03/2013) Empagliflozin (08/2014) Dapagliflozin (01/2014) Ertugliflozin (12/2017)
DPP-4 inhibitors	Sitagliptin (10/2006) Saxagliptin (07/2009) Linagliptin (05/2011) Alogliptin (01/2013)
Insulin	NPH/isophane Detemir Glargine Degludec
Insulin: Basal	Regular Aspart Lispro Glulisine Inhaled powder insulin
Biguanides	Metformin
Sulfonylureas	Acetohexamide Chlorpropamide Glimepiride Glipizide Glyburide Tolazamide Tolbutamide
Glitazones	Pioglitazone Rosiglitazone Troglitazone
Glinides	Nateglinide Repaglinide
Amylin analogs	Pramlintide
α-Glucosidase inhibitors	Acarbose Miglitol

Table S2. Code sets for included comorbidities.

Comorbidity	ICD-9 Codes	ICD-10 codes
Explanatory comorbidities		
Myocardial infarction	410.xx, 412	I21.xx, I22.x, I25.2
Cerebrovascular disease	430, 431, 432.x, 433.xx, 434.xx 435.x, 436, 437.x, 438.xx, V12.54	G45.0, G45.1, G45.2, G45.8, G45.9, G46.x, I60.xx, I61.x (except I61.0), I62.xx, I63.xxx, I65.xx, I66.xx, I67.8x (except I67.83, I67.84), I67.9, I69.xxx, Z86.73
Heart failure	398.91, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.xx	I09.81, I11.0, I13.0, I13.2, I50.xx
Nephropathy	593.9, 586, 250.4x, 249.4x, 580.x, 581.x, 582.x, 583.x, 585.x	E08.21, E08.22, E08.29, E09.21, E09.22, E09.29, E10.21, E10.22, E10.29, E11.21, E11.22, E11.29, E13.21, E13.22, E13.29, N19, N00.x, N03.x, N04.x, N05.x, N18.x
Additional comorbidities		
Hypoglycemia	251.0, 251.1, 251.2, 270.3, 962.3, 250.8x (for 250.8x: if no concurrent 259.8, 272.7, 681.xx, 682.xx, 686.9x, 707.1x-707.2x, 707.8, 707.9, 709.3, 730.0x-730.2x, 731.8)	E10.641, E10.649, E11.641, E11.649, E13.641, E13.649, E16.0, E16.1, E16.2, T38.3X1A, T38.3X1D, T38.3X1S, T38.3X2A, T38.3X2D, T38.3X2S, T38.3X3A, T38.3X3D, T38.3X3S, T38.3X4A, T383X4D, T38.3X4S, T38.3X5A, T383X5D, T38.3X5S
Hyperglycemia	250.10, 250.11, 250.12, 250.13, 250.20, 250.21, 250.22, 250.23	E10.10, E10.11, E11.00, E11.01, E11.10, E11.11, E13.00, E13.01, E13.10, E13.11
Retinopathy	362.01, 362.03, 362.04, 362.05, 362.06, 362.07, 362.53, 362.81, 362.82, 362.83, 362.02, 379.23, 250.5x, 249.5x, 362.1x, 361.x, 369.x	H35.9, E08.3x, E09.3x, E10.3x, E11.3x, E13.3x, H35.0x, H35.35x, H35.6x, H35.8x, H33.x, H54.x, H43.1x
Neuropathy	357.2, 337.1, 356.9, 358.1, 458.0, 536.3, 564.5, 596.54, 713.5, 951.0, 951.1, 951.3, 250.6x, 249.6x, 337.0x, 354.x, 355.x	G90.09, G90.8, G90.9, G99.0, G60.9, G73.3, G90.01, I95.1, K31.84, K59.1, N31.9, E08.4x, E09.4x, E10.4x, E11.4x, E13.4x, G56.x, G57.x, H49.x, M14.6x, S04.x
Peripheral vascular disease	442.3, 440.21, 443.81, 443.9, 892.1, 040.0, 444.22, 785.4, 250.7x, 249.7, 707.1x	E08.51, E09.51, E10.51, E11.51, E13.51, E08.59, E09.59, E10.59, E11.59, E13.59, E08.621, E09.621, E10.621, E11.621, E13.621, I72.4, I73.89, I73.9, A48.0, I74.3, I96, E08.52, E09.52, E10.52, E11.52, E13.52, I70.21x, S91.3x, L97.x
Dementia	046.1x, 290.1x, 290.2x, 290.3, 290.4x, 291.2, 292.82, 294.1x, 294.2x, 331.0, 331.1x, 331.2, 331.6, 331.82, 331.89	A81.0x, F01.5x, F02.8x, F03.9x, F10.27, F10.97, F13.27, F13.97, F18.97, F19.17, F19.27, F19.97, G30.x, G31.0x, G31.1, G31.83, G31.85
Chronic obstructive pulmonary disease	490, 491.xx, 492.x, 494.x, 496	J40, J41.x, J42, J43.x, J44.x, J47.x
Cirrhosis	571.2, 571.5, 571.6	K70.3x, K74.3, K74.4, K74.5, K74.6x
Cancer (except non-melanoma skin cancer)	14x.xx, 15x.xx, 160.x-165.x, 170.x- 172.x, 174.x-176.x, 179-189.x, 190.x-195.x, 199.xx-208.xx (except 203.x1, 204.x1, 205.x1, 206.x1, 207.x1, 208.x1)	C00.x-C14.x, C15.x-C26.x, C3x.xx, C40.xx- C41.x, C43.x, C4A.xx, C45.x-C49.xx, C50.xxx, C51.x-C58, C60.x-C63.x, C64.x- C68.x, C69.xx-C72.x, C73-C76.x, C7A.xx, C80.xx-C96.x (except C90.x1, C91.x1, C92.x1, C93.x1, C94.x1, C95.x1)

Table S3. Adjusted Proportions of Medication Initiation over Time. These data are visually presented in the Figure of the main text.

Overall study population				
	2016	2017	2018	2019
DPP-4i	52.0	45.3	39.1	29.9
GLP-1RA	23.9	28.7	35.6	40.0
SGLT2i	24.0	26.0	25.3	30.0
Patients with myocardial infarction				
	2016	2017	2018	2019
DPP-4i	53.4	46.9	41.0	31.5
GLP-1RA	20.6	24.9	31.2	35.3
SGLT2i	25.9	28.2	27.8	33.1
Patients with cerebrovascular disease				
	2016	2017	2018	2019
DPP-4i	57.1	50.5	44.3	34.5
GLP-1RA	20.8	25.3	31.9	36.5
SGLT2i	22.0	24.2	23.9	28.9
Patients with heart failure				
	2016	2017	2018	2019
DPP-4i	55.8	49.0	42.7	33.1
GLP-1RA	22.4	27.0	33.9	38.6
SGLT2i	21.9	23.9	23.4	28.2
Patients with nephropathy				
	2016	2017	2018	2019
DPP-4i	58.5	51.7	44.9	35.2
GLP-1RA	24.2	29.3	36.6	42.2
SGLT2i	17.3	19.0	18.5	22.6

Table S4. Demographic and Clinical Factors Associated with Starting GLP-1 Receptor Agonist and SGLT2 Inhibitor Therapy as Compared to DPP-4 Inhibitor Therapy (sensitivity analysis with interaction terms for year vs. comorbidities). Multinomial logistic regression examined the relative risks of GLP-1 receptor agonist (GLP-1RA) and SGLT2 inhibitor (SGLT2i) initiation, as compared to DPP-4 inhibitor initiation, after adjusting for the other variables shown. Included in this sensitivity analysis are interaction terms between calendar year and presence of myocardial infarction, cerebrovascular disease, heart failure, and nephropathy. COPD, chronic obstructive pulmonary disease.

	GLP-1RA vs. DPP-4i		SGLT2i vs. DPP-4i	
	RRR (95% CI)	p-value	RRR (95% CI)	p-value
Age group				
18-44 years	Ref	--	Ref	--
45-64 years	0.59 (0.57, 0.61)	<0.001	0.88 (0.85, 0.92)	<0.001
65-74 years	0.38 (0.36, 0.40)	<0.001	0.73 (0.69, 0.76)	<0.001
≥75 years	0.18 (0.17, 0.19)	<0.001	0.41 (0.39, 0.44)	<0.001
Gender				
Male	Ref	--	Ref	--
Female	1.49 (1.46, 1.52)	<0.001	0.85 (0.83, 0.87)	<0.001
Race/ethnicity				
White	Ref	--	Ref	--
Black	0.71 (0.69, 0.73)	<0.001	0.76 (0.74, 0.79)	<0.001
Hispanic	0.64 (0.62, 0.66)	<0.001	0.81 (0.79, 0.84)	<0.001
Asian	0.39 (0.36, 0.41)	<0.001	0.72 (0.68, 0.76)	<0.001
Unknown	0.87 (0.83, 0.91)	<0.001	0.90 (0.86, 0.95)	<0.001
U.S. region				
Midwest	Ref	--	Ref	--
Northeast	0.82 (0.79, 0.86)	<0.001	0.84 (0.81, 0.88)	<0.001
South	1.02 (0.99, 1.05)	0.11	1.09 (1.06, 1.12)	<0.001
West	1.08 (1.04, 1.12)	<0.001	1.05 (1.01, 1.10)	0.02
Insurance type				
Commercial	Ref	--	Ref	--
Medicare Advantage	0.71 (0.69, 0.74)	<0.001	0.61 (0.59, 0.64)	<0.001
Baseline medication fills				
None	1.56 (1.50, 1.62)	<0.001	0.99 (0.95, 1.03)	0.61
Metformin	1.10 (1.07, 1.14)	<0.001	1.21 (1.17, 1.26)	<0.001
Sulfonylureas	0.94 (0.91, 0.96)	<0.001	1.00 (0.97, 1.02)	0.83
Thiazolidinediones	1.51 (1.44, 1.59)	<0.001	1.38 (1.31, 1.45)	<0.001
Basal insulin	2.75 (2.66, 2.84)	<0.001	1.50 (1.45, 1.56)	<0.001
Bolus insulin	2.28 (2.18, 2.38)	<0.001	1.72 (1.63, 1.80)	<0.001
Other medication(s)	1.18 (0.96, 1.46)	0.12	0.93 (0.74, 1.16)	0.50
Diabetes complications count				
0	Ref	--	Ref	--
1	1.04 (1.01, 1.08)	0.02	1.17 (1.13, 1.22)	<0.001
2	1.11 (1.05, 1.18)	<0.001	1.28 (1.20, 1.36)	<0.001
3	1.22 (1.12, 1.32)	<0.001	1.39 (1.28, 1.52)	<0.001
≥4	1.31 (1.16, 1.47)	<0.001	1.48 (1.30, 1.68)	<0.001
Comorbidities				
Myocardial infarction	0.86 (0.74, 1.00)	0.0430	0.78 (0.67, 0.90)	<0.0001

Cerebrovascular disease	0.71 (0.64, 0.78)	<0.0001	0.82 (0.74, 0.90)	<0.0001
Heart failure	0.77 (0.70, 0.86)	<0.0001	0.67 (0.60, 0.74)	<0.0001
Nephropathy	0.91 (0.85, 0.98)	0.0110	0.55 (0.51, 0.59)	<0.0001
Retinopathy	0.99 (0.95, 1.03)	0.66	0.90 (0.86, 0.94)	<0.001
Neuropathy	1.12 (1.08, 1.16)	<0.001	0.94 (0.91, 0.98)	0.005
Peripheral vascular disease	0.89 (0.85, 0.93)	<0.001	0.83 (0.79, 0.88)	<0.001
Prior severe hyperglycemia	0.45 (0.39, 0.52)	<0.001	0.50 (0.42, 0.59)	<0.001
Prior severe hypoglycemia	0.61 (0.55, 0.69)	<0.001	0.54 (0.47, 0.63)	<0.001
Dementia	0.58 (0.54, 0.62)	<0.001	0.41 (0.37, 0.45)	<0.001
COPD	0.97 (0.94, 1.01)	0.11	0.92 (0.89, 0.95)	<0.001
Cancer	0.88 (0.84, 0.92)	<0.001	0.88 (0.84, 0.92)	<0.001
Cirrhosis	0.73 (0.65, 0.81)	<0.001	0.79 (0.71, 0.89)	<0.001
Prescriber specialty				
Endocrinology	Ref	--	Ref	--
Primary Care	0.43 (0.41, 0.44)	<0.001	0.60 (0.57, 0.62)	<0.001
Cardiology	0.37 (0.31, 0.43)	<0.001	1.64 (1.47, 1.84)	<0.001
Nephrology	0.27 (0.22, 0.33)	<0.001	0.42 (0.34, 0.51)	<0.001
Other	0.58 (0.55, 0.61)	<0.001	0.65 (0.62, 0.68)	<0.001
Unknown	0.48 (0.46, 0.50)	<0.001	0.58 (0.55, 0.61)	<0.001
Interaction between key comorbidities and calendar year				
Myocardial infarction				
2016	Ref	--	Ref	--
2017	0.92 (0.76, 1.11)	0.37	1.14 (0.94, 1.38)	0.18
2018	0.97 (0.81, 1.16)	0.71	1.43 (1.19, 1.73)	<0.001
2019	1.02 (0.85, 1.21)	0.86	1.63 (1.36, 1.95)	<0.001
Cerebrovascular disease				
2016	Ref	--	Ref	--
2017	1.15 (1.02, 1.3)	0.02	0.98 (0.87, 1.11)	0.75
2018	1.07 (0.95, 1.21)	0.25	1.01 (0.90, 1.15)	0.82
2019	1.11 (0.99, 1.24)	0.08	1.00 (0.89, 1.13)	0.95
Heart failure				
2016	Ref	--	Ref	--
2017	1.07 (0.94, 1.21)	0.31	1.17 (1.02, 1.35)	0.02
2018	1.21 (1.07, 1.36)	0.003	1.28 (1.12, 1.47)	<0.001
2019	1.12 (0.99, 1.26)	0.06	1.38 (1.22, 1.57)	<0.001
Nephropathy				
2016	Ref	--	Ref	--
2017	0.96 (0.88, 1.05)	0.35	1.02 (0.92, 1.12)	0.74
2018	0.99 (0.91, 1.08)	0.89	1.04 (0.94, 1.14)	0.46
2019	0.90 (0.83, 0.98)	0.02	1.08 (0.99, 1.18)	0.09

Table S5. Subset of the Study Population with Baseline Hemoglobin A_{1c} (HbA_{1c}) Baseline characteristics of adults with type 2 diabetes at the time of their first prescription fill of a GLP-1 receptor agonist (GLP-1RA), SGLT2 inhibitor (SGLT2i), or DPP-4 inhibitor (DPP-4i). COPD, chronic obstructive pulmonary disease.

	GLP-1RA Initiators (N = 27,843)	SGLT2i Initiators (N = 24,189)	DPP-4i Initiators (N = 37,022)	p-value
Demographics				
Age, years, mean (SD)	57.7 (12.7)	59.2 (11.9)	64.9 (12.7)	<0.001
Age group, N (%)				<0.001
18-44 years	4377 (15.7%)	2811 (11.6%)	2581 (7.0%)	
45-64 years	14339 (51.5%)	12881 (53.3%)	13826 (37.3%)	
65-74 years	6897 (24.8%)	6275 (25.9%)	11747 (31.7%)	
≥75 years	2230 (8.0%)	2222 (9.2%)	8868 (24.0%)	
Gender, N (%)				<0.001
Female	15764 (56.6%)	10408 (43.0%)	18041 (48.7%)	
Male	12079 (43.4%)	13781 (57.0%)	18981 (51.3%)	
Race/ethnicity, N (%)				<0.001
White	16328 (58.6%)	13623 (56.3%)	19290 (52.1%)	
Black	4230 (15.2%)	3210 (13.3%)	6220 (16.8%)	
Hispanic	4824 (17.3%)	4734 (19.6%)	7317 (19.8%)	
Asian	796 (2.9%)	1283 (5.3%)	2413 (6.5%)	
Unknown	1665 (6.0%)	1339 (5.5%)	1782 (4.8%)	
U.S. region, N (%)				<0.001
Midwest	4074 (14.6%)	3512 (14.5%)	5566 (15.0%)	
Northeast	2842 (10.2%)	2552 (10.6%)	5549 (15.0%)	
South	17176 (61.7%)	14740 (60.9%)	21895 (59.1%)	
West	3751 (13.5%)	3385 (14.0%)	4012 (10.8%)	
Insurance type, N (%)				<0.001
Commercial	16512 (59.3%)	14888 (61.5%)	14646 (39.6%)	
Medicare Advantage	11331 (40.7%)	9301 (38.5%)	22376 (60.4%)	
Index year, N (%)				<0.001
2016	4718 (16.9%)	4960 (20.5%)	9201 (24.9%)	
2017	6401 (23.0%)	5995 (24.8%)	10162 (27.4%)	
2018	7203 (25.9%)	5503 (22.8%)	8989 (24.3%)	
2019	9521 (34.2%)	7731 (32.0%)	8670 (23.4%)	
Clinical Characteristics				
HbA_{1c} level, median (IQR)	8.1 (6.7, 9.7)	8.3 (7.3, 9.7)	8.0 (7.1, 9.3)	<0.001
HbA_{1c} category, N (%)				<0.001
≤5.6%	1931 (6.9%)	299 (1.2%)	588 (1.6%)	
5.7-6.4%	3936 (14.1%)	1760 (7.3%)	3424 (9.2%)	
6.5-6.9%	2249 (8.1%)	2068 (8.5%)	3806 (10.3%)	
7.0-7.9%	4890 (17.6%)	6075 (25.1%)	10247 (27.7%)	
8.0-8.9%	4998 (18.0%)	5238 (21.7%)	7956 (21.5%)	
9.0-9.9%	3705 (13.3%)	3357 (13.9%)	4502 (12.2%)	

$\geq 10.0\%$	6134 (22.0%)	5392 (22.3%)	6499 (17.6%)	
Baseline medication fills, N (%)				
None	7044 (25.3%)	4921 (20.3%)	8477 (22.9%)	<0.001
Metformin	15283 (54.9%)	15670 (64.8%)	21822 (58.9%)	<0.001
Sulfonylureas	6775 (24.3%)	7340 (30.3%)	12676 (34.2%)	<0.001
Thiazolidinediones	1418 (5.1%)	1478 (6.1%)	1890 (5.1%)	<0.001
Insulin (any)	8382 (30.1%)	4216 (17.4%)	4956 (13.4%)	<0.001
Basal insulin	7260 (26.1%)	3655 (15.1%)	4362 (11.8%)	<0.001
Bolus insulin	4069 (14.6%)	1857 (7.7%)	1825 (4.9%)	<0.001
Other medication(s)	84 (0.3%)	60 (0.2%)	122 (0.3%)	0.19
Treatment type, N (%)				<0.001
First-line	5171 (18.6%)	3114 (12.9%)	5506 (14.9%)	
Second-line	22672 (81.4%)	21075 (87.1%)	31516 (85.1%)	
Diabetes complications count, mean (SD)	1.1 (1.3)	0.9 (1.2)	1.3 (1.3)	<0.001
Diabetes complications count, N (%)				<0.001
0	12577 (45.2%)	11681 (48.3%)	14305 (38.6%)	
1	7042 (25.3%)	6491 (26.8%)	9603 (25.9%)	
2	4060 (14.6%)	3362 (13.9%)	6338 (17.1%)	
3	2369 (8.5%)	1647 (6.8%)	3956 (10.7%)	
≥ 4	1795 (6.4%)	1008 (4.2%)	2820 (7.6%)	
Comorbidities, N (%)				
Retinopathy	3947 (14.2%)	2834 (11.7%)	5344 (14.4%)	<0.001
Nephropathy	5651 (20.3%)	3452 (14.3%)	9619 (26.0%)	<0.001
Neuropathy	7517 (27.0%)	5331 (22.0%)	9439 (25.5%)	<0.001
Peripheral vascular disease	3744 (13.4%)	2827 (11.7%)	5952 (16.1%)	<0.001
Dementia	333 (1.2%)	218 (0.9%)	1161 (3.1%)	<0.001
Myocardial infarction	908 (3.3%)	914 (3.8%)	1604 (4.3%)	<0.001
Heart failure	2287 (8.2%)	1664 (6.9%)	4092 (11.1%)	<0.001
Cerebrovascular disease	2179 (7.8%)	1872 (7.7%)	4354 (11.8%)	<0.001
COPD	3295 (11.8%)	2473 (10.2%)	5033 (13.6%)	<0.001
Cancer	1748 (6.3%)	1481 (6.1%)	3344 (9.0%)	<0.001
Cirrhosis	244 (0.9%)	218 (0.9%)	430 (1.2%)	<0.001
Prior severe hyperglycemia	150 (0.5%)	80 (0.3%)	188 (0.5%)	<0.001
Prior severe hypoglycemia	196 (0.7%)	89 (0.4%)	427 (1.2%)	<0.001
Prescriber specialty, N (%)				<0.001
Primary Care	14043 (50.4%)	14313 (59.2%)	22965 (62.0%)	
Endocrinology	4741 (17.0%)	2779 (11.5%)	2534 (6.8%)	
Cardiology	121 (0.4%)	374 (1.5%)	327 (0.9%)	
Nephrology	65 (0.2%)	65 (0.3%)	215 (0.6%)	
Other	3648 (13.1%)	2828 (11.7%)	2813 (7.6%)	
Unknown	5225 (18.8%)	3830 (15.8%)	8168 (22.1%)	

Table S6. Demographic and Clinical Factors Associated with Starting GLP-1 Receptor Agonist and SGLT2 Inhibitor Therapy as Compared to DPP-4 Inhibitor Therapy

(subgroup analysis for patients with baseline hemoglobin A_{1c}). Multinomial logistic regression examined the relative risk ratios (RRR) of GLP-1 receptor agonist (GLP-1RA) and SGLT2 inhibitor (SGLT2i) initiation, as compared to DPP-4 inhibitor initiation, after adjusting for the other variables shown. COPD, chronic obstructive pulmonary disease.

	GLP-1RA vs. DPP-4i		SGLT2i vs. DPP-4i	
	RRR (95% CI)	p-value	RRR (95% CI)	p-value
Age group				
18-44 years	Ref	--	Ref	--
45-64 years	0.65 (0.61, 0.69)	<0.001	0.86 (0.81, 0.92)	<0.001
65-74 years	0.42 (0.39, 0.46)	<0.001	0.73 (0.67, 0.79)	<0.001
≥75 years	0.19 (0.17, 0.21)	<0.001	0.40 (0.37, 0.44)	<0.001
Gender				
Male	Ref	--	Ref	--
Female	1.36 (1.31, 1.41)	<0.001	0.89 (0.86, 0.92)	<0.001
Race/ethnicity				
White	Ref	--	Ref	--
Black	0.73 (0.69, 0.76)	<0.001	0.75 (0.72, 0.79)	<0.001
Hispanic	0.69 (0.66, 0.72)	<0.001	0.84 (0.81, 0.88)	<0.001
Asian	0.40 (0.37, 0.44)	<0.001	0.73 (0.68, 0.79)	<0.001
Unknown	0.87 (0.80, 0.94)	<0.001	0.92 (0.85, 0.99)	0.03
U.S. region				
Midwest	Ref	--	Ref	--
Northeast	0.81 (0.76, 0.87)	<0.001	0.83 (0.78, 0.89)	<0.001
South	1.01 (0.96, 1.06)	0.69	1.05 (1.00, 1.11)	0.05
West	1.06 (0.99, 1.13)	0.08	1.07 (1.00, 1.14)	0.05
Insurance type				
Commercial	Ref	--	Ref	--
Medicare Advantage	0.74 (0.70, 0.79)	<0.001	0.62 (0.58, 0.66)	<0.001
Index year				
2016	Ref	--	Ref	--
2017	1.35 (1.29, 1.42)	<0.001	1.22 (1.17, 1.29)	<0.001
2018	1.87 (1.78, 1.97)	<0.001	1.37 (1.31, 1.44)	<0.001
2019	2.72 (2.58, 2.86)	<0.001	2.09 (1.99, 2.20)	<0.001
HbA_{1c} category				
≤ 5.6%	3.62 (3.23, 4.07)	<0.0001	0.75 (0.64, 0.88)	<0.001
5.7-6.4%	1.81 (1.68, 1.96)	<0.0001	0.91 (0.84, 0.98)	0.02
6.5-6.9%	Ref	--	Ref	--
7.0-7.9%	0.76 (0.71, 0.81)	<0.0001	1.02 (0.96, 1.09)	0.50
8.0-8.9%	0.92 (0.86, 0.99)	0.02	1.09 (1.02, 1.17)	0.009
9.0-9.9%	1.05 (0.98, 1.14)	0.16	1.14 (1.06, 1.23)	<0.001
≥ 10.0%	1.06 (0.99, 1.13)	0.10	1.13 (1.06, 1.21)	<0.001

Baseline medication fills				
None	1.30 (1.22, 1.39)	<0.001	1.04 (0.98, 1.12)	0.21
Metformin	1.09 (1.04, 1.15)	0.00	1.19 (1.13, 1.26)	<0.001
Sulfonylureas	0.98 (0.94, 1.02)	0.30	0.98 (0.94, 1.03)	0.46
Thiazolidinediones	1.33 (1.24, 1.44)	<0.001	1.33 (1.23, 1.43)	<0.001
Basal insulin	2.79 (2.64, 2.94)	<0.001	1.48 (1.39, 1.56)	<0.001
Bolus insulin	2.47 (2.30, 2.66)	<0.001	1.73 (1.60, 1.87)	<0.001
Other medication(s)	1.38 (1.01, 1.90)	0.05	1.09 (0.79, 1.51)	0.59
Diabetes complications count				
0	Ref	--	Ref	--
1	1.08 (1.02, 1.15)	0.005	1.17 (1.10, 1.23)	<0.001
2	1.13 (1.03, 1.24)	0.009	1.27 (1.15, 1.39)	<0.001
3	1.16 (1.01, 1.32)	0.03	1.28 (1.12, 1.47)	<0.001
≥4	1.30 (1.08, 1.58)	0.006	1.44 (1.19, 1.75)	<0.001
Comorbidities				
Myocardial infarction	0.88 (0.80, 0.96)	0.007	1.10 (1.00, 1.20)	0.05
Cerebrovascular disease	0.78 (0.72, 0.84)	<0.001	0.87 (0.81, 0.94)	<0.001
Heart failure	0.85 (0.79, 0.91)	<0.001	0.87 (0.81, 0.93)	<0.001
Nephropathy	0.89 (0.84, 0.95)	<0.001	0.59 (0.56, 0.63)	<0.001
Retinopathy	1.03 (0.96, 1.10)	0.46	0.90 (0.84, 0.96)	0.001
Neuropathy	1.12 (1.06, 1.19)	<0.001	0.95 (0.89, 1.01)	0.10
Peripheral vascular disease	0.92 (0.86, 0.99)	0.03	0.88 (0.81, 0.94)	<0.001
Prior severe hyperglycemia	0.46 (0.36, 0.59)	<0.001	0.52 (0.39, 0.68)	<0.001
Prior severe hypoglycemia	0.59 (0.49, 0.72)	<0.001	0.51 (0.40, 0.65)	<0.001
Dementia	0.65 (0.56, 0.74)	<0.001	0.57 (0.49, 0.66)	<0.001
COPD	0.99 (0.94, 1.05)	0.76	0.96 (0.91, 1.02)	0.15
Cancer	0.85 (0.79, 0.90)	<0.001	0.86 (0.80, 0.92)	<0.001
Cirrhosis	0.65 (0.55, 0.78)	<0.001	0.86 (0.73, 1.02)	0.08
Prescriber specialty				
Endocrinology	Ref	--	Ref	--
Primary Care	0.44 (0.42, 0.47)	<0.001	0.61 (0.58, 0.65)	<0.001
Cardiology	0.35 (0.28, 0.44)	<0.001	1.56 (1.32, 1.84)	<0.001
Nephrology	0.28 (0.21, 0.39)	<0.001	0.49 (0.36, 0.65)	<0.001
Other	0.59 (0.55, 0.64)	<0.001	0.69 (0.63, 0.74)	<0.001
Unknown	0.50 (0.46, 0.53)	<0.001	0.59 (0.55, 0.63)	<0.001

Figure S1. Study Population Flow Diagram

