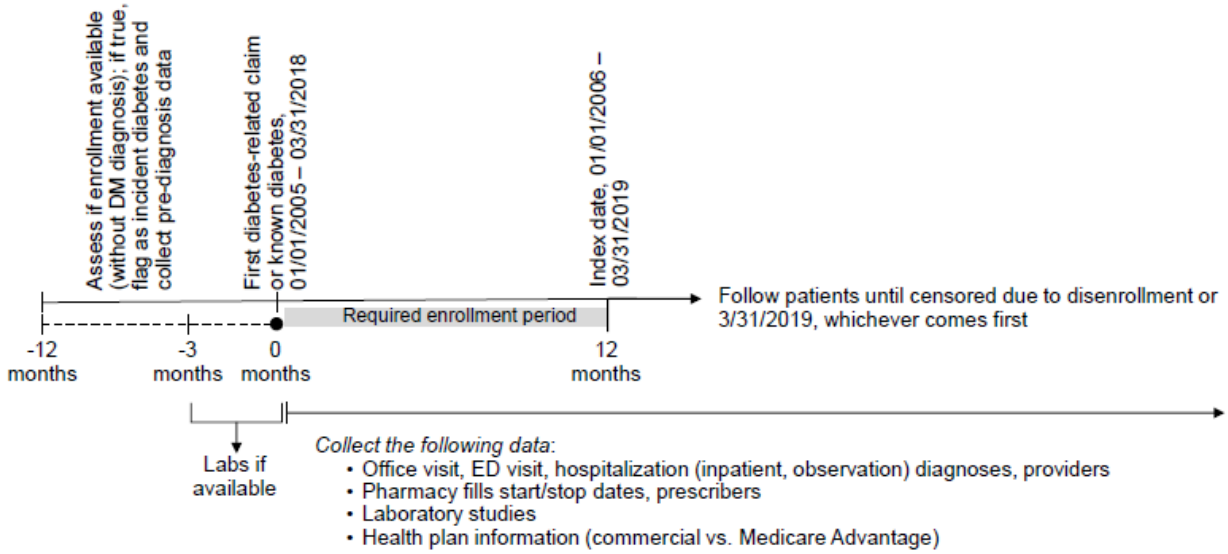
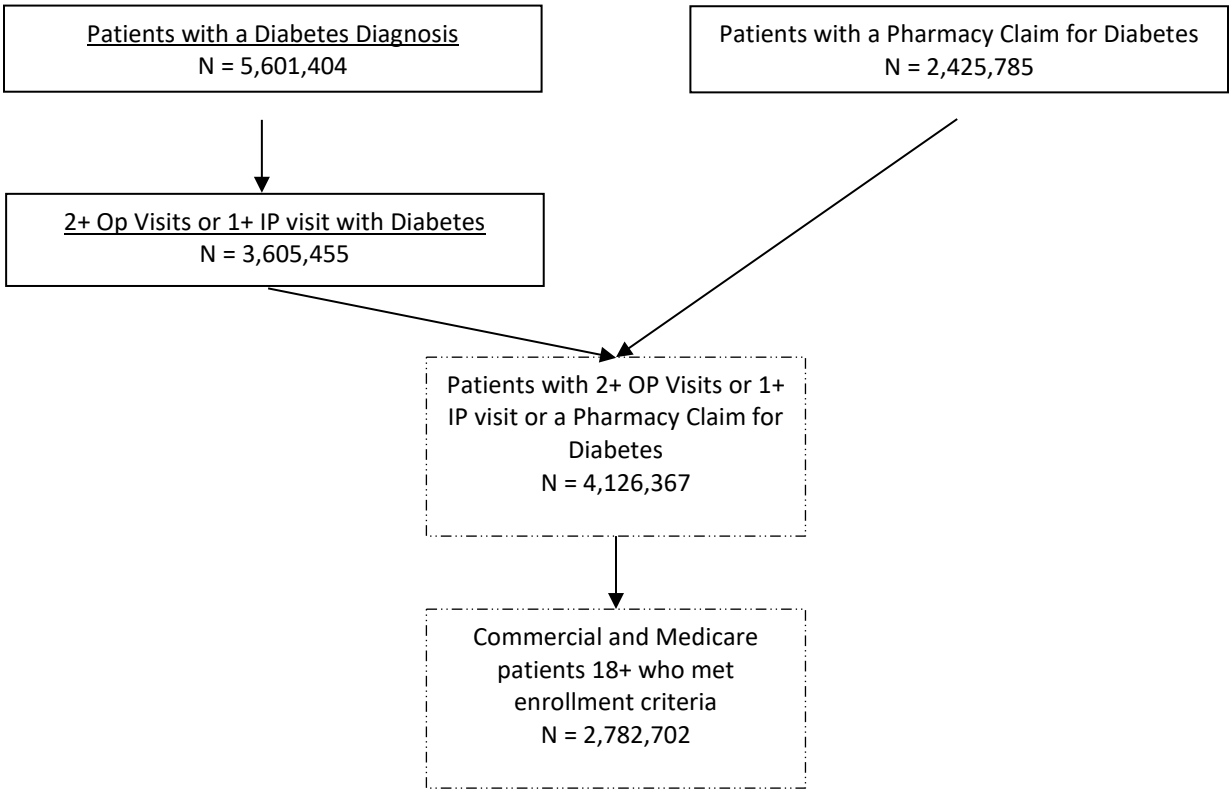
Supplemental Figure S1. Cohort Construction



Supplemental Figure S2. Cohort Construction Flowchart

Diabetes diagnosis, outpatient visit criterion, and outpatient visit criterion were ascertained on the basis of ICD-9 and ICD-10 codes (see Methods). Patients with only gestational diabetes (ICD-9 648.8x, ICD-10 O024.4xx) were not included. Pharmacy claim criteria was having a fill for ≥1 glucose-lowering medication other than metformin within a 12-month period



Supplemental Table S1. Granular Classification Scheme for Medications

Medication class	Included agents
	GLUCOSE-LOWERING MEDICATIONS
Biguanides	Metformin
Sulfonylureas (SU)	Glimepiride Glipizide Glyburide
Glitazones (TZD)	Pioglitazone Rosiglitazone
DPP-4 inhibitors	alogliptin linagliptin sitagliptin saxagliptin
GLP-1 analogs	exenatide liraglutide albiglutide dulaglutide semaglutide lixisenatide
SGLT-2 inhibitors	canagliflozin empagliflozin dapagliflozin ertugliflozin
Glinides	nateglinide repaglinide
Amylin analogs	pramlintide
α-Glucosidase inhibitors	acarbose miglitol
Insulin: Bolus	Human regular Analog aspart lispro glulisine inhaled powder insulin aspart lispro
Insulin: Basal	Human Neutral Protamine Hagedorn (NPH) isophane Analog determir glargine degludec glargine
	LIPID-LOWERING MEDICATIONS

Statins	atorvastatin fluvastatin lovastatin pitavastatin pravastatin rosuvastatin simvastatin
PCSK-9 Inhibitors	alirocumab evolocumab
Fibrates	bezafibrate clofibrate fenofibrate fenofibric Acid gemfibrozil
Ezetimibe	ezetimibe
Bile acid sequestrants	cholestyramine colesevelam colestipol
Nicotinic acid	niacin niacinamide
Other	lomitapide mMipomersen
Omega-3 fatty acids	omega-3-acid ethyl esters omega-3-carboxylic acids
Combination tablets	aspirin/pravastatin sodium ezetimibe/atorvastatin ezetimibe/simvastatin fenofibrate/smvastatin niacin/lovastatin niacin/simvastatin nicotinic acid/laropiprant pravastatin sodium/fenofibrate sitagliptin phosphate/simvastatin
	CARDIOVASCULAR MEDICATIONS
ACE inhibitors	benazepril captopril enalapril fosinopril lisinopril moexipril perindopril quinapril ramipril trandolapril enalaprilat

Angiotensin receptor blockers (ARBs)	azilsartan candesartan eprosartan irbesartan losartan olmesartan telmisartan valsartan
Direct renin inhibitor	aliskiren
Thiazide diuretics	bendroflumethiazide benzthiazide chlorothiazide chlorthalidone cyclothiazide diazoxide hydrochlorothiazide hydroflumethiazide indapamide methyclothiazide metolazone polythiazide quinethazone trichlormethiazide
Loop diuretics	bumetanide ethacrynate Sodium ethacrynic Acid furosemide torsemide
Potassium-sparing diuretics	amiloride triamterene
Aldosterone antagonist	eplerenone spironolactone
Calcium-channel blockers - dihydropyridines	amlodipine felodipine isradipine nicardipine nifedipine nisoldipine clevidipine bumetanide ethacrynate Sodium ethacrynic Acid furosemide torsemide
Calcium-channel blockers - nondihydropyridines	diltiazem verapamil
Beta-blockers - cardioselective	atenolol betaxolol bisoprolol metoprolol tartrate metoprolol succinate

Beta-blockers - cardioselective + vasodilatory	nevibolol
Beta-blockers - noncardioselective	nadolol propranolol
Beta-blockers - sympathetomimetic activity	acebutolol penbutolol pindolol timolol
Alpha and Beta-blockers	carvedilol labetalol esmolol
Alpha-1 blockers	doxazosin prazosin terazosin alfuzosin
Central antihypertensives	clonidine methyldopa guanfacine
Direct vasodilators	hydralazine minoxidil guanethidine tolazoline sodium nitroprusside nitroglycerin
Nonselective alpha-blockers	phentolamine
Dopamine-receptor agonist	fenoldopam

Supplemental Table S2. Qualifying ICD codes for Diabetes Complications

Supplemental Table S2 shows the ICD codes used to define diabetes complications (per DCSI definitions), severe hyperglycemic events, and severe hypoglycemic events.

Category	ICD-9 Codes	ICD-10 Codes
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	H359, E08.3x, E09.3x, E10.3x, E11.3x, E13.3x, H35.0x, H35.35x, H35.6x, H35.8x, H33.x, H54.x, H43.1x
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
Cerebrovascular	431, 436, 435.x, 433.x, 434.x	I67.81, I61.x, I63.x, I65.x, I66.x, G45.x
Cardiovascular	429.2, 412, 427.5, 427.1, 411.x, 413.x, 414.x, 410.x, 427.3x, 427.4x, 428.x, 440.x, 441.x	I24.x, I20.x, I25.x, I70.x, I21.x, I22.x, I23.x, I48.x, I46.x, I47.x, I49.x, I50.x, I71.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
Severe hyperglycemic event	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
Severe hypoglycemic events	251.0, 251.1, 251.2, 962.3; and 250.8x, as long as none of the following are also coded during the same encounter: 259.8, 272.7, 686.9, 707.8, 707.9, 709.3, 731.8, 681.x, 682.x, 707.1x, 707.2x, 730.0x, 730.1x, 730.2x	E10.641, E10.649, E11.641, E11.649, E13.641, E13.649, E16.0, E16.1, E16.2, T383X1A, T383X1D, T383X1S, T383X2A, T383X2D, T383X2S, T383X3A, T383X3D, T383X3S, T383X4A, T383X4D, T383X4S, T383X5A, T383X5D, T383X5S

Supplemental Table S3. Properties of Commercial Cohort

Average annual changes represent relative and absolute changes in either proportions or means. Changes are calculated for the period from 2006 to 2018, except for SGLT-2 inhibitors, for which changes are calculated from 2013 to 2018. P-values represent trends from 2006 to 2018, and p-values <0.05 are bolded. Green text indicates an increase, while red text indicates a decrease. All medication data is based on numbers of filled prescriptions. HbA_{1c} cutoffs of 7.0% and 8.0% are equivalent to 53 mmol/mol and 64 mmol/mol, respectively.

Variable	p-value	Avg. Annual Relative Change	Avg. Annual Absolute Change	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cohort size				393046	436460	451113	460069	456654	459222	452232	445045	400824	412659	432683	440304	386845
Glucose-lowering medications																
Basal Insulin-Analog	**0.005**	4.3%	0.4%	10.5%	11.8%	13.6%	14.3%	14.7%	15.1%	15.7%	16.3%	16.4%	16.0%	16.0%	15.2%	16.3%
Basal Insulin-Human	**<0.001**	-5.4%	-0.2%	4.0%	3.6%	3.3%	3.0%	2.7%	2.4%	2.2%	2.0%	1.8%	1.6%	1.5%	1.3%	1.2%
Biguanides	**<0.001**	5.6%	1.9%	34.5%	41.9%	48.6%	49.8%	50.6%	50.7%	50.7%	51.3%	53.9%	54.8%	56.6%	58.6%	59.8%
Bolus Insulin-Analog	0.92	0.9%	0.1%	10.6%	11.2%	12.4%	12.7%	12.7%	12.7%	12.8%	13.0%	12.6%	11.9%	11.6%	11.4%	11.9%
Bolus Insulin-Human	**<0.001**	-4.8%	-0.2%	3.4%	3.1%	2.8%	2.5%	2.3%	2.1%	1.9%	1.7%	1.5%	1.5%	1.4%	1.2%	1.3%
DPP-4 inhibitors	**0.047**	184.8%	0.9%	0.5%	5.5%	9.2%	10.6%	11.8%	13.7%	15.3%	14.9%	14.2%	13.2%	12.8%	12.5%	12.5%
Glitazones	**0.002**	-5.7%	-1.2%	21.8%	22.8%	19.8%	18.4%	16.5%	13.0%	8.0%	5.9%	5.4%	5.2%	5.2%	5.2%	5.6%
GLP-1 agonists	**<0.001**	17.6%	0.7%	4.2%	5.3%	5.5%	4.6%	5.0%	5.7%	6.4%	6.7%	6.7%	7.7%	9.2%	11.1%	13.8%
SGLT2 inhibitors	**0.002**	177.8%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	5.1%	9.0%	10.6%	12.1%	13.8%
Sulfonylureas	0.10	0.2%	0.0%	22.1%	25.0%	27.3%	26.7%	26.0%	25.2%	24.4%	24.0%	23.2%	22.6%	22.5%	22.4%	22.6%
Classes of glucose-lowering medications																
0 Unique Classes	**0.01**	-3.0%	-1.2%	38.4%	33.7%	27.7%	27.5%	27.4%	28.0%	28.7%	28.8%	27.8%	27.4%	25.8%	24.3%	23.3%
1 Unique Class	**0.001**	0.7%	0.2%	26.9%	25.5%	27.4%	27.8%	28.3%	28.6%	29.1%	29.3%	29.7%	29.6%	30.3%	31.1%	29.4%

2 Unique Classes	0.16	0.4%	0.1%	23.1%	24.4%	26.8%	26.5%	26.0%	25.4%	25.0%	24.7%	24.4%	23.9%	24.1%	24.0%	24.3%
3 Unique Classes	**0.04**	4.7%	0.4%	8.8%	11.4%	12.5%	12.6%	12.5%	12.3%	11.9%	12.0%	12.1%	12.3%	12.7%	13.1%	14.2%
4 Unique Classes	**0.003**	14.9%	0.3%	2.2%	3.8%	4.4%	4.4%	4.5%	4.5%	4.2%	4.1%	4.6%	5.1%	5.3%	5.6%	6.5%
>= 5 Unique Classes	**0.01**	22.9%	0.1%	0.6%	1.2%	1.3%	1.2%	1.2%	1.2%	1.2%	1.2%	1.5%	1.7%	1.9%	2.0%	2.4%
Mean (SD) Classes	**0.01**	3.3%	0.037	1.11 (1.12)	1.30 (1.23)	1.42 (1.22)	1.4 3(1.22)	1.42 (1.22)	1.41 (1.22)	1.37 (1.21)	1.37 (1.21)	1.41 (1.23)	1.43 (1.26)	1.47 (1.26)	1.51 (1.26)	1.59 (1.30)
Classes of cardio-vascular medications																
0 Unique Classes	**0.003**	-3.2%	-1.7%	52.6%	45.3%	37.0%	35.6%	34.9%	34.5%	34.8%	34.6%	34.9%	35.0%	34.1%	33.0%	30.8%
1 Unique Class	**<0.001**	2.7%	0.5%	18.6%	19.4%	21.1%	21.2%	21.5%	21.9%	22.0%	22.3%	23.3%	23.5%	24.0%	24.6%	25.1%
2 Unique Classes	**<0.001**	2.7%	0.2%	8.4%	8.8%	9.8%	10.0%	10.2%	10.3%	10.4%	10.5%	10.5%	10.5%	10.7%	11.0%	11.4%
3 Unique Classes	0.17	3.2%	0.3%	10.2%	12.0%	13.9%	14.2%	14.3%	14.4%	14.4%	14.4%	14.1%	13.9%	14.0%	14.2%	14.4%
4 Unique Classes	0.58	5.4%	0.3%	6.0%	8.1%	9.9%	10.2%	10.2%	10.1%	10.0%	10.0%	9.6%	9.6%	9.6%	9.8%	10.2%
>= 5 Unique Classes	0.75	6.8%	0.3%	4.3%	6.5%	8.4%	8.8%	8.9%	8.7%	8.4%	8.3%	7.6%	7.5%	7.5%	7.5%	8.1%
Mean (SD) Classes	0.31	4.4%	0.049	1.13 (1.56)	1.41 (1.72)	1.69 (1.81)	1.74 (1.83)	1.75 (1.83)	1.75 (1.81)	1.73 (1.80)	1.72 (1.79)	1.67 (1.75)	1.66 (1.74)	1.68 (1.74)	1.70 (1.73)	1.77 (1.75)
Classes of lipid-lowering medications																
0 Unique Classes	**0.01**	-2.7%	-1.7%	63.0%	55.5%	48.5%	45.6%	44.5%	44.2%	44.8%	44.9%	44.9%	45.6%	44.7%	43.2%	40.7%
1 Unique Class	**<0.001**	7.7%	2.0%	26.3%	30.2%	36.1%	39.9%	41.5%	43.1%	44.2%	45.2%	46.4%	46.8%	48.2%	50.0%	52.5%
2 Unique Classes	**0.003**	-2.6%	-0.2%	9.3%	12.0%	12.7%	11.9%	11.5%	10.6%	9.4%	8.5%	7.6%	6.8%	6.4%	6.0%	6.2%
3 Unique Classes	**0.003**	-3.9%	0.0%	1.3%	2.0%	2.4%	2.2%	2.2%	1.8%	1.5%	1.2%	1.0%	0.8%	0.7%	0.6%	0.6%
4 Unique Classes	**0.01**	-3.8%	0.0%	0.1%	0.3%	0.4%	0.3%	0.3%	0.3%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%
>= 5 Unique Classes	**0.03**	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Mean (SD) Classes	0.81	2.8%	0.014	0.49 (0.73)	0.61 (0.80)	0.70 (0.81)	0.72 (0.79)	0.72 (0.78)	0.71 (0.75)	0.68 (0.72)	0.66 (0.70)	0.65 (0.67)	0.63 (0.65)	0.63 (0.64)	0.64 (0.63)	0.67 (0.63)
Total # of (any) medication classes																
0 Medication Classes	**0.09**	-3.3%	-0.3%	8.7%	13.0%	7.1%	6.2%	5.6%	5.1%	5.2%	5.4%	6.0%	7.2%	6.5%	5.6%	5.0%
1 Unique Class	**0.06**	-4.5%	-0.3%	7.6%	4.3%	3.7%	3.6%	3.7%	3.7%	3.8%	3.9%	3.9%	3.7%	3.7%	3.5%	3.1%
2 Unique Classes	**0.01**	-4.2%	-0.4%	10.1%	6.4%	5.7%	5.6%	5.6%	5.6%	5.7%	5.7%	5.8%	5.5%	5.4%	5.2%	4.6%
3 Unique Classes	**0.02**	-3.3%	-0.4%	11.0%	8.0%	7.4%	7.2%	7.1%	7.2%	7.3%	7.3%	7.4%	7.2%	7.1%	7.0%	6.4%
4 Unique Classes	**0.02**	-2.1%	-0.2%	11.2%	8.9%	8.8%	8.5%	8.6%	8.7%	8.7%	8.7%	8.8%	8.5%	8.5%	8.4%	8.1%
5 Unique Classes	0.92	-0.9%	-0.1%	10.5%	9.3%	9.5%	9.4%	9.3%	9.4%	9.5%	9.6%	9.6%	9.5%	9.6%	9.5%	9.3%
6 Unique Classes	**0.002**	0.5%	0.0%	9.3%	9.1%	9.5%	9.6%	9.6%	9.6%	9.8%	9.8%	9.7%	9.7%	9.8%	9.8%	9.8%
7 Unique Classes	**0.001**	1.9%	0.2%	7.9%	8.4%	9.2%	9.2%	9.2%	9.4%	9.4%	9.3%	9.4%	9.4%	9.5%	9.7%	9.8%
8 Unique Classes	**0.01**	3.4%	0.2%	6.3%	7.4%	8.2%	8.5%	8.5%	8.6%	8.6%	8.6%	8.5%	8.4%	8.6%	8.8%	9.1%
9 Unique Classes	**0.02**	4.8%	0.2%	4.9%	6.3%	7.2%	7.4%	7.5%	7.5%	7.5%	7.4%	7.3%	7.3%	7.4%	7.5%	7.9%
>= 10 Unique Classes	0.13	8.8%	1.1%	12.6%	19.1%	23.7%	24.8%	25.4%	25.3%	24.6%	24.3%	23.6%	23.7%	24.1%	24.9%	26.9%
Mean (SD) Any Class	0.07	3.0%	0.16	5.15 (3.68)	5.88 (4.22)	6.67 (4.20)	6.84 (4.20)	6.92 (4.21)	6.94 (4.18)	6.87 (4.14)	6.81 (4.11)	6.72 (4.12)	6.68 (4.15)	6.77 (4.15)	6.91 (4.12)	7.18 (4.14)
Actively managed DCSI categories-Count																
No DCSI Complication	0.26	0.1%	0.0%	66.7%	67.5%	68.0%	68.1%	68.3%	68.7%	68.9%	68.6%	69.4%	68.0%	68.3%	68.3%	67.2%
1 DCSI Complication	0.17	-0.2%	0.0%	22.6%	22.1%	21.9%	21.7%	21.6%	21.3%	21.2%	21.4%	21.0%	21.6%	21.6%	21.7%	22.1%
2 DCSI Complication	0.66	0.2%	0.0%	7.1%	6.9%	6.7%	6.8%	6.7%	6.7%	6.6%	6.7%	6.5%	7.0%	6.9%	6.9%	7.3%
3 DCSI Complication	0.23	-0.1%	0.0%	2.5%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.1%	2.3%	2.2%	2.2%	2.4%

4 DCSI Complication	**0.02**	-0.8%	0.0%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.7%	0.8%	0.7%	0.7%	0.8%
>= 5 DCSI Complication	**<0.001**	-2.3%	0.0%	0.4%	0.4%	0.3%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Mean (SD) DCSI	0.14	-0.2%	-0.001	0.50 (0.86)	0.48 (0.85)	0.47 (0.83)	0.47 (0.84)	0.47 (0.83)	0.46 (0.83)	0.46 (0.82)	0.46 (0.82)	0.45 (0.81)	0.47 (0.83)	0.46 (0.82)	0.46 (0.81)	0.49 (0.84)
Actively managed DCSI types and other complications																
Cardiovascular Disease	**0.01**	-0.7%	-0.1%	15.34 %	14.88 %	14.54 %	14.44 %	14.15 %	13.78 %	13.45 %	13.25 %	12.46 %	12.67 %	13.26 %	13.39 %	13.96%
Cerebro Disease	**0.04**	-0.5%	0.0%	2.56%	2.53%	2.56%	2.60%	2.61%	2.62%	2.59%	2.56%	2.35%	2.38%	2.23%	2.31%	2.41%
Nephropathy	**<0.001**	3.3%	0.2%	6.27%	6.33%	6.40%	6.81%	7.03%	7.10%	7.06%	7.29%	7.18%	7.73%	8.03%	8.34%	8.98%
Neuropathy	**0.01**	0.9%	0.1%	11.23 %	10.96 %	10.83 %	10.83 %	10.81 %	10.75 %	10.93 %	11.38 %	11.33 %	12.25 %	12.16 %	12.21 %	12.58%
Peripheral Vascular Disease	0.72	1.7%	0.1%	4.39%	4.20%	4.04%	4.06%	4.02%	3.93%	3.86%	3.82%	3.67%	3.87%	4.39%	4.76%	5.35%
Retinopathy	**<0.001**	-4.1%	-0.2%	5.88%	5.51%	5.13%	4.94%	4.62%	4.39%	4.27%	4.28%	4.09%	4.17%	3.93%	2.70%	2.72%
Severe Hyperglycemia	0.10	-2.1%	0.0%	1.12%	0.99%	0.96%	0.85%	0.83%	0.81%	0.77%	0.76%	0.77%	0.82%	0.85%	0.93%	0.82%
Severe Hypoglycemia	0.11	-3.1%	-0.1%	2.88%	2.78%	2.75%	2.70%	2.71%	2.73%	2.70%	2.75%	2.88%	3.32%	1.50%	1.57%	1.72%
Actively Managed CCS Health Conditions																
1 CCS Category	**0.01**	1.3%	0.1%	9.01%	9.81%	9.60%	9.61%	9.66%	9.55%	9.57%	9.71%	10.96 %	11.01 %	11.33 %	10.48 %	10.55%
2 CCS Categories	**<0.001**	-2.3%	-0.1%	4.66%	4.40%	4.13%	3.86%	3.79%	3.76%	3.62%	3.49%	3.64%	3.31%	3.30%	3.29%	3.26%
3 CCS Categories	**<0.001**	-2.2%	-0.2%	6.98%	6.67%	6.43%	6.20%	6.02%	5.92%	5.74%	5.54%	5.62%	5.09%	5.26%	5.13%	4.96%
4 CCS Categories	**<0.001**	-1.8%	-0.2%	9.03%	8.79%	8.62%	8.48%	8.45%	8.46%	8.12%	8.05%	8.12%	7.37%	7.27%	7.19%	6.92%
5 CCS Categories	**0.003**	-0.5%	0.0%	8.61%	8.45%	8.37%	8.19%	8.35%	8.31%	8.21%	8.22%	8.31%	7.96%	8.10%	8.14%	8.02%
6 CCS Categories	**<0.001**	-0.8%	-0.1%	8.39%	8.24%	8.17%	8.22%	8.15%	8.15%	8.12%	7.96%	7.92%	7.71%	7.70%	7.67%	7.50%

7 CCS Categories	**0.01**	-0.4%	0.0%	7.51%	7.50%	7.57%	7.52%	7.50%	7.50%	7.51%	7.53%	7.43%	7.38%	7.35%	7.42%	7.16%
8 CCS Categories	**0.02**	-0.1%	0.0%	6.76%	6.72%	6.76%	6.71%	6.71%	6.81%	6.80%	6.71%	6.69%	6.72%	6.69%	6.69%	6.67%
9 CCS Categories	**0.004**	0.4%	0.0%	5.76%	5.80%	5.85%	5.91%	5.90%	5.97%	5.93%	5.92%	5.87%	5.94%	5.93%	6.02%	6.03%
>=10 CCS Categories	**0.001**	1.3%	0.4%	33.28 %	33.61 %	34.50 %	35.29 %	35.48 %	35.57 %	36.37 %	36.87 %	35.45 %	37.50 %	37.07 %	37.97 %	38.91%
Mean (SD) CCS Categories	**0.002**	0.7%	0.060	8.59 (6.90)	8.63 (6.96)	8.77 (7.03)	8.89 (7.10)	8.91 (7.09)	8.94 (7.09)	9.04 (7.12)	9.09 (7.13)	8.86 (7.08)	9.17 (7.27)	9.07 (7.19)	9.23 (7.22)	9.37 (7.33)
Health Care Utilization																
Mean (SD) Ambulatory visits	**0.001**	-0.8%	-0.052	6.86 (6.15)	6.79 (6.20)	6.73 (6.17)	6.75 (6.23)	6.62 (6.11)	6.51 (6.06)	6.43 (6.01)	6.48 (6.18)	6.23 (6.02)	6.17 (5.97)	6.15 (5.97)	6.16 (5.95)	6.19 (6.04)
Mean (SD) Emergency Department Visits	**0.001**	0.9%	0.002	0.26 (0.87)	0.26 (0.96)	0.26 (0.88)	0.26 (0.91)	0.26 (1.16)	0.27 (1.05)	0.27 (0.90)	0.27 (0.95)	0.28 (1.0)	0.29 (1.12)	0.30 (1.14)	0.3 (0.93)	0.29 (0.93)
Mean (SD) Hospitalizations	**<0.001**	-3.2%	-0.006	0.19 (0.60)	0.18 (0.58)	0.17 (0.57)	0.17 (0.57)	0.16 (0.55)	0.15 (0.54)	0.14 (0.52)	0.14 (0.50)	0.13 (0.48)	0.13 (0.47)	0.12 (0.47)	0.12 (0.46)	0.11 (0.45)
HbA_{1c}																
Mean (SD) HbA_{1c}	0.09	-0.07%	-0.54%	7.47 (1.72)	7.36 (1.65)	7.37 (1.66)	7.47 (1.69)	7.48 (1.68)	7.48 (1.75)	7.45 (1.72)	7.49 (1.73)	7.57 (1.76)	7.59 (1.75)	7.56 (1.73)	7.48 (1.72)	7.40 (1.71)
$HbA_{1c} < 7.0\%$	0.13	0.25%	0.12%	48.9%	53.3%	53.0%	50.2%	49.2%	51.2%	51.2%	50.0%	47.3%	46.8%	47.1%	49.2%	50.5%
$HbA_{1c} \geq 8.0\%$	**0.04**	-0.05%	-0.02%	28.0%	25.1%	26.0%	27.4%	27.8%	27.4%	27.3%	28.8%	30.4%	30.5%	30.1%	29.0%	27.8%

Supplemental Table S4. Properties of Medicare Advantage Cohort

Average annual changes represent relative and absolute changes in either proportions or means. Changes are calculated for the period from 2006 to 2018, except for SGLT-2 inhibitors, for which changes are calculated from 2013 to 2018. P-values represent trends from 2006 to 2018, and p-values <0.05 are bolded. Green text indicates an increase, while red text indicates a decrease. All medication data is based on numbers of filled prescriptions. HbA_{1c} cutoffs of 7.0% and 8.0% are equivalent to 53 mmol/mol and 64 mmol/mol, respectively.

Variable	p-value	Avg. Annual Relative Change	Avg. Annual Absolute Change	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cohort size				65583	97816	133230	184439	242461	291044	363848	410773	431868	465814	656531	819285	797151
Glucose-lowering medications, individual classes																
Basal Insulin-Analog	**<0.001**	7.0%	0.7%	10.4%	12.0%	13.9%	15.3%	16.0%	16.9%	17.5%	18.3%	19.1%	18.7%	19.7%	19.4%	19.8%
Basal Insulin-Human	**0.049**	-6.3%	-0.8%	11.9%	9.9%	8.5%	7.0%	5.9%	5.1%	4.3%	3.7%	3.3%	3.0%	2.9%	2.4%	2.2%
Biguanides	**<0.001**	2.5%	1.0%	38.5%	38.7%	39.5%	42.1%	43.8%	44.6%	45.0%	45.8%	47.2%	47.5%	49.2%	50.4%	51.0%
Bolus Insulin-Analog	0.44	6.2%	0.4%	6.6%	7.5%	9.0%	10.1%	10.8%	11.4%	11.8%	12.2%	12.7%	12.4%	12.4%	12.0%	11.9%
Bolus Insulin-Human	0.46	-6.2%	-0.8%	12.3%	11.0%	9.3%	7.8%	6.6%	5.6%	4.6%	3.9%	3.4%	3.0%	3.0%	2.6%	2.3%
DPP-4 inhibitors	**0.557**	492.7%	0.9%	0.2%	2.9%	4.3%	5.1%	6.6%	8.6%	10.8%	11.3%	12.1%	11.5%	12.0%	12.2%	12.4%
Glitazones	**0.034**	-5.8%	-1.3%	21.7%	19.6%	14.9%	13.1%	11.8%	9.0%	5.6%	4.2%	4.1%	4.2%	4.7%	4.9%	5.3%
GLP-1 agonists	**<0.001**	32.6%	0.4%	1.2%	1.1%	1.1%	1.2%	1.3%	1.5%	1.9%	2.2%	2.5%	2.7%	3.6%	4.7%	6.0%
SGLT2 inhibitors	**0.002**	450.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.9%	2.0%	3.0%	3.9%	4.5%
Sulfonylureas	**<0.001**	-3.2%	-1.5%	45.9%	40.9%	38.1%	36.7%	35.2%	33.8%	32.2%	30.6%	28.9%	27.2%	27.4%	26.6%	26.6%
Glucose-lowering medications, total classes																
0 Unique Classes	**0.50**	2.1%	0.4%	20.4%	25.4%	27.1%	26.9%	27.0%	27.0%	27.7%	28.2%	27.7%	28.7%	26.5%	26.3%	26.0%
1 Unique Class	**0.02**	-0.1%	0.0%	32.3%	29.2%	29.2%	29.5%	30.0%	30.8%	31.1%	31.2%	31.4%	31.7%	32.3%	32.5%	31.9%

2 Unique Classes	**<0.001**	-1.7%	-0.5%	30.7%	28.1%	27.3%	27.4%	26.7%	26.5%	26.0%	25.6%	25.4%	24.2%	24.6%	24.0%	24.1%
3 Unique Classes	**0.11**	-0.2%	0.0%	12.6%	12.4%	11.8%	11.9%	11.9%	11.4%	11.1%	11.0%	11.3%	10.9%	11.6%	11.7%	12.2%
4 Unique Classes	**0.15**	3.1%	0.1%	3.2%	3.9%	3.6%	3.5%	3.5%	3.4%	3.2%	3.2%	3.4%	3.5%	3.9%	4.2%	4.5%
>= 5 Unique Classes	**0.11**	5.3%	0.0%	0.9%	1.1%	1.0%	0.9%	0.9%	0.9%	0.8%	0.8%	0.9%	1.0%	1.2%	1.3%	1.5%
Mean (SD) Classes	**0.24**	-0.4%	-0.005	1.49 (1.10)	1.44 (1.18)	1.39 (1.17)	1.38 (1.16)	1.38 (1.16)	1.36 (1.15)	1.34 (1.14)	1.32 (1.14)	1.34 (1.15)	1.32 (1.17)	1.38 (1.18)	1.39 (1.19)	1.42 (1.21)
Cardiovascular medications																
0 Unique Classes	**0.001**	-1.8%	-0.3%	17.4%	19.1%	19.3%	18.4%	17.3%	16.1%	16.0%	15.4%	15.3%	15.7%	14.9%	14.7%	13.3%
1 Unique Class	**0.002**	0.9%	0.1%	15.9%	15.1%	15.2%	15.5%	15.7%	16.3%	16.7%	17.1%	17.6%	18.0%	17.8%	17.9%	17.6%
2 Unique Classes	**<0.001**	1.6%	0.2%	12.6%	12.4%	12.6%	12.8%	13.2%	13.7%	14.2%	14.4%	14.8%	15.0%	15.0%	15.1%	15.2%
3 Unique Classes	0.25	-0.1%	0.0%	17.5%	16.5%	16.5%	16.5%	16.8%	17.1%	17.1%	17.2%	17.1%	17.0%	17.1%	17.1%	17.2%
4 Unique Classes	0.06	-0.4%	-0.1%	17.7%	16.9%	16.4%	16.7%	16.6%	16.8%	16.6%	16.6%	16.5%	16.2%	16.5%	16.4%	16.7%
>= 5 Unique Classes	0.15	0.4%	0.1%	19.1%	20.0%	19.9%	20.2%	20.4%	20.0%	19.4%	19.4%	18.7%	18.1%	18.7%	18.9%	20.0%
Mean (SD) Classes	0.70	0.2%	0.006	2.71 (1.96)	2.70 (2.03)	2.68 (2.03)	2.72 (2.03)	2.75 (2.01)	2.75 (1.98)	2.72 (1.97)	2.73 (1.95)	2.70 (1.93)	2.65 (1.92)	2.70 (1.92)	2.71 (1.92)	2.79 (1.93)
Lipid-lowering medications																
0 Unique Classes	**<0.001**	-3.3%	-1.6%	47.3%	44.5%	42.3%	39.1%	36.5%	34.7%	34.1%	33.2%	32.5%	32.2%	30.9%	29.5%	26.8%
1 Unique Class	**<0.001**	4.1%	1.7%	42.2%	43.1%	45.5%	49.7%	52.1%	54.2%	55.7%	56.8%	58.1%	59.2%	60.9%	62.3%	64.8%
2 Unique Classes	**0.384**	-1.4%	-0.1%	9.4%	10.9%	10.6%	9.9%	10.0%	9.7%	9.1%	8.9%	8.5%	7.8%	7.5%	7.5%	7.6%
3 Unique Classes	**0.003**	-2.3%	0.0%	1.1%	1.4%	1.5%	1.3%	1.3%	1.2%	1.1%	1.0%	0.9%	0.8%	0.7%	0.7%	0.7%
4 Unique Classes	**0.03**	0.0%	0.0%	0.1%	> 0.12%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
>= 5 Unique Classes	**0.77**	0.0%	0.0%	0.0%	NA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mean (SD) Classes	**0.002**	2.3%	0.015	0.64 (0.70)	0.70 (0.73)	0.72 (0.72)	0.74 (0.70)	0.77 (0.69)	0.78 (0.68)	0.78 (0.66)	0.78 (0.65)	0.78 (0.64)	0.77 (0.62)	0.78 (0.61)	0.80 (0.60)	0.83 (0.59)
Total # of (any)																

medication classes																
0 Medication Classes	**0.004**	-4.3%	-0.2%	4.1%	5.5%	5.9%	5.1%	4.1%	2.2%	2.1%	2.0%	2.1%	2.2%	2.1%	1.8%	1.8%
1 Unique Class	**0.01**	-2.9%	-0.1%	2.1%	1.9%	2.0%	1.8%	1.8%	1.8%	1.9%	1.8%	1.8%	1.9%	1.7%	1.7%	1.3%
2 Unique Classes	**0.003**	-2.8%	-0.1%	3.1%	2.9%	2.8%	2.8%	2.7%	2.7%	2.7%	2.6%	2.6%	2.8%	2.5%	2.5%	2.0%
3 Unique Classes	**0.03**	-2.2%	-0.1%	4.4%	3.9%	3.9%	3.8%	3.6%	3.7%	3.8%	3.7%	3.8%	3.9%	3.6%	3.5%	3.1%
4 Unique Classes	**0.13**	-1.9%	-0.1%	5.7%	5.1%	5.3%	5.0%	4.9%	5.0%	5.2%	5.1%	5.1%	5.3%	5.0%	4.8%	4.3%
5 Unique Classes	0.49	-1.6%	-0.1%	7.3%	6.3%	6.4%	6.4%	6.2%	6.3%	6.5%	6.4%	6.5%	6.7%	6.4%	6.2%	5.8%
6 Unique Classes	**0.532**	-1.2%	-0.1%	8.4%	7.6%	7.6%	7.5%	7.4%	7.6%	7.7%	7.7%	7.7%	7.9%	7.7%	7.4%	7.1%
7 Unique Classes	**0.820**	-0.7%	-0.1%	9.1%	8.4%	8.3%	8.3%	8.3%	8.3%	8.6%	8.7%	8.6%	8.8%	8.6%	8.4%	8.2%
8 Unique Classes	**0.28**	-0.3%	0.0%	9.3%	8.6%	8.7%	8.7%	8.7%	8.8%	9.0%	9.0%	9.0%	9.2%	9.0%	8.9%	8.9%
9 Unique Classes	**0.09**	0.1%	0.0%	9.0%	8.6%	8.4%	8.6%	8.7%	9.0%	8.9%	9.0%	8.9%	8.9%	9.0%	8.8%	9.0%
>= 10 Unique Classes	**0.004**	2.2%	0.8%	37.6%	41.3%	40.8%	42.1%	43.6%	44.6%	43.6%	44.0%	43.8%	42.5%	44.4%	46.0%	48.5%
Mean (SD) Any Class	**0.004**	1.1%	0.10	8.31 (4.38)	8.60 (4.67)	8.55 (4.71)	8.71 (4.66)	8.91 (4.62)	9.12 (4.52)	9.01 (4.45)	9.05 (4.43)	9.04 (4.46)	8.89 (4.40)	9.10 (4.45)	9.28 (4.49)	9.55 (4.47)
Actively managed DCSI categories-Count																
No DCSI Complication	**0.001**	-1.1%	-0.5%	40.9%	40.6%	40.8%	40.0%	39.8%	40.0%	39.7%	39.3%	40.0%	39.0%	38.3%	36.2%	34.9%
1 DCSI Complication	0.13	-0.2%	-0.1%	29.5%	28.9%	28.8%	29.1%	29.5%	29.5%	29.5%	29.4%	28.7%	28.3%	28.8%	29.0%	28.8%
2 DCSI Complication	**0.001**	1.4%	0.2%	16.5%	16.8%	16.8%	17.1%	17.2%	17.1%	17.2%	17.4%	17.2%	17.7%	18.2%	18.9%	19.5%
3 DCSI Complication	**<0.001**	2.2%	0.2%	8.2%	8.4%	8.4%	8.4%	8.5%	8.4%	8.4%	8.6%	8.7%	9.2%	9.2%	9.9%	10.5%
4 DCSI Complication	**0.005**	2.7%	0.1%	3.4%	3.6%	3.6%	3.7%	3.5%	3.5%	3.6%	3.7%	3.8%	4.0%	3.9%	4.3%	4.6%
>= 5 DCSI Complication	0.26	1.3%	0.0%	1.5%	1.7%	1.7%	1.7%	1.6%	1.5%	1.6%	1.6%	1.7%	1.8%	1.6%	1.7%	1.8%
Mean (SD) DCSI	**0.002**	1.3%	0.014	1.09 (1.22)	1.11 (1.24)	1.11 (1.24)	1.13 (1.25)	1.12 (1.23)	1.11 (1.22)	1.12 (1.23)	1.13 (1.23)	1.13 (1.25)	1.17 (1.27)	1.17 (1.24)	1.22 (1.26)	1.27 (1.27)

Actively managed DCSI types and other complications																
Cardiovascular Disease	0.60	0.4%	0.1%	38.97%	39.26%	38.78%	38.97%	38.75%	38.37%	38.36%	37.78%	36.49%	36.80%	37.87%	39.56%	40.80%
Cerebro Disease	**0.01**	-0.3%	0.0%	9.59%	9.97%	10.01%	9.97%	10.09%	9.79%	9.89%	9.75%	9.10%	8.86%	8.46%	8.97%	9.26%
Nephropathy	**<0.001**	5.3%	0.9%	16.30%	18.31%	18.48%	19.28%	19.97%	20.28%	20.47%	21.24%	22.08%	23.36%	24.00%	25.97%	27.43%
Neuropathy	**<0.001**	3.9%	0.6%	16.52%	16.84%	17.29%	18.27%	18.51%	18.73%	19.25%	20.24%	20.74%	21.97%	23.02%	24.50%	24.85%
Peripheral Vascular Disease	0.16	2.1%	0.3%	12.11%	12.17%	12.13%	12.38%	11.96%	11.76%	11.91%	11.92%	11.95%	12.21%	13.10%	14.32%	15.39%
Retinopathy	**0.003**	-3.6%	-0.3%	9.22%	8.53%	7.97%	7.83%	6.93%	6.46%	6.57%	6.70%	6.64%	7.03%	6.33%	4.76%	4.91%
Severe Hyperglycemia	0.26	-0.8%	0.0%	1.00%	1.04%	1.05%	0.93%	0.91%	0.95%	1.01%	0.94%	0.96%	0.94%	0.95%	1.04%	0.89%
Severe Hypoglycemia	0.08	-2.6%	-0.1%	4.99%	4.94%	5.01%	4.91%	4.76%	4.50%	4.45%	4.45%	5.18%	5.58%	3.06%	3.19%	3.28%
Actively Managed CCS Health Conditions																
1 CCS Category	0.21	-1.8%	-0.1%	8.47%	8.71%	8.61%	6.85%	6.23%	5.80%	5.63%	6.05%	7.85%	8.35%	7.78%	6.25%	6.54%
2 CCS Categories	**<0.001**	-2.6%	-0.1%	1.90%	1.86%	1.83%	1.64%	1.46%	1.37%	1.31%	1.30%	1.32%	1.27%	1.29%	1.27%	1.25%
3 CCS Categories	**<0.001**	-3.0%	-0.1%	3.14%	3.23%	3.13%	2.82%	2.60%	2.45%	2.31%	2.16%	2.19%	1.97%	2.03%	2.01%	1.90%
4 CS Categories	**<0.001**	-3.1%	-0.2%	5.06%	5.13%	4.99%	4.73%	4.62%	4.59%	4.13%	3.87%	3.72%	3.26%	3.26%	3.10%	2.99%
5 CCS Categories	**<0.001**	-2.5%	-0.1%	5.77%	5.31%	5.20%	5.11%	5.00%	4.92%	4.78%	4.57%	4.51%	4.09%	4.25%	4.10%	3.89%
6 CCS Categories	**<0.001**	-2.5%	-0.2%	6.17%	5.75%	5.62%	5.60%	5.59%	5.59%	5.31%	5.12%	5.01%	4.56%	4.58%	4.41%	4.14%
7 CCS Categories	**<0.001**	-2.0%	-0.1%	6.21%	5.81%	5.82%	5.85%	5.78%	5.77%	5.67%	5.44%	5.30%	4.98%	5.02%	4.86%	4.59%
8 CCS Categories	**0.003**	-1.5%	-0.1%	5.97%	5.71%	5.47%	5.65%	5.69%	5.75%	5.66%	5.50%	5.31%	5.12%	5.13%	5.01%	4.80%
9 CCS Categories	**0.011**	-1.3%	-0.1%	5.74%	5.36%	5.28%	5.32%	5.43%	5.49%	5.54%	5.40%	5.26%	5.20%	5.13%	5.00%	4.78%

>=10 CCS Categories	**<0.001**	2.0%	1.0%	51.58%	53.13%	54.05%	56.41%	57.60%	58.28%	59.66%	60.59%	59.54%	61.18%	61.53%	63.99%	65.11%
Mean (SD) CCS Categories	**<0.001**	1.8%	0.225	12.29 (9.62)	12.81 (10.26)	13.05 (10.41)	13.48 (10.40)	13.68 (10.33)	13.79 (10.31)	14.03 (10.35)	14.19 (10.43)	13.96 (10.53)	14.32 (10.73)	14.37 (10.63)	14.94 (10.73)	15.21 (10.87)
Health Care Utilization																
Mean (SD) Ambulatory visits	0.230	0.2%	0.053	8.01 (6.66)	8.19 (7.02)	8.32 (7.18)	8.65 (7.23)	8.58 (7.06)	8.43 (6.91)	8.40 (6.89)	8.48 (7.05)	7.94 (6.87)	7.87 (6.90)	8.00 (6.90)	8.26 (6.94)	8.17 (6.90)
Mean (SD) Emergency Department Visits	**< 0.001**	4.7%	0.019	0.41 (1.19)	0.47 (1.26)	0.51 (1.34)	0.53 (1.38)	0.52 (1.37)	0.54 (1.4)	0.54 (1.4)	0.55 (1.4)	0.56 (1.43)	0.57 (1.45)	0.65 (1.58)	0.66 (1.57)	0.66 (1.53)
Mean (SD) Hospitalizations	**0.002**	-1.1%	-0.005	0.41 (0.87)	0.43 (0.94)	0.42 (0.93)	0.41 (0.93)	0.40 (0.92)	0.38 (0.91)	0.37 (0.90)	0.36 (0.87)	0.34 (0.84)	0.34 (0.83)	0.34 (0.84)	0.35 (0.85)	0.35 (0.85)
HbA_{1c}																
Mean (SD) HbA_{1c}	0.15	-0.03%	-0.38%	7.05 (1.31)	6.97 (1.26)	6.98 (1.29)	7.10 (1.34)	7.11 (1.34)	7.12 (1.39)	7.10 (1.38)	7.11 (1.38)	7.20 (1.44)	7.15 (1.40)	7.19 (1.44)	7.09 (1.41)	7.00 (1.40)
$HbA_{1c} < 7.0\%$	0.35	0.33%	0.19%	58.2%	62.6%	62.2%	58.6%	57.7%	58.2%	59.1%	58.4%	55.5%	57.1%	56.2%	59.0%	60.7%
$HbA_{1c} \geq 8.0\%$	**0.01**	0.53%	0.09%	17.4%	14.9%	16.2%	18.1%	18.5%	18.8%	18.6%	19.2%	21.2%	20.0%	21.1%	19.4%	18.6%

Supplemental Table S5. Confidence Intervals for Point Estimates for Commercial Cohort
Values represent upper and lower bounds of 95% confidence intervals around point estimates

Year	Total Population	Age		>= 10 CCS Categories		>= 10 med classes		>= 3 CV classes		>= 3 glucose classes		>= 1 lipid classes		>= 1 DCSI		Mean glucose classes	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
2006	393046	51.90	51.96	33.1%	33.4%	12.5%	12.7%	20.3%	20.5%	11.5%	11.7%	36.9%	37.2%	33.2%	33.5%	1.106	1.114
2007	436460	52.17	52.23	33.5%	33.8%	19.0%	19.2%	26.5%	26.7%	16.3%	16.5%	44.3%	44.6%	32.4%	32.6%	1.296	1.304
2008	451113	52.37	52.43	34.4%	34.6%	23.6%	23.8%	32.0%	32.3%	18.0%	18.2%	51.4%	51.7%	31.9%	32.2%	1.416	1.424
2009	460069	52.68	52.74	35.2%	35.4%	24.7%	25.0%	33.0%	33.3%	18.1%	18.3%	54.3%	54.6%	31.8%	32.1%	1.426	1.434
2010	456654	52.94	53.00	35.3%	35.6%	25.2%	25.5%	33.3%	33.5%	18.1%	18.3%	55.4%	55.7%	31.6%	31.9%	1.416	1.424
2011	459222	53.23	53.29	35.4%	35.7%	25.2%	25.4%	33.1%	33.4%	17.9%	18.1%	55.7%	56.0%	31.2%	31.4%	1.406	1.414
2012	452232	53.43	53.49	36.2%	36.5%	24.5%	24.8%	32.7%	33.0%	17.1%	17.4%	55.1%	55.4%	30.9%	31.2%	1.366	1.374
2013	445045	53.67	53.73	36.7%	37.0%	24.2%	24.4%	32.5%	32.7%	17.1%	17.4%	54.9%	55.2%	31.2%	31.5%	1.366	1.374
2014	400824	53.49	53.55	35.3%	35.6%	23.5%	23.8%	31.2%	31.5%	18.0%	18.2%	54.9%	55.2%	30.5%	30.8%	1.406	1.414
2015	412659	53.57	53.63	37.4%	37.7%	23.6%	23.8%	30.9%	31.2%	18.9%	19.2%	54.3%	54.6%	31.8%	32.1%	1.426	1.434
2016	432683	53.72	53.78	36.9%	37.2%	24.0%	24.2%	31.0%	31.3%	19.7%	20.0%	55.2%	55.5%	31.5%	31.8%	1.466	1.474
2017	440304	53.87	53.93	37.8%	38.1%	24.7%	25.0%	31.3%	31.6%	20.6%	20.8%	56.6%	56.9%	31.6%	31.9%	1.506	1.514
2018	386845	54.45	54.51	38.8%	39.1%	26.7%	27.0%	32.5%	32.8%	22.9%	23.2%	59.2%	59.5%	32.7%	33.0%	1.586	1.594

Year	Mean CV classes		Mean lipid classes		# with lab results	HbA1c < 7		HBA1c >= 8		Mean ambulatory		Mean inpatient		Mean ED	
	Lower	Upper	Lower	Upper		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
2006	1.125	1.135	0.488	0.492	85397	48.6%	49.2%	27.7%	28.3%	6.841	6.879	0.189	0.193	0.257	0.263
2007	1.405	1.415	0.608	0.612	76577	53.0%	53.7%	24.8%	25.4%	6.772	6.808	0.179	0.182	0.257	0.263
2008	1.685	1.695	0.698	0.702	110196	52.7%	53.2%	25.8%	26.3%	6.712	6.748	0.170	0.174	0.257	0.263
2009	1.735	1.745	0.718	0.722	125917	49.9%	50.4%	27.1%	27.6%	6.732	6.768	0.165	0.169	0.257	0.263
2010	1.745	1.755	0.718	0.722	126572	49.0%	49.5%	27.6%	28.1%	6.602	6.638	0.159	0.162	0.257	0.263

2011	1.745	1.755	0.708	0.712	119634	50.9%	51.4%	27.1%	27.7%	6.492	6.528	0.152	0.155	0.267	0.273
2012	1.725	1.735	0.678	0.682	115219	50.9%	51.4%	27.0%	27.5%	6.412	6.448	0.143	0.146	0.267	0.273
2013	1.715	1.725	0.658	0.662	135746	49.7%	50.2%	28.5%	29.0%	6.462	6.498	0.136	0.139	0.267	0.273
2014	1.665	1.675	0.648	0.652	124359	47.1%	47.6%	30.1%	30.6%	6.211	6.249	0.125	0.128	0.277	0.283
2015	1.655	1.665	0.628	0.632	134410	46.5%	47.0%	30.2%	30.7%	6.152	6.188	0.124	0.127	0.287	0.293
2016	1.675	1.685	0.628	0.632	151323	46.9%	47.4%	29.9%	30.3%	6.132	6.168	0.122	0.124	0.297	0.303
2017	1.695	1.705	0.638	0.642	155530	48.9%	49.4%	28.7%	29.2%	6.142	6.178	0.119	0.122	0.297	0.303
2018	1.764	1.776	0.668	0.672	127663	50.2%	50.8%	27.5%	28.0%	6.171	6.209	0.111	0.114	0.287	0.293

Supplemental Table S6. Confidence Intervals for Point Estimates for Medicare Advantage Cohort
Values represent upper and lower bounds of 95% confidence intervals around point estimates

Year	Total Population	Age		>= 10 CCS Categories		>= 10 med classes		>= 3 CV classes		>= 3 glucose classes		>= 1 lipid classes		>= 1 DCSI		Mean glucose classes	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
2006	65583	70.06	70.16	51.2%	52.0%	37.3%	38.0%	53.8%	54.6%	16.3%	16.9%	52.3%	53.1%	58.7%	59.5%	1.482	1.498
2007	97816	70.57	70.67	52.8%	53.4%	41.0%	41.6%	53.1%	53.7%	17.1%	17.6%	55.1%	55.8%	59.1%	59.7%	1.433	1.447
2008	133230	70.65	70.73	53.8%	54.3%	40.6%	41.1%	52.5%	53.1%	16.2%	16.6%	57.4%	57.9%	59.0%	59.5%	1.384	1.396
2009	184439	70.56	70.64	56.2%	56.6%	41.9%	42.3%	53.1%	53.5%	16.1%	16.4%	60.7%	61.2%	59.8%	60.2%	1.375	1.385
2010	242461	70.85	70.91	57.4%	57.8%	43.4%	43.8%	53.6%	54.0%	16.2%	16.5%	63.3%	63.7%	60.0%	60.4%	1.375	1.385
2011	291044	71.01	71.07	58.1%	58.5%	44.5%	44.8%	53.7%	54.1%	15.6%	15.8%	65.1%	65.4%	59.8%	60.2%	1.356	1.364
2012	363848	71.26	71.32	59.5%	59.8%	43.5%	43.8%	52.9%	53.2%	15.0%	15.2%	65.8%	66.1%	60.2%	60.5%	1.336	1.344
2013	410773	71.48	71.54	60.4%	60.7%	43.8%	44.1%	53.0%	53.3%	14.9%	15.1%	66.6%	66.9%	60.5%	60.8%	1.317	1.323
2014	431868	71.79	71.85	59.4%	59.7%	43.7%	44.0%	52.2%	52.5%	15.5%	15.7%	67.4%	67.7%	59.9%	60.2%	1.337	1.343
2015	465814	72.17	72.23	61.0%	61.3%	42.4%	42.7%	51.2%	51.5%	15.3%	15.5%	67.7%	68.0%	60.9%	61.1%	1.317	1.323
2016	656531	71.65	71.69	61.4%	61.6%	44.3%	44.5%	52.1%	52.4%	16.5%	16.7%	69.0%	69.3%	61.6%	61.8%	1.377	1.383
2017	819285	71.88	71.92	63.9%	64.1%	45.8%	46.1%	52.2%	52.4%	17.1%	17.2%	70.4%	70.6%	63.7%	63.9%	1.387	1.393
2018	797151	72.62	72.66	65.0%	65.2%	48.4%	48.6%	53.8%	54.0%	18.0%	18.2%	73.1%	73.3%	65.0%	65.2%	1.417	1.423

Mean CV classes		Mean lipid classes		# with lab results	HbA1c < 7		HBA1c >= 8		Mean ambulatory		Mean inpatient		Mean ED	
Lower	Upper	Lower	Upper		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
2.695	2.725	0.635	0.645	11174	57.3%	59.1%	16.7%	18.1%	7.959	8.061	0.401	0.414	0.401	0.419
2.687	2.713	0.695	0.705	13886	61.8%	63.4%	14.3%	15.5%	8.146	8.234	0.424	0.436	0.462	0.478
2.669	2.691	0.716	0.724	23010	61.5%	62.8%	15.7%	16.7%	8.281	8.359	0.416	0.426	0.503	0.517
2.711	2.729	0.737	0.743	35007	58.0%	59.1%	17.7%	18.5%	8.617	8.683	0.406	0.414	0.524	0.536
2.742	2.758	0.767	0.773	44782	57.3%	58.2%	18.1%	18.8%	8.552	8.608	0.391	0.399	0.515	0.525
2.743	2.757	0.778	0.782	48910	57.7%	58.6%	18.4%	19.1%	8.405	8.455	0.380	0.387	0.535	0.545

2.714	2.726	0.778	0.782	72013	58.7%	59.4%	18.3%	18.9%	8.378	8.422	0.371	0.376	0.535	0.545
2.724	2.736	0.778	0.782	116709	58.2%	58.7%	19.0%	19.4%	8.458	8.502	0.357	0.363	0.546	0.554
2.694	2.706	0.778	0.782	121450	55.3%	55.8%	21.0%	21.4%	7.920	7.960	0.339	0.344	0.556	0.564
2.644	2.656	0.768	0.772	144427	56.8%	57.3%	19.8%	20.2%	7.850	7.890	0.333	0.338	0.566	0.574
2.695	2.705	0.779	0.781	205118	55.9%	56.4%	20.9%	21.2%	7.983	8.017	0.338	0.342	0.646	0.654
2.706	2.714	0.799	0.801	276675	58.9%	59.2%	19.3%	19.6%	8.245	8.275	0.344	0.348	0.657	0.663
2.786	2.794	0.829	0.831	261998	60.5%	60.9%	18.4%	18.7%	8.155	8.185	0.344	0.347	0.657	0.663