

SUPPLEMENTARY DATA

Supplementary Table 1. Codes Used for Analysis

Comorbidity Categories

New Category	Sub-Category	Source	Code
Hypertension		Outpatient Diagnoses or Pharmacy Dispensings	ICD-9 401-404 or at least 1 dispensing of any of the following medication classes in the 12 months pre-baseline: ACE-Inhibitors Alpha Blockers Alpha adrenergic agonists Angiotensin antagonists Beta adrenergic blockers Carbonic anhydrase inhibitors Calcium channel blockers Thiazides/related diuretics Potassium sparing diuretics Loop diuretics Osmotic diuretics Vasodilators
Hyperlipidemia		Outpatient Diagnoses or LDL or Pharmacy Dispensings	ICD9 272 or Ezetimibe Fibrates Niacin Bile acid resins Statins LDL > 130 mg/dL
Cardiovascular disease	Myocardial infarction	Inpatient	410, 411
	Coronary artery disease	Outpatient	410-413, 414.01-07, 414.2, 414.3, 414.8, 414.9
	Stroke	Inpatient	431, 433-5
	Cerebrovascular disease	Outpatient	433-8
Diabetic retinopathy		Outpatient	250.5, 362.1, 361, 369, 362.01, 362.83, 362.53, 362.81, 362.82, 362.02, 379.23
Diabetic neuropathy		Outpatient	356.9, 250.6, 358.1, 951.0, 951.1, 951.3, 713.5, 357.2, 337.0, 337.1, 564.5, 536.3, 458.0, 354.0, 354.1, 354.2, 354.3, 354.4, 354.5, 354.6, 354.7, 354.8, 354.9, 355.0, 355.1, 355.2, 355.3, 355.4, 355.5, 355.6, 355.7, 355.8, 355.9
Peripheral vascular disease	Peripheral vascular disease	Outpatient	440-442, 443.9, 250.7
	Lower extremity Amputation	Outpatient and inpatient	84.10-84.19, 27290, 27295, 27598, 27880-27882, 27884, 27886, 27888, 27889, 28800, 28805, 28810, 28820, 28825
	Foot ulcer	Outpatient and inpatient	249.80-249.81, 250.80-250.83, 707.1
Congestive heart failure		Inpatient	402.01, 402.11, 402.91, 428
		Outpatient	428
Obesity		Inpatient or Outpatient visits	Last recorded BMI prior to baseline

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Metabolic/Bariatric Surgery Procedure Codes

Description	Source	Code
Open RYGB	CPT4	43621
RGYB	CPT4	43633
Lap RYGB	CPT4	43644
Lap RYGB	CPT4	43645
Gastric Sleeve	CPT4	43659
Lap adjustable gastric band	CPT4	43770
Lap Band Revision	CPT4	43771
Lap Band Removal	CPT4	43772
Lap Band Replacement	CPT4	43773
Lap Band Removal	CPT4	43774
Lap Gastric Sleeve (after 1/2010)	CPT4	43775
Vertical banded gastroplasty	CPT4	43842
Vertical banded gastroplasty	CPT4	43843
Lap RYGB (code dropped in 1995)	CPT4	43844
Biliopancreatic diversion with duodenal switch	CPT4	43845
Open RYGB	CPT4	43846
Open RYGB	CPT4	43847
Revision/Complication (not lap band)	CPT4	43848
Revision of GJ anastomosis with reconstruction, with or without vagotomy	CPT4	43850
Revision of GJ anastomosis with reconstruction, with or without partial gastrectomy; without vagotomy	CPT4	43860
Revision of GJ anastomosis with reconstruction, with or without partial gastrectomy; with vagotomy	CPT4	43865
Open Band Port Revision	CPT4	43886
Open Band Port Removal	CPT4	43887
Open Band Port Replacement	CPT4	43888
Gastric Sleeve	CPT4	43999
Gastric Sleeve (often done as 1st step to BPD)	ICD9	43.89
Open RYGB	ICD9	44.31
Lap RYGB	ICD9	44.38
Open RYGB	ICD9	44.39
Vertical banded gastroplasty	ICD9	44.68
Other Bariatric Procedure	ICD9	44.69
Lap adjustable gastric band	ICD9	44.95
Lap Band Revision	ICD9	44.96
Lap Band Removal	ICD9	44.97
Lap Band Adjustment	ICD9	44.98
Lap Band	ICD9	S2082
Lap Band Adjustment	ICD9	S2083
Lap RYGB	ICD9	S2085

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Supplementary Table 2. New onset cohort- unadjusted and adjusted cox proportional hazard ratios for any remission

Characteristic	Any Remission (n=776)				
	No. (row %)	Hazard Ratio (95% CI)			
		Unadjusted	P-value	Full*	P-Value
Men	351 (3.6)	1.0 [Ref]		1.0 [Ref]	
Women	425 (4.9)	1.39 (1.2,1.6)	<.0001	1.09 (0.89,1.34)	0.408
Age					
- <45	56 (1.7)	1.0 [Ref]		1.0 [Ref]	
- 45-64	288 (2.9)	1.71 (1.28,2.28)	0.0002	1.85 (1.1,3.11)	0.0208
- ≥65	432 (8.6)	5.38 (4.07,7.11)	<.0001	2.9 (1.66,5.07)	0.0002
Race/Ethnicity					
- White	312 (4)	1.0 [Ref]		1.0 [Ref]	
- African American	65 (3.8)	0.93 (0.71,1.21)	0.5765	1.42 (1.01,1.99)	0.0424
- Asian	62 (3.5)	0.84 (0.64,1.11)	0.2211	0.83 (0.58,1.19)	0.3088
- Filipino	33 (2.3)	0.55 (0.38,0.78)	0.001	0.66 (0.43,1.03)	0.0672
- Latino	62 (2.2)	0.55 (0.42,0.73)	<.0001	0.96 (0.68,1.35)	0.8239
- Mixed Race	36 (4.4)	1.09 (0.77,1.54)	0.6293	1.17 (0.77,1.77)	0.4575
- Other	11 (4.4)	1.13 (0.62,2.06)	0.6872	1.56 (0.69,3.53)	0.2887
Socioeconomic Status: Neighborhood deprivation index					
- 1 st quartile (least deprived)	195 (6)	1.97 (1.55,2.5)	<.0001	1.48 (1.04,2.11)	0.0286
- 2 nd quartile	234 (4.6)	1.52 (1.2,1.91)	0.0004	1.31 (0.93,1.84)	0.1165
- 3 rd quartile	201 (3.9)	1.31 (1.03,1.66)	0.0265	1.19 (0.84,1.68)	0.3314
- 4 th quartile (most deprived)	102 (3)	1.0 [Ref]		1.0 [Ref]	
Baseline A1c (%) [mmol/mol]					
- <5.7% [<39 mmol/mol]	79 (6.2)	11.01 (6.74,17.99)	<.0001	13.14 (6.58,26.23)	<.0001
- 5.7-6.4% [39-46 mmol/mol]	283 (5.5)	9.68 (6.15,15.24)	<.0001	5.49 (2.87,10.48)	<.0001
- 6.5-7.9% [47-63 mmol/mol]	390 (4.8)	8.38 (5.35,13.14)	<.0001	1.96 (1.03,3.74)	0.0408

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- \geq 8% [\geq 64 mmol/mol]	20 (0.6)	1.0 [Ref]		1.0 [Ref]	
Diabetes medication (past 1 yr)					
- None	679 (13.4)	24.85 (10.31,59.9)	<.0001	25.8 (8.2,81.23)	<.0001
- Oral agent(s) only	92 (0.7)	1.29 (0.53,3.18)	0.5747	1.52 (0.48,4.87)	0.4786
- Any insulin	5 (0.6)	1.0 [Ref]		1.0 [Ref]	
BMI					
- <25	95 (5.9)	1.82 (1.4,2.36)	<.0001	1.2 (0.85,1.7)	0.3053
- 25-30	207 (5)	1.5 (1.21,1.86)	0.0002	1.03 (0.78,1.36)	0.847
- 30-35	131 (3.6)	1.07 (0.85,1.36)	0.5601	0.82 (0.62,1.1)	0.1903
- \geq 35	141 (3.4)	1.0 [Ref]		1.0 [Ref]	
CKD stage					
- Stage 0+1	187 (2.4)	1.0 [Ref]		1.0 [Ref]	
- Stage 2	362 (4.9)	2.04 (1.71,2.43)	<.0001	0.97 (0.74,1.27)	0.8332
- Stage 3	171 (7.9)	3.41 (2.77,4.2)	<.0001	1.17 (0.84,1.65)	0.3505
- Stage 4	14 (12.7)	6.25 (3.63,10.76)	<.0001	2.34 (1.04,5.22)	0.0389
- Stage 5	1 (20)	8.78 (1.24,62.16)	0.0297	1.33 (0.18,9.97)	0.7829
No hypertension	133 (2.8)	0.58 (0.48,0.7)	<.0001	0.91 (0.67,1.22)	0.5131
Hypertension	643 (4.7)	1.0 [Ref]		1.0 [Ref]	
No dyslipidemia	224 (4.3)	1.05 (0.9,1.23)	0.5181	1.38 (1.09,1.75)	0.0069
Dyslipidemia	552 (4.2)	1.0 [Ref]		1.0 [Ref]	
No cardiovascular disease	643 (3.9)	0.6 (0.5,0.73)	<.0001	0.85 (0.64,1.13)	0.2755
Cardiovascular disease	133 (6.2)	1.0 [Ref]		1.0 [Ref]	
No diabetic retinopathy	756 (4.3)	1.51 (0.97,2.35)	0.0711	1.18 (0.61,2.3)	0.6278
Diabetic retinopathy	20 (2.8)	1.0 [Ref]		1.0 [Ref]	
No diabetic neuropathy	679 (4.1)	0.77 (0.62,0.95)	0.0142	0.85 (0.62,1.16)	0.3013
Diabetic neuropathy	97 (5.2)	1.0 [Ref]		1.0 [Ref]	
No congestive heart failure	725 (4.1)	0.52 (0.39,0.69)	<.0001	0.91 (0.6,1.37)	0.6387
Congestive heart failure	51 (7.2)	1.0 [Ref]		1.0 [Ref]	

*Fully-adjusted model includes all variables listed in the table above