

SUPPLEMENTARY DATA

Supplementary Table S1. ICD9 codes used to define outcome and covariates

Variable	Codes and description
Dementia	ICD-9: <u>290.0x</u> Senile dementia, uncomplicated. <u>290.1x</u> Presenile dementia. <u>290.2x</u> Senile dementia with delusional or depressive features. <u>290.3x</u> Senile dementia with delirium. <u>290.4x</u> Vascular dementia. <u>294.1x</u> Dementia in conditions classified elsewhere. <u>294.2x</u> Dementia unspecified. <u>294.8x</u> Other persistent mental disorders due to conditions classified elsewhere. <u>331.0x</u> Alzheimer's disease
Severe hyperglycemia*	ICD-9: <u>250.1x</u> Diabetes with ketoacidosis. <u>250.2x</u> Diabetes with hyperosmolarity. <u>249.2x</u> Secondary diabetes mellitus with hyperosmolarity
Severe hypoglycemia*	ICD-9: <u>251.0</u> Hypoglycemic coma. <u>251.1</u> Other specified hypoglycemia. <u>251.2</u> Hypoglycemia, unspecified
Neuropathy	ICD-9: <u>354</u> Mononeuritis of upper limb and mononeuritis multiplex. <u>355</u> Mononeuritis of lower limb and unspecified site.
Nephropathy	ICD-9: <u>250.4x</u> Diabetes with renal manifestations. <u>585</u> Chronic kidney disease. <u>583.81</u> Nephritis and nephropathy, not specified as acute or chronic, in disease classified elsewhere. <u>581.81</u> Nephrotic syndrome in diseases classified elsewhere.
MI	ICD-9: <u>410.01</u> Acute myocardial infarction of anterolateral wall, initial episode of care. <u>410.11</u> Acute myocardial infarction of other anterior wall, initial episode of care. <u>410.21</u> Acute myocardial infarction of inferolateral wall, initial episode of care. <u>410.31</u> Acute myocardial infarction of inferoposterior wall, initial episode of care. <u>410.41</u> Acute myocardial infarction of other inferior wall, initial episode of care. <u>410.51</u> Acute myocardial infarction of other lateral wall, initial episode of care. <u>410.61</u> True posterior wall infarction, initial episode of care. <u>410.71</u> Subendocardial infarction, initial episode of care. <u>410.81</u> Acute myocardial infarction of other specified sites, initial episode of care. <u>410.91</u> Acute myocardial infarction of unspecified site, initial episode of care
PAD	ICD-9: <u>440.x</u> Atherosclerosis. <u>441.x</u> Aortic aneurysm and dissection. <u>442.0</u> Aneurysm of artery of upper extremity. <u>442.3</u> Aneurysm of iliac artery <u>443.81</u> Peripheral angiopathy in diseases classified elsewhere. <u>443.9</u> Peripheral vascular disease, unspecified
Stroke	ICD-9: <u>433.01</u> Occlusion basilar artery with cerebral infarction. <u>433.11</u> Carotid artery with cerebral infarction. <u>433.21</u> Vertebral artery with cerebral infarction. <u>433.31</u> Multiple and bilateral precerebral arteries with cerebral infarction. <u>443.81</u> Other precerebral artery with cerebral infarction. <u>433.91</u> Unspecified precerebral artery with cerebral infarction. <u>434.0</u> Cerebral thrombosis. <u>434.1</u> Cerebral embolism. <u>434.9</u> Cerebral artery occlusion unspecified with cerebral infarction. <u>435.0</u> Basilar artery syndrome. <u>435.1</u> Vertebral artery syndrome. <u>435.3</u> Vertebrobasilar artery syndrome. <u>435.8</u> Other specified transient cerebral ischemia's. <u>435.9</u> Unspecified transient cerebral ischemia. <u>431</u> Intracerebral hemorrhage. <u>436</u> Acute ill-defined cerebrovascular Disease

Supplementary Table 1 Footnote: *Codes only used for inpatient or emergency room; Abbreviations: Acute Myocardial Infarction (MI); Peripheral Arterial Disease (PAD)

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Supplementary Table 2. Dementia risk by majority HbA1c exposure among those aged ≥ 65 at cohort entry

	Age-adjusted	Adjusted for race and sex	Adjusted for race, sex, baseline health conditions*	Adjusted for race, sex, baseline health conditions,* and frequency of HbA1c measurement
>50% of HbA1c measurements	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
HbA1c <6%	1.76 (0.81, 3.79)	1.66 (0.76, 3.59)	1.44 (0.64, 3.23)	1.49 (0.66, 3.33)
HbA1c 6-6.9%	0.50 (0.29, 0.88)	0.47 (0.27, 0.83)	0.48 (0.27, 0.84)	0.48 (0.27, 0.85)
Hba1c 7-7.9%	0.55 (0.35, 0.86)	0.60 (0.38, 0.94)	0.60 (0.38, 0.94)	0.60 (0.38, 0.95)
HbA1c 8-8.9%	1.98 (1.19, 3.28)	2.00 (1.20, 3.32)	2.03 (1.22, 3.39)	2.04 (1.22, 3.41)
HbA1c $\geq 9\%$	1.78 (0.97, 3.24)	1.76 (0.95, 3.24)	1.79 (0.96, 3.33)	1.67 (0.87, 3.18)

Table S2 Footnote – Estimates obtained from Cox proportional hazards models with age as time scale among a subset of participants who were aged 65 and older at cohort entry (n=1,082 participants). *Each of the following baseline health conditions was adjusted for in the model: history of stroke, myocardial infarction, nephropathy, neuropathy, severe diabetic retinopathy, peripheral arterial disease, hyperglycemic events and hypoglycemic events. Abbreviations: Hemoglobin A1c (HbA1c); Hazards Ratio (HR); Confidence Interval (CI)