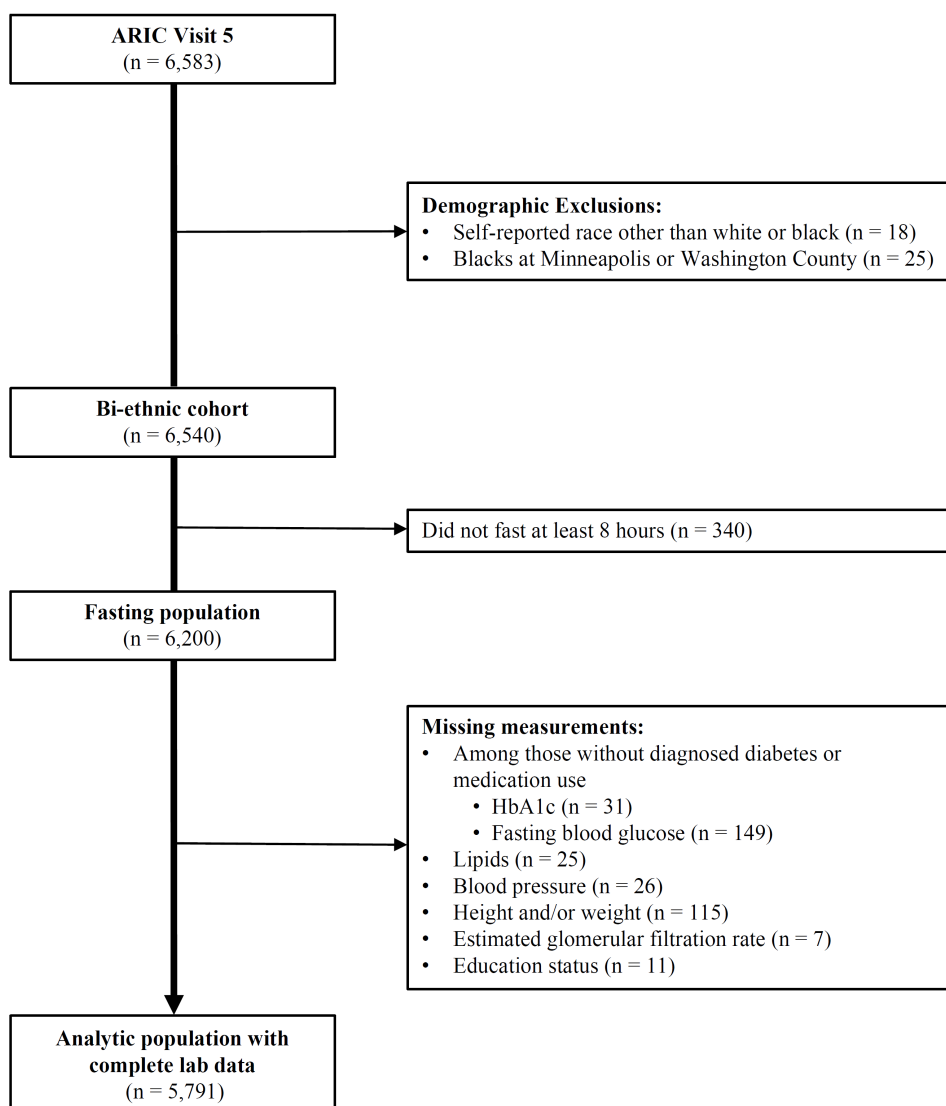


SUPPLEMENTARY DATA

Supplementary Figure 1. Analytic population



SUPPLEMENTARY DATA

Supplementary Table 1. Baseline characteristics at ARIC Visit 5 (2011-13) by glycemic status (no diabetes, prediabetes, undiagnosed diabetes, duration < 1 year, short- and long-duration diabetes)

	No diabetes	Prediabetes	Diabetes			
			Undiagnosed [†]	Duration < 1 year [‡]	Short duration [§]	Long-standing
N	2100	1737	89	162	851	852
Age, mean (SD)	75.4 (5.0)	75.7 (5.2)	76.0 (5.2)	75.5 (5.3)	75.2 (5.0)	75.9 (5.2)
Male, %	42.1	39.8	43.8	50.0	41.5	43.7
Race-Center						
Minneapolis-whites	36.4	31.5	33.7	31.5	23.0	20.7
Jackson-blacks	12.2	20.8	43.8	22.8	24.8	32.4
Washington-whites	26.4	22.1	10.1	26.5	34.2	27.0
Forsyth-blacks	0.7	2.1	1.1	1.9	1.5	2.9
Forsyth-whites	24.2	23.5	11.2	17.3	16.5	17.0
Education attainment, %						
Less than high school	9.1	13.1	21.3	20.4	18.4	21.4
High school/GED	55.7	57.3	60.7	59.9	58.5	54.7
College graduate	35.2	29.6	18.0	19.8	23.0	23.9
Current smoker, %						
No	91.6	90.9	89.9	91.4	91.4	90.7
Yes	5.2	6.2	10.1	8.0	5.3	5.0
Unknown	3.2	2.9	0.0	0.6	3.3	4.2
Body mass index category, mean (SD), kg/m ²						
<25	37.1	25.7	15.7	18.5	14.7	14.0
25-29.9	39.6	41.5	42.7	37.7	37.1	36.9
30+	23.3	32.8	41.6	43.8	48.2	49.2
Family history of diabetes, %	18.3	21.8	21.3	24.7	31.5	40.4
Hemoglobin A1c, mean (SD) %	5.4 (0.2)	5.9 (0.2)	6.8 (0.4)	6.1 (0.7)	6.3 (0.9)	7.0 (1.3)
Fasting blood glucose, mean (SD) mg/dL	101.2 (11.3)	107.2 (12.5)	127.6 (25.4)	118.4 (19.7)	127.1 (32.8)	139.4 (44.9)
hs-CRP, median (IQR), mg/L	1.7 (0.8-3.6)	2.0 (1.0-4.4)	2.9 (1.3-5.1)	2.5 (1.1-5.3)	2.3 (1.1-4.8)	2.3 (1.1-4.8)

SUPPLEMENTARY DATA

Blood pressure, mean (SD), mm Hg

Systolic	130.0 (18.0)	130.2 (17.5)	131.3 (18.3)	130.6 (18.0)	129.4 (19.0)	132.3 (19.6)
Diastolic	66.8 (10.6)	67.0 (10.5)	66.4 (10.2)	66.1 (10.8)	65.7 (11.0)	64.3 (10.8)
Total cholesterol, mean (SD), mg/dL	189.8 (41.4)	184.7 (40.7)	184.5 (41.1)	172.5 (36.3)	168.1 (37.7)	167.2 (44.8)
HDL-cholesterol, mean (SD), mg/dL	55.7 (15.0)	52.6 (13.0)	108.9 (34.6)	97.7 (31.3)	48.1 (12.3)	47.5 (11.9)
Estimated GFR, mean (SD), mL/min per 1.73m ²	67.6 (16.7)	66.5 (18.0)	67.0 (16.8)	64.8 (18.5)	64.5 (18.3)	59.4 (20.3)
Stage 3+ Chronic Kidney Disease, %	30.3	35.7	32.6	39.5	42.1	51.3
Prevalent cardiovascular disease	16.7	22.4	29.2	26.5	29.5	36.4
Number of medications*, mean (SD)	8.4 (5.0)	8.6 (4.6)	8.4 (5.0)	9.6 (5.0)	10.2 (4.9)	11.1 (5.1)
Hypertension medication use, %	62.9	72.9	82.0	82.1	89.5	91.8
Cholesterol-lowering medication use, %	41.9	57.3	53.9	64.8	70.2	72.8
Diabetes medication use, %						
Oral(s) only	-	-	0.0	25.3	36.8	50.4
Insulin only	-	-	0.0	0.6	1.7	12.9
Insulin and oral	-	-	0.0	0.6	1.4	13.7
Unknown	-	-	0.0	0.0	0.3	0.6

* 4.3% missing

† diabetes diagnosed at ARIC visit 5

‡ Diabetes diagnosed within 1 year of visit 5 exam

§ diabetes duration less than the median duration of 10 years among those with diabetes duration \geq 1 year

¶ diabetes duration greater than or equal to the median duration of 8.6 years among those with diabetes duration \geq 1 year

SUPPLEMENTARY DATA

Supplementary Table 2. Hazard ratios (95% confidence interval) for all-cause and cardiovascular mortality associated with alternative definitions of diabetes status.

	Model 1	Model 2	Model 3
<i>All-cause mortality</i>			
Diabetes Status - Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	0.84 (0.70, 1.02)	0.83 (0.69, 1.00)	0.86 (0.72, 1.05)
Newly diagnosed diabetes	1.10 (0.83, 1.47)	1.07 (0.81, 1.43)	1.07 (0.80, 1.43)
Short duration diabetes	1.25 (1.00, 1.56)	1.21 (0.97, 1.52)	1.14 (0.91, 1.43)
Long duration diabetes	1.89 (1.55, 2.30)	1.82 (1.49, 2.22)	1.56 (1.26, 1.91)
Diabetes Status - HbA1c and Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	0.96 (0.77, 1.18)	0.94 (0.76, 1.16)	0.97 (0.78, 1.20)
Newly diagnosed diabetes	1.19 (0.89, 1.60)	1.15 (0.86, 1.55)	1.14 (0.84, 1.53)
Short duration diabetes	1.34 (1.05, 1.72)	1.30 (1.01, 1.67)	1.22 (0.94, 1.57)
Long duration diabetes	2.03 (1.61, 2.54)	1.95 (1.54, 2.45)	1.66 (1.31, 2.10)
<i>Cardiovascular mortality</i>			
Diabetes Status - Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	0.83 (0.58, 1.18)	0.82 (0.57, 1.17)	0.86 (0.60, 1.23)
Newly diagnosed diabetes	1.22 (0.73, 2.04)	1.18 (0.70, 1.98)	1.13 (0.67, 1.92)
Short duration diabetes	1.15 (0.76, 1.75)	1.12 (0.73, 1.72)	1.00 (0.65, 1.53)
Long duration diabetes	2.07 (1.44, 2.96)	1.99 (1.38, 2.89)	1.58 (1.08, 2.29)
Diabetes Status - HbA1c and Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	1.04 (0.69, 1.57)	1.03 (0.68, 1.56)	1.08 (0.71, 1.64)
Newly diagnosed diabetes	1.44 (0.83, 2.49)	1.39 (0.80, 2.42)	1.32 (0.75, 2.32)
Short duration diabetes	1.33 (0.82, 2.16)	1.30 (0.80, 2.13)	1.16 (0.71, 1.89)
Long duration diabetes	2.40 (1.55, 3.70)	2.32 (1.49, 3.61)	1.83 (1.17, 2.86)

Model 1: age, sex, and race-center

Model 2: Model 1 + education attainment, family history of diabetes

Model 3: Model 2 + current smoking, systolic blood pressure, hypertension medication use, total cholesterol, HDL-cholesterol, cholesterol-lowering medication use, log transformed high sensitivity C-reactive protein, estimated glomerular filtration rate with spline knot at 60mL/min per 1.73m², prevalent cardiovascular disease

SUPPLEMENTARY DATA

Supplementary Table 3. Hazard ratios (95% confidence interval) for all-cause and cardiovascular mortality associated with alternative definitions of diabetes status categorized as no diabetes, prediabetes, undiagnosed diabetes, diabetes diagnosed within the past year, short-duration diabetes, and diabetes of long duration.

	Model 1	Model 2	Model 3
<i>All-cause mortality</i>			
Diabetes Status - Hemoglobin A1c			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	1.07 (0.89, 1.28)	1.06 (0.88, 1.27)	1.01 (0.84, 1.22)
Undiagnosed diabetes	1.27 (0.74, 2.19)	1.20 (0.70, 2.07)	1.13 (0.66, 1.95)
Diabetes, duration < 1 year	1.61 (1.10, 2.35)	1.54 (1.05, 2.26)	1.41 (0.96, 2.07)
Short duration diabetes	1.43 (1.16, 1.77)	1.39 (1.12, 1.73)	1.26 (1.01, 1.57)
Long duration diabetes	2.16 (1.79, 2.62)	2.09 (1.72, 2.54)	1.71 (1.40, 2.10)
Diabetes Status - Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	0.84 (0.70, 1.02)	0.83 (0.69, 1.00)	0.86 (0.72, 1.04)
Undiagnosed diabetes	0.92 (0.64, 1.34)	0.91 (0.63, 1.32)	0.93 (0.64, 1.35)
Diabetes, duration < 1 year	1.40 (0.96, 2.06)	1.34 (0.91, 1.97)	1.28 (0.87, 1.89)
Short duration diabetes	1.25 (1.00, 1.56)	1.21 (0.97, 1.52)	1.14 (0.91, 1.43)
Long duration diabetes	1.89 (1.55, 2.30)	1.82 (1.49, 2.23)	1.56 (1.27, 1.92)
Diabetes Status - HbA1c and Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	0.96 (0.77, 1.18)	0.94 (0.76, 1.16)	0.97 (0.78, 1.20)
Undiagnosed diabetes	1.03 (0.72, 1.48)	1.00 (0.70, 1.44)	1.01 (0.70, 1.45)
Diabetes, duration < 1 year	1.51 (1.01, 2.25)	1.43 (0.96, 2.15)	1.37 (0.91, 2.06)
Short duration diabetes	1.34 (1.05, 1.72)	1.30 (1.01, 1.67)	1.22 (0.94, 1.57)
Long duration diabetes	2.03 (1.61, 2.55)	1.95 (1.55, 2.45)	1.66 (1.31, 2.11)
<i>Cardiovascular mortality</i>			
Diabetes Status - Hemoglobin A1c			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	1.06 (0.75, 1.51)	1.05 (0.74, 1.50)	1.00 (0.70, 1.43)
Undiagnosed diabetes	1.99 (0.87, 4.53)	1.89 (0.81, 4.38)	1.70 (0.72, 3.98)
Diabetes, duration < 1 year	1.41 (0.67, 2.98)	1.34 (0.63, 2.85)	1.15 (0.53, 2.50)
Short duration diabetes	1.33 (0.88, 2.00)	1.30 (0.85, 1.97)	1.09 (0.72, 1.66)
Long duration diabetes	2.39 (1.68, 3.40)	2.31 (1.60, 3.33)	1.72 (1.18, 2.51)
Diabetes Status - Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	0.83 (0.58, 1.18)	0.82 (0.57, 1.17)	0.86 (0.60, 1.23)
Undiagnosed diabetes	1.22 (0.65, 2.27)	1.19 (0.64, 2.23)	1.20 (0.64, 2.24)
Diabetes, duration < 1 year	1.22 (0.57, 2.61)	1.15 (0.54, 2.47)	1.05 (0.48, 2.28)
Short duration diabetes	1.15 (0.76, 1.75)	1.12 (0.73, 1.72)	1.00 (0.65, 1.53)

SUPPLEMENTARY DATA

Long duration diabetes	2.07 (1.44, 2.96)	1.99 (1.38, 2.89)	1.57 (1.08, 2.29)
Diabetes Status - HbA1c and Fasting blood glucose			
No diabetes	1 (reference)	1 (reference)	1 (reference)
Prediabetes	1.04 (0.69, 1.57)	1.03 (0.68, 1.56)	1.08 (0.71, 1.64)
Undiagnosed diabetes	1.46 (0.78, 2.71)	1.42 (0.76, 2.65)	1.38 (0.73, 2.60)
Diabetes, duration < 1 year	1.42 (0.64, 3.13)	1.34 (0.60, 2.98)	1.22 (0.54, 2.77)
Short duration diabetes	1.33 (0.82, 2.16)	1.30 (0.80, 2.12)	1.16 (0.71, 1.89)
Long duration diabetes	2.40 (1.55, 3.70)	2.31 (1.49, 3.61)	1.83 (1.17, 2.86)

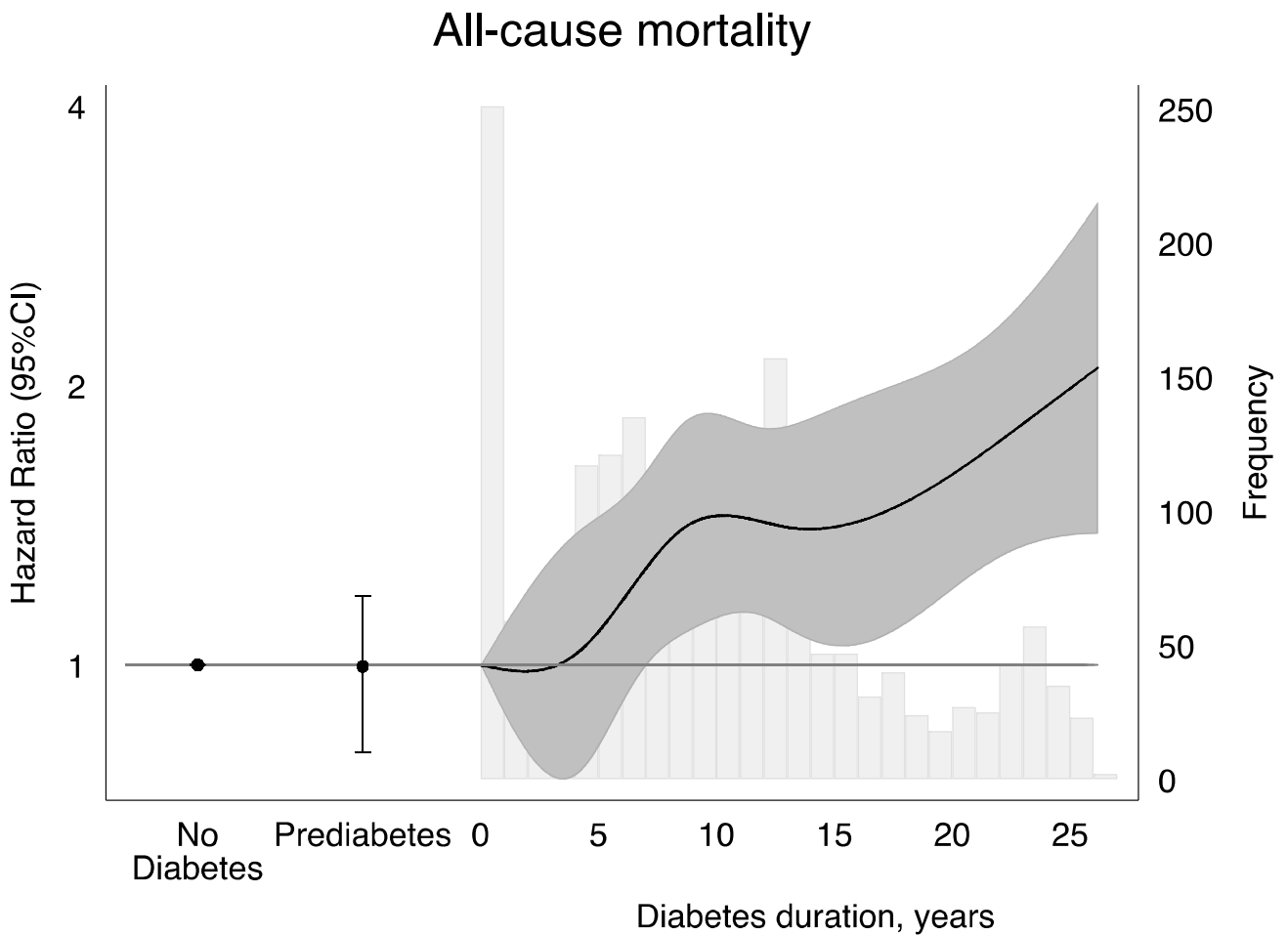
Model 1: age, sex, and race-center

Model 2: Model 1 + education attainment, family history of diabetes

Model 3: Model 2 + current smoking, systolic blood pressure, hypertension medication use, total cholesterol, HDL-cholesterol, cholesterol-lowering medication use, log transformed high sensitivity C-reactive protein, estimated glomerular filtration rate with spline knot at 60mL/min per 1.73m², prevalent cardiovascular disease

SUPPLEMENTARY DATA

Supplementary Figure 2. Hazard ratios of all-cause mortality associated with diabetes duration adjusted for age, sex, race, education attainment, current smoking, family history of diabetes, systolic blood pressure, hypertension medication use, total cholesterol, HDL-cholesterol, cholesterol-lowering medication use, log transformed high sensitivity C-reactive protein, estimated glomerular filtration rate with spline knot at 60mL/min per 1.73m², and prevalent cardiovascular disease. Diabetes duration was modeled as a restricted cubic spline with five knots at the 5th, 25th, 50th, 75th, and 95th percentile among those with diabetes). Reference group for all comparisons is those without diabetes.



SUPPLEMENTARY DATA

Supplementary Figure 3. Hazard ratios of cardiovascular mortality associated with diabetes duration adjusted for age, sex, race, education attainment, current smoking, family history of diabetes, systolic blood pressure, hypertension medication use, total cholesterol, HDL-cholesterol, cholesterol-lowering medication use, log transformed high sensitivity C-reactive protein, estimated glomerular filtration rate with spline knot at 60mL/min per 1.73m², and prevalent cardiovascular disease. Diabetes duration was modeled as a restricted cubic spline with five knots at the 5th, 25th, 50th, 75th, and 95th percentile among those with diabetes). Reference group for all comparisons is those without diabetes.

