Online-only Supplemental Material

Supplemental Figure S1: Distribution of categories of HbA1c, systolic and diastolic blood pressures, and total cholesterol among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018

Supplemental Table S1: Trends in prevalence of complications (extended outcomes) among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018

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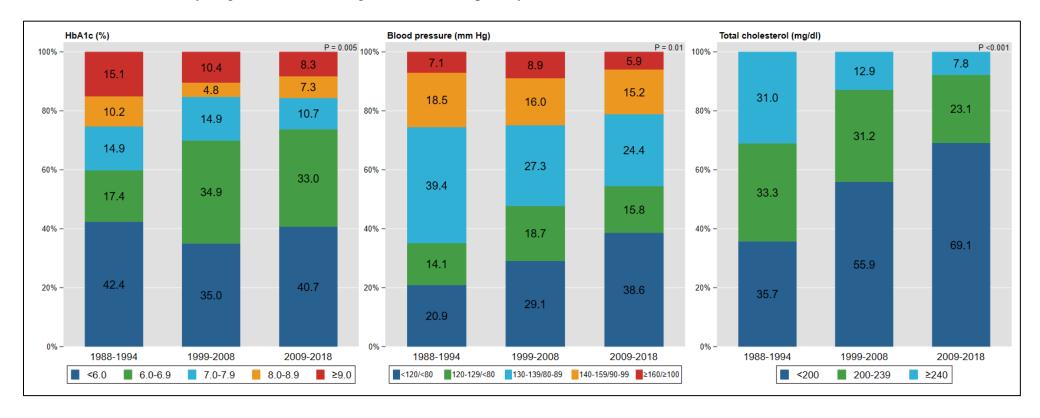
Supplemental Table S3: Age-sex-race/ethnicity adjusted trends in the prevalence, treatment, and control of vascular risk factors among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018

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Supplemental Table S5: Trends in the prevalence, treatment, and control of risk factors among US adults with newly diagnosed diabetes (diagnosed within the past year), NHANES 1988-2018

Supplemental Table S6: Trends in the prevalence of complications (extended outcomes) among US adults with newly diagnosed diabetes (diagnosed within the past year), NHANES 1988-2018

Supplemental Figure S1: Distribution of categories of HbA1c, systolic and diastolic blood pressures, and total cholesterol among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018

Note: Estimates are weighted percentages based on the National Health and Nutrition Examination Survey (NHANES). P-values are from chi-square tests. HbA1c categories in SI units are <6.0% (<42mmol/mol), 6.0-6.9% (42-52 mmol/mol), 7.0-7.9% (53-63 mmol/mol), 8.0-8.9% (64-74 mmol/mol), ≥9.0% (≥75 mmol/mol).

Supplemental Table S1: Trends in prevalence of complications (extended outcomes) among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018

	1988-1994	1999-2008	2009-2018	P for trend
Any chronic kidney disease	40.4 (31.8-49.5)	28.0 (23.8-32.7)	25.5 (21.7-29.7)	0.003
Percentage of chronic kidney cases treated with ACE-I/ARB	13.6 (6.7-25.4)	50.7 (39.2-62.1)	59.9 (50.6-68.5)	<0.001
Albuminuria (albumin-to-creatine ratio≥30 mg/g)	38.9 (30.7-47.9)	21.0 (17.2-25.3)	18.7 (15.6-22.3)	<0.001
Percentage of albuminuria cases treated with ACE-I/ARB	12.4 (5.8-24.7)	43.5 (32.2-55.6)	59.0 (48.5-68.8)	<0.001
Reduced eGFR (eGFR<60 ml/mi/1.73 m$^{2)}$)	7.5 (4.4-12.5)	10.2 (7.4-13.9)	9.9 (7.3-13.3)	0.30
Percentage of reduced eGFR cases treated with ACE-I/ARB	27.5 (9.7-57.2)	68.3 (48.6-83.1)	65.0 (48.3-78.6)	0.02
Retinopathy (≥1 retinal microaneurysms or blot hemorrhages) [*]	13.2 (6.7-24.3)	12.1 (6.8-20.4)	-	0.86
Any lower extremity disease[†]	-	23.6 (17.8-30.5)	-	-
Peripheral neuropathy (≥1 insensate area via monofilament testing)	-	14.5 (9.8-21.1)	-	-
Peripheral artery disease (ankle-brachial-index<0.9)	-	9.2 (5.7-14.7)	-	-
Self-reported foot or leg ulcer	-	6.3 (2.5-15.3)	-	-
Any self-reported cardiovascular disease	19.0 (13.5-26.1)	14.8 (11.6-18.6)	16.5 (12.6-21.3)	0.64
History of congestive heart failure	6.9 (3.9-11.8)	6.4 (4.3-9.5)	5.1 (3.2-7.8)	0.35
History of stroke	6.8 (3.7-12.2)	6.4 (4.4-9.1)	6.4 (4.5-9.1)	0.95
History of heart attack	10.2 (6.1-16.4)	6.6 (4.8-9.1)	9.4 (6.3-13.7)	0.90

Abbreviations: NHANES, National Health and Nutrition Examination Survey.

Figures are presented as percentages (with 95% confidence intervals).

[*] Retinopathy data were only available for adults aged 40+ during the 1988-1994 and 2005-2008 NHANES survey cycles.

[†] Lower- extremity disease data were only available for adults aged 40+ during the 1999-2004 NHANES survey cycles.

Supplemental Table S2: Unadjusted and adjusted odds ratios (95% confidence intervals) for albuminuria among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018[*]

	1988-1994 (ref)	1999-2008	2009-2018	P for trend
Model 1: Unadjusted	3.13 (1.99-4.92)	1.28 (0.89-1.83)	1 (ref)	<0.001
Model 2: +Age, sex, race/ethnicity[†]	3.31 (2.15-5.10)	1.31 (0.91-1.90)	1 (ref)	<0.001
Model 3: +Education[‡]	2.98 (1.93-4.62)	1.29 (0.88-1.90)	1 (ref)	<0.001
Model 4: +HbA1c[§]	2.80 (1.79-4.37)	1.27 (0.86-1.87)	1 (ref)	<0.001
Model 5: +Blood pressure[||]	2.62 (1.56-4.39)	1.16 (0.80-1.68)	1 (ref)	<0.001
Model 6: +Total cholesterol[¶]	2.27 (1.34-3.86)	1.13 (0.78-1.64)	1 (ref)	0.005
Model 7: +Weight status[#]	2.60 (1.48-4.55)	1.20 (0.83-1.74)	1 (ref)	0.002

Abbreviations: NHANES, National Health and Nutrition Examination Survey; NH, Non-Hispanic; BMI, Body mass index

Figures are presented as odds ratios (with 95% confidence intervals).

[*] Albuminuria was defined as an albumin-to-creatine ratio≥30 mg/g.

[†] Model 2: +age (20-44, 45-64, 65+), sex (male/female), and race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other)

[‡] Model 3: Model 2 + education (high school or less, some college, college graduate)

[§] Model 4: Model 3 + HbA1c categories (<6.0%, 6.0-6.9%, 7.0-7.9%, 8.0-8.9%, ≥9.0%) [<42mmol/mol, 42-52 mmol/mol, 53-63 mmol/mol, 64-74 mmol/mol, ≥75 mmol/mol])

[||] Model 5: Model 4 + blood pressure categories (<120/<80 mm Hg, 120-129 & <80 mm Hg, 130-139/80-89 mm Hg, 140-159/90-99 mm Hg, ≥160/≥100 mm Hg)

[¶] Model 6: Model 5 + total cholesterol categories (<200 mg/dl, 200-239 mg/dl, ≥240 mg/dl)

[#] Model 7: Model 6 + weight status groups (normal, BMI<25 kg/m^2; overweight, BMI 25-29.9 kg/m^2; obese, BMI≥30 kg/m^2)

Supplemental Table S3: Age-sex-race/ethnicity adjusted trends in the prevalence, treatment, and control of vascular risk factors among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018

	1988-1994	1999-2008	2009-2018	P for trend
Glucose control				
HbA1c, %-points, median	6.3 (5.7-6.8)	6.2 (6.1-6.4)	6.2 (6.0-6.4)	0.60
HbA1c, %-points, mean	7.0 (6.6-7.3)	6.8 (6.5-7.1)	6.7 (6.5-6.8)	0.03
Treated, %				
Insulin or oral medication use	73.1 (65.7-79.4)	73.1 (67.2-78.3)	72.6 (67.1-77.6)	0.78
Oral medication use only	60.5 (52.5-67.9)	66.9 (60.9-72.3)	64.7 (58.7-70.4)	0.44
Any insulin use	12.6 (8.8-17.8)	6.3 (3.5-11.0)	7.9 (5.8-10.7)	0.03
HbA1c <7.0 %-points (<53 mmol/mol), %	59.5 (49.7-68.7)	70.3 (63.5-76.3)	73.8 (68.9-78.1)	0.002
Blood pressure				
Systolic blood pressure, mm Hg median	129.4 (127.6-131.2)	127.9 (126.1-129.6)	124.3 (122.2-126.4)	0.001
Diastolic blood pressure, mm Hg, median	76.4 (74.9-77.9)	72.4 (71.1-73.7)	72.4 (70.8-74.0)	<0.001
Systolic blood pressure, mm Hg, mean	130.5 (128.1-132.9)	129.1 (126.9-131.3)	125.6 (123.9-127.2)	0.002
Diastolic blood pressure, mm Hg, mean	77.4 (76.0-78.8)	71.8 (70.0-73.7)	72.3 (70.9-73.8)	<0.001
Treated, %	39.8 (30.8-49.4)	51.6 (46.0-57.2)	54.9 (49.1-60.5)	0.01
Hypertension (≥140/90 mm Hg or med use), %	49.2 (41.1-57.3)	59.5 (53.5-65.3)	60.9 (55.1-66.4)	0.03
Treated[*]	81.3 (69.7-89.2)	86.4 (80.6-90.6)	90.0 (85.8-93.0)	0.08
Treated and controlled (blood pressure<140/90 mm Hg) [*]	47.2 (36.1-58.6)	58.9 (51.1-66.2)	66.3 (59.4-72.6)	0.01
Hypertension (≥130/80 mm Hg or med use), %	71.8 (62.5-79.6)	71.2 (65.5-76.3)	70.5 (64.5-75.9)	0.87
Treated[*]	55.8 (44.7-66.4)	72.1 (65.7-77.6)	77.4 (71.7-82.2)	0.001
Treated and controlled (blood pressure<130/80 mm Hg) [*]	9.2 (4.9-16.8)	28.5 (23.0-34.7)	36.2 (30.6-42.3)	<0.001
Lipids				
Total cholesterol, mg/dl, median	210.7 (200.6-220.9)	192.7 (185.2-200.3)	180.2 (175.0-185.5)	<0.001
Total cholesterol, mg/dl, mean	219.0 (209.9-228.1)	198.4 (192.4-204.4)	182.8 (178.5-187.1)	<0.001
Treated, %	14.4 (8.4-23.6)	35.1 (29.5-41.2)	42.9 (37.2-48.7)	<0.001
Hyperlipidemia (total cholesterol≥240 mg/dl or med use), %	39.9 (30.2-50.5)	45.8 (40.0-51.7)	49.9 (44.5-55.4)	0.08
Treated[‡]	33.6 (21.1-48.8)	72.2 (64.6-78.6)	84.5 (79.4-88.5)	<0.001
Treated and controlled (total cholesterol <240 mg/dl) [‡]	18.0 (8.8-33.2)	44.8 (35.5-54.5)	68.9 (62.3-74.9)	<0.001
Hyperlipidemia (total cholesterol≥200 mg/dl or med use), %	71.3 (65.3-76.7)	65.6 (60.5-70.4)	66.3 (61.4-70.8)	0.16
Treated[‡]	19.2 (11.3-30.7)	51.4 (44.0-58.7)	63.7 (56.7-70.2)	<0.001
Treated and controlled (total cholesterol <200 mg/dl) [‡]	9.7 (4.5-20.0)	29.7 (22.2-38.5)	50.4 (43.7-57.1)	<0.001
All three risk factors controlled				

HbA1c<7.0% (<53 mmol/mol), blood pressure <130/80 mm Hg, total cholesterol <200 mg/dl, %	9.4 (6.1-14.3)	18.2 (13.6-23.9)	32.8 (26.7-39.5)	<0.001
HbA1c<7.0% (<53 mmol/mol), blood pressure <140/90 mm Hg, total cholesterol <240 mg/dl, %	31.4 (23.5-40.6)	48 (41.4-54.8)	56.3 (51.3-61.2)	<0.001

Abbreviations: NHANES, National Health and Nutrition Examination Survey.

Predictive margins (with 95% confidence intervals) were estimated using regression models that controlled for age (20-44, 45-64, 65+), sex (male/female), and race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other).

[*] Computed for those with hypertension.

[‡] Computed for those with hyperlipidemia.

Supplemental Table S4: Age-sex-race/ethnicity adjusted trends in the prevalence of complications (extended outcomes) among US adults with newly diagnosed diabetes (diagnosed within the past 2 years), NHANES 1988-2018

	1988-1994	1999-2008	2009-2018	P for trend
Any chronic kidney disease	40.4 (32.3-49.1)	28.2 (24.1-32.8)	25.3 (21.4-29.6)	0.002
Percentage of chronic kidney cases treated with ACE-I/ARB	14.2 (7.4-25.4)	50.2 (38.7-61.7)	58.1 (49.3-66.5)	<0.001
Albuminuria (albumin-to-creatine ratio≥30 mg/g)	39.0 (31.1-47.6)	21.0 (17.2-25.3)	18.6 (15.5-22.2)	<0.001
Percentage of albuminuria cases treated with ACE-I/ARB	12.6 (6.2-24.0)	44.3 (32.2-57.0)	57.8 (48.0-66.9)	<0.001
Reduced eGFR (eGFR<60 ml/mi/1.73 m$^{2)}$)	7.4 (4.9-11.1)	10.3 (7.8-13.6)	9.9 (7.3-13.4)	0.24
Percentage of reduced eGFR cases treated with ACE-I/ARB*	33.0 (13.2-61.4)	68.5 (50.3-82.3)	60.2 (42.5-75.5)	0.03
Retinopathy (≥1 retinal microaneurysms or blot hemorrhages)[†]	13.1 (7.1-22.9)	12.5 (6.7-22.0)		0.94
Any lower extremity disease[‡]	-	23.6 (17.8-30.5)	-	-
Peripheral neuropathy (≥1 insensate area via monofilament testing)	-	14.5 (9.8-21.1)	-	-
Peripheral artery disease (ankle-brachial-index<0.9)	-	9.2 (5.7-14.7)	-	-
Self-reported foot or leg ulcer	-	6.3 (2.5-15.3)	-	-
Any self-reported cardiovascular disease	19.3 (13.7-26.5)	15.1 (12.3-18.5)	16.0 (12.1-20.9)	0.51
History of congestive heart failure	6.9 (4.2-11.3)	6.5 (4.5-9.5)	5.0 (3.2-7.6)	0.27
History of stroke	6.9 (3.8-12.2)	6.6 (4.6-9.2)	6.2 (4.3-8.8)	0.83
History of heart attack	10.2 (6.1-16.8)	6.9 (5.1-9.2)	9.1 (6-13.5)	0.81

Abbreviations: NHANES, National Health and Nutrition Examination Survey.

Predictive margins (with 95% confidence intervals) were estimated using logistic regression models that controlled for age (20-44, 45-64, 65+), sex (male/female), and race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other) unless otherwise noted.
*Age was entered as a linear (rather than categorial) term in the logistic regression model due to empty cells.
[†]Retinopathy data were only available for adults aged 40+ during the 1988-1994 and 2005-2008 NHANES survey cycles.
[‡]Lower- extremity disease data were only available for adults aged 40+ during the 1999-2004 NHANES survey cycles and not adjusted.

Supplemental Table S5: Trends in the prevalence, treatment, and control of risk factors among US adults with newly diagnosed diabetes (diagnosed within the past year), NHANES 1988-2018

	1988-1994	1999-2008	2009-2018	P for trend
Glucose control				
HbA1c, %-points, median	6.3 (5.6-8.1)	6.2 (5.7-7.1)	6.2 (5.7-7.1)	0.73
HbA1c, %-points, mean	6.7 (6.3-7.1)	6.6 (6.4-6.8)	6.6 (6.3-6.8)	0.28
Treated, %	69.4 (60.5-77.0)	73.2 (66.4-79.0)	70.6 (62.8-77.4)	0.83
Insulin or oral medication use	56.0 (45.6-66.0)	68.8 (61.9-74.9)	63.4 (55.6-70.5)	0.25
Oral medication use only	13.3 (7.6-22.3)	4.4 (2.5-7.6)	7.2 (4.5-11.4)	0.09
Any insulin use	66.1 (53.7-76.7)	74.3 (67.8-79.9)	77.2 (71.4-82.1)	0.05
HbA1c <7.0 %-points (<53 mmol/mol), %	69.4 (60.5-77.0)	73.2 (66.4-79.0)	70.6 (62.8-77.4)	0.83
Blood pressure				
Systolic blood pressure, mm Hg median	130.0 (119.0-137.0)	126.7(118.0-137.3)	124.0 (114.0-135.3)	0.01
Diastolic blood pressure, mm Hg, median	78.0 (73.0-85.0)	72.7 (64.0-82.0)	72.0 (64.7-79.0)	0.001
Systolic blood pressure, mm Hg, mean	129.4 (126.3-132.5)	129.1 (126.4-131.9)	124.5 (122.5-126.6)	0.01
Diastolic blood pressure, mm Hg, mean	78.1 (76.2-80.1)	71.2 (68.4-74.0)	71.3 (69.8-72.9)	<0.001
Treated, %	38.2 (25.7-52.6)	55.7 (48.7-62.6)	53.5 (45.7-61.1)	0.09
Hypertension (≥140/90 mm Hg or med use), %	48.1 (35.4-61.1)	63.3 (56.2-69.8)	58.0 (50.0-65.6)	0.23
Treated[*]	79.4 (62.7-89.9)	87.2 (80.4-91.9)	92.2 (88.9-94.6)	0.05
Treated and controlled (blood pressure<140/90 mm Hg) [*]	52.0 (34.5-69.0)	63.9 (54.8-72.0)	71.5 (63.9-78.0)	0.05
Hypertension (≥130/80 mm Hg or med use), %	70.4 (58.4-80.1)	74.3 (67.7-80.0)	67.4 (59.6-74.4)	0.72
Treated[*]	54.3 (37.4-70.3)	74.3 (66.4-80.9)	79.3 (72.0-85.1)	0.01
Treated and controlled (blood pressure<130/80 mm Hg)[*]	11.0 (5.3-21.2)	30.5 (23.9-38.0)	38.9 (30.9-47.5)	<0.001
Lipids				
Total cholesterol, mg/dl, median	212.0 (187.0-246.0)	192.0 (166.0-218.0)	181.0 (153.0-208.0)	0.004
Total cholesterol, mg/dl, mean	216.0 (206.9-225.0)	196.3 (189.7-203.0)	180.4 (176.2-184.6)	<0.001
Treated, %	15.7 (8.9-26.5)	33.8 (27.2-41.1)	43.0 (35.3-51.0)	<0.001
Hyperlipidemia (total cholesterol≥240 mg/dl or med use), %	43.6 (32.6-55.3)	40.8 (34.3-47.7)	47.8 (40.4-55.3)	0.61
Treated[‡]	32.6 (18.3-51.1)	74.6 (65.6-82.0)	88.3 (82.3-92.5)	<0.001
Treated and controlled (total cholesterol <240 mg/dl) [‡]	23.6 (10.3-45.2)	53.4 (42.2-64.3)	71.6 (63.1-78.8)	<0.001
Hyperlipidemia (total cholesterol≥200 mg/dl or med use), %	70.8 (61.7-78.4)	63.2 (57.4-68.7)	64.1 (58.2-69.7)	0.17
Treated[‡]	20.7 (11.7-33.8)	50.8 (41.5-60.1)	66.3 (56.6-74.7)	<0.001
Treated and controlled (total cholesterol <200 mg/dl) [‡]	14.0 (6.1-29.2)	32.7 (24.1-42.5)	51.9 (42.2-61.5)	<0.001
All three risk factors controlled				

HbA1c<7.0% (<53 mmol/mol), blood pressure <130/80 mm Hg, total cholesterol <200 mg/dl, %	11.5 (6.9-18.4)	19.8 (14.8-26.0)	37.5 (29.6-46.0)	<0.001
HbA1c<7.0% (<53 mmol/mol), blood pressure <140/90 mm Hg, total cholesterol <240 mg/dl, %	36.2 (25.7-48.3)	53.6 (45.9-61.1)	64.0 (58.4-69.3)	<0.001

Abbreviations: NHANES, National Health and Nutrition Examination Survey.

Figures are presented as percentages or means (with 95% confidence intervals) or median (with interquartile range).

[*] Computed for those with hypertension.

[‡] Computed for those with hyperlipidemia.

Supplemental Table S6: Trends in the prevalence of complications (extended outcomes) among US adults with newly diagnosed diabetes (diagnosed within the past year), NHANES 1988-2018

	1988-1994	1999-2008	2009-2018	P for trend
Any chronic kidney disease	39.6 (30.0-50.1)	26.8 (21.1-33.4)	23.4 (18.6-29.1)	0.007
Percentage of chronic kidney cases treated with ACE-I/ARB	11.4 (4.8-24.8)	53.1 (39.1-66.6)	63.4 (51.1-74.2)	<0.001
Albuminuria (albumin-to-creatine ratio≥30 mg/g)	37.9 (28.7-48.1)	19.9 (14.7-26.3)	17.1 (12.8-22.4)	<0.001
Percentage of albuminuria cases treated with ACE-I/ARB	9.2 (3.4-22.4)	46.1 (31.2-61.6)	64.5 (51.7-75.5)	<0.001
Reduced eGFR (eGFR<60 ml/mi/1.73 m$^{2)}$)	5.5 (2.7-10.9)	9.9 (6.6-14.8)	9.8 (6.5-14.4)	0.16
Percentage of reduced eGFR cases treated with ACE-I/ARB	35.2 (9.1-74.7)	70.5 (49.2-85.5)	63.7 (42.5-80.7)	0.22
Retinopathy (≥1 retinal microaneurysms or blot hemorrhages)[*]	8.5 (3.7-18.2)	7.2 (2.8-17.1)	-	0.77
Any lower extremity disease[‡]	-	22.1 (15.7-30.3)	-	-
Peripheral neuropathy (≥1 insensate area via monofilament testing)	-	15.4 (9.7-23.5)	-	-
Peripheral artery disease (ankle-brachial-index<0.9)	-	8.1 (4.6-13.8)	-	-
Self-reported foot or leg ulcer	-	5.8 (2.0-15.7)	-	-
Any self-reported cardiovascular disease	22.1 (14.6-31.9)	13.9 (10.4-18.3)	20.4 (15.0-27.2)	0.83
History of congestive heart failure	8.5 (4.5-15.6)	5.0 (3.0-8.1)	5.5 (3.2-9.5)	0.21
History of stroke	9.1 (4.5-17.7)	7.0 (4.5-10.6)	6.9 (4.3-10.9)	0.49
History of heart attack	10.0 (5.2-18.4)	6.9 (4.5-10.3)	13.0 (8.6-19.2)	0.42

Abbreviations: NHANES, National Health and Nutrition Examination Survey.

Figures are presented as percentages (with 95% confidence intervals).

[*] Retinopathy data were only available for adults aged 40+ during the 1988-1994 and 2005-2008 NHANES survey cycles.

[‡] Lower- extremity disease data were only available for adults aged 40+ during the 1999-2004 NHANES survey cycles.