Supplemental Online Content

Wang L, Li X, Wang Z, et al. Trends in prevalence of diabetes and control of risk factors in diabetes among US adults, 1999-2018. *JAMA*. doi:10.1001/jama.2021.9883

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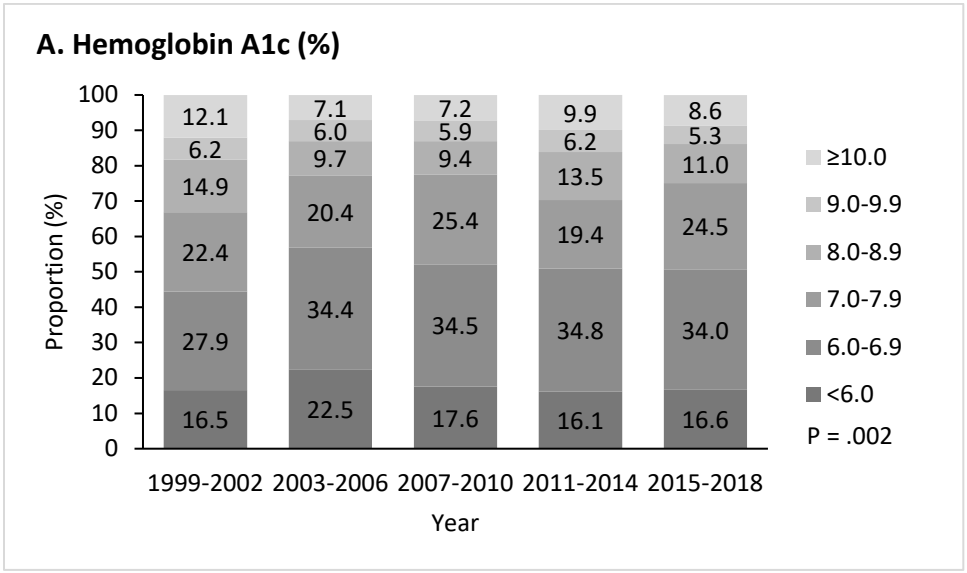
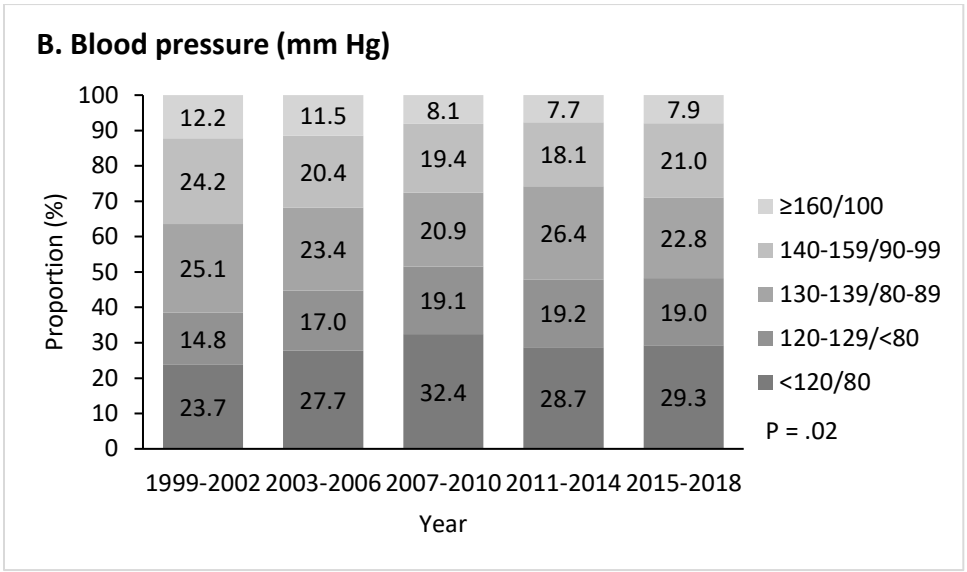
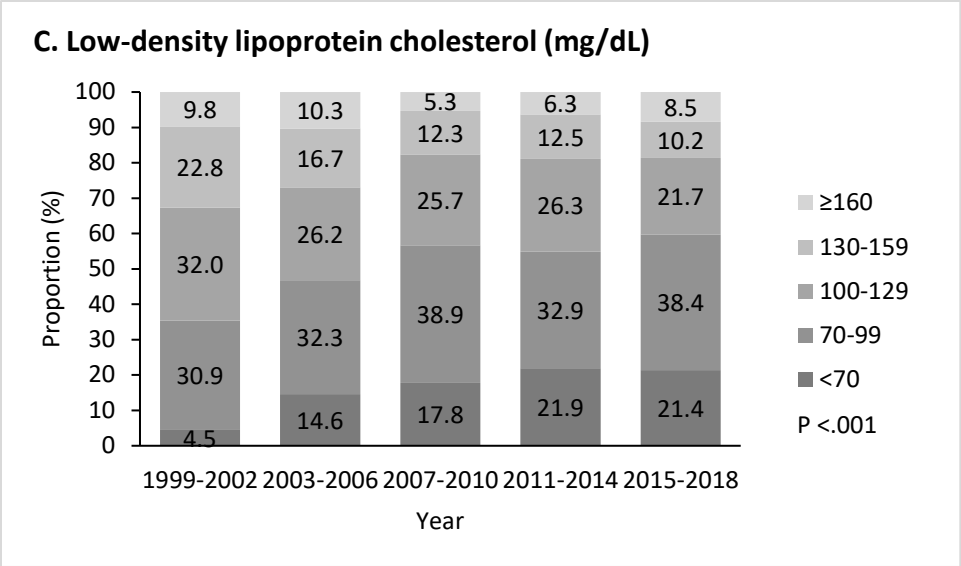
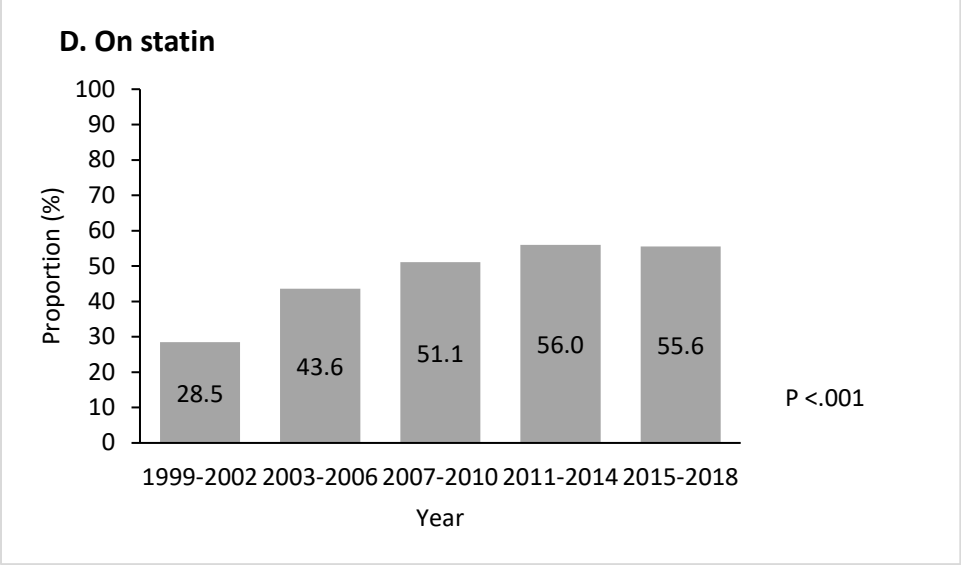
eFigure. Trends in distribution of risk factors among US adults with diagnosed diabetes

Shown are trends in distribution of hemoglobin A1c level (panel A), blood pressure level (panel B), low-density lipoprotein cholesterol level (panel C) and statin use (panel D). Two adjacent cycles were combined to produce robust estimates because this analysis was conducted among adults with diagnosed diabetes only. Weights were appropriately adjusted to obtain nationally representative estimates. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in 1999-2018 years in the National Health and Nutrition Examination Survey using the age groups of 18-44 years, 45-64 years, and 65 years or greater. The sample sizes were 6052 for panel A, 6077 for panel B, 2451 for panel C and 6678 for panel D. P values were calculated using Rao-Scott chi-square tests. A p value <.05 indicates that the distribution differed significantly across years.









eTable 1. Trends in prevalence of diagnosed diabetes among US adults

	Adults with diagnosed diabetes, % (95% CI)[a]											
	1999-2000 (n = 2375)	2001-2002 (n = 2712)	2003-2004 (n = 2539)	2005-2006 (n = 2415)	2007-2008 (n = 3018)	2009-2010 (n = 3261)	2011-2012 (n = 2900)	2013-2014 (n = 3035)	2015-2016 (n = 2923)	2017-2018 (n = 2965)	Relative percent change per 2-year cycle[b]	*P* for trend[b]
No. with diagnosed diabetes	481	508	544	507	760	727	706	724	843	878		
Overall prevalence	6.8 (5.7-7.9)	7.3 (6.6-8.1)	8.4 (7.3-9.5)	8.0 (7.1-8.9)	8.9 (7.3-10.4)	8.7 (7.6-9.7)	9.4 (8.2-10.6)	10.0 (9.2-10.8)	10.8 (9.2-12.3)	11.0 (9.8-12.1)	5.2 (4.3 to 6.0)	<.001
Age group, y												
18-44	1.6 (1.1-2.1)	2.7 (1.8-3.6)	2.1 (1.5-2.6)	2.8 (1.9-3.7)	2.3 (1.7-3.0)	2.1 (1.5-2.7)	2.6 (1.9-3.2)	2.7 (2.2-3.2)	3.4 (2.5-4.2)	2.8 (2.1-3.4)	4.7 (0.9 to 8.6)	.02
45-64	8.4 (6.7-10.0)	8.4 (6.5-10.3)	10.0 (8.2-11.9)	9.7 (7.9-11.6)	11.1 (8.2-14.0)	10.9 (8.9-12.9)	11.9 (9.8-13.9)	13.6 (11.1-16.2)	14.0 (11.8-16.2)	13.7 (10.7-16.7)	6.4 (5.1 to 7.7)	<.001
≥65	16.0 (12.9-19.0)	16.2 (14.0-18.4)	19.9 (16.1-23.7)	17.1 (15.1-19.1)	19.9 (17.1-22.7)	19.7 (16.9-22.4)	20.9 (17.9-23.9)	20.6 (17.7-23.5)	22.1 (17.6-26.6)	25.1 (21.6-28.6)	4.7 (3.1 to 6.4)	<.001
Sex												
Men	7.2 (5.6-8.7)	7.6 (6.8-8.5)	8.4 (7.1-9.6)	7.6 (6.3-9.0)	9.0 (7.8-10.2)	9.4 (7.6-11.2)	10.1 (9.1-11.0)	10.4 (9.3-11.5)	12.7 (10.3-15.2)	12.5 (10.7-14.3)	6.2 (4.9 to 7.6)	<.001
Women	6.5 (5.3-7.7)	7.0 (5.8-8.2)	8.4 (7.2-9.5)	8.4 (7.0-9.8)	8.8 (6.6-10.9)	8.0 (7.3-8.6)	8.9 (7.2-10.6)	9.7 (8.5-10.9)	9.2 (7.6-10.7)	9.7 (7.9-11.6)	3.8 (1.6 to 6.0)	.003
Race/ethnicity[c]												
Non-Hispanic White	5.3 (4.1-6.5)	6.0 (5.5-6.6)	7.3 (6.2-8.3)	6.4 (5.5-7.3)	7.5 (5.6-9.5)	6.9 (5.6-8.2)	7.7 (6.4-9.0)	8.7 (7.7-9.7)	8.8 (7.6-10.0)	10.0 (8.5-11.5)	5.9 (4.2 to 7.6)	<.001
Non-Hispanic Black	14.2 (11.3-17.0)	11.2 (8.8-13.6)	12.8 (10.5-15.0)	14.6 (12.6-16.5)	17.0 (14.8-19.3)	15.4 (12.8-17.9)	15.4 (13.5-17.4)	14.8 (13.3-16.2)	15.8 (13.5-18.2)	12.5 (9.9-15.1)	1.2 (-2.0 to 4.5)	.41
Mexican American	10.0 (8.3-11.8)	12.2 (9.9-14.5)	13.1 (10.3-15.9)	13.2 (10.8-15.6)	12.7 (10.7-14.7)	13.8 (11.1-16.4)	14.7 (10.3-19.2)	14.7 (12.4-17.0)	19.1 (16.2-21.9)	15.4 (12.4-18.3)	5.4 (2.9 to 7.9)	<.001
Other	10.7 (6.8-14.6)	11.8 (7.5-16.1)	11.3 (7.1-15.4)	12.5 (7.5-17.5)	10.3 (7.2-13.4)	13.1 (9.9-16.4)	12.3 (9.2-15.4)	12.4 (10.2-14.7)	12.6 (9.7-15.6)	13.2 (11.7-14.7)	2.0 (0.7 to 3.4)	.009
Education level[d]												
Less than High School	10.7 (8.7-12.8)	10.1 (8.6-11.6)	12.1 (10.9-13.3)	12.6 (10.0-15.3)	13.1 (11.2-15.0)	12.6 (10.6-14.6)	12.8 (9.6-16.1)	12.7 (11.4-14.0)	16.3 (13.6-19.0)	15.1 (12.2-17.9)	3.6 (1.5 to 5.7)	.004
High school graduate	6.6 (5.0-8.2)	7.5 (6.1-8.8)	7.6 (6.0-9.3)	8.4 (7.0-9.8)	8.7 (5.8-11.7)	7.9 (6.0-9.7)	11.1 (8.1-14.1)	11.7 (10.0-13.3)	10.2 (8.2-12.2)	11.4 (8.5-14.3)	6.5 (4.0 to 9.0)	<.001
Some college	5.8 (3.1-8.5)	6.5 (5.3-7.6)	8.3 (6.1-10.4)	7.2 (5.7-8.6)	9.1 (6.6-11.6)	9.5 (7.8-11.1)	8.6 (6.3-10.8)	11.6 (9.6-13.5)	11.8 (9.3-14.2)	11.6 (9.3-13.9)	8.1 (5.7 to 10.7)	<.001
College graduate or above	2.7 (1.9-3.6)	5.3 (3.4-7.2)	6.2 (4.6-7.8)	5.8 (4.0-7.6)	5.0 (3.7-6.4)	5.8 (3.8-7.8)	6.9 (4.8-9.0)	5.8 (4.3-7.3)	7.7 (5.6-9.9)	8.4 (6.3-10.5)	7.9 (2.6 to 13.6)	.009
Weight group (body mass index range, kg/m^2)[e]												
Normal weight (18.5-24.9)	3.5 (2.1-4.9)	4.1 (2.8-5.5)	4.8 (2.3-7.2)	3.9 (2.8-5.0)	4.7 (3.2-6.1)	3.5 (2.8-4.3)	4.8 (3.4-6.2)	4.1 (3.0-5.3)	4.9 (3.1-6.7)	4.4 (2.8-6.0)	1.8 (-1.9 to 5.6)	.30
Overweight (25.0-29.9)	6.2 (4.2-8.1)	6.3 (4.8-7.7)	5.9 (4.1-7.6)	7.1 (5.8-8.5)	5.6 (4.5-6.6)	6.4 (4.7-8.1)	6.9 (5.7-8.0)	7.9 (6.5-9.3)	8.7 (7.0-10.5)	8.6 (7.0-10.3)	4.6 (1.7 to 7.6)	.006
Class I obesity (30.0-34.9)	8.1 (6.2-10.0)	9.7 (7.4-12.0)	10.0 (8.3-11.8)	10.3 (7.6-12.9)	12.8 (10.3-15.4)	11.5 (9.1-13.9)	11.5 (8.8-14.1)	13.9 (11.1-16.6)	14.5 (11.6-17.3)	12.9 (10.6-15.1)	5.2 (2.9 to 7.5)	<.001
Class II obesity (35.0-39.9)	14.3 (10.6-18.0)	11.8 (7.6-15.9)	20.7 (15.9-25.4)	14.2 (10.7-17.7)	17.5 (11.6-23.5)	16.5 (12.8-20.1)	16.3 (12.3-20.2)	20.2 (15.1-25.4)	15.3 (11.1-19.6)	18.0 (13.8-22.3)	1.9 (-2.1 to 6.1)	.31
Class III obesity (≥40.0)	23.2 (17.9-28.6)	19.2 (12.4-26.0)	22.0 (13.9-30.0)	15.3 (11.9-18.7)	26.5 (17.1-35.9)	20.0 (16.0-24.0)	26.6 (19.9-33.4)	20.2 (12.9-27.5)	19.7 (14.7-24.7)	28.2 (18.8-37.5)	1.4 (-3.8 to 6.9)	.55

Abdominal obesity status (waist circumference range, cm)[f]												
No (≤102 cm in men, ≤88 cm in women	3.3 (2.3-4.4)	4.6 (3.4-5.7)	4.5 (3.1-6.0)	3.6 (2.9-4.3)	4.3 (3.1-5.4)	3.8 (2.7-4.8)	4.7 (3.2-6.1)	4.1 (3.2-5.0)	6.5 (4.4-8.6)	5.6 (4.0-7.1)	3.9 (-0.4 to 8.4)	.07
Yes (>102 cm in men, >88 cm in women)	9.9 (8.0-11.8)	9.5 (8.5-10.4)	10.4 (8.5-12.3)	10.9 (9.3-12.5)	11.6 (10.0-13.3)	11.1 (9.9-12.4)	11.9 (10.2-13.6)	13.4 (12.4-14.4)	12.7 (11.0-14.3)	13.8 (12.0-15.6)	4.6 (3.4 to 5.9)	<.001
Insurance status[g]												
Uninsured	16.9 (12.0-21.9)	7.9 (2.9-12.9)	5.2 (2.5-7.8)	4.7 (2.7-6.7)	9.8 (6.0-13.7)	6.4 (3.7-9.0)	10.2 (6.7-13.6)	8.1 (3.0-13.1)	11.5 (7.5-15.6)	10.6 (4.9-16.4)	-3.0 (-20.5 to 18.5)	.77
Insured	6.5 (5.3-7.7)	7.3 (6.6-8.1)	8.4 (7.4-9.4)	8.3 (7.1-9.5)	8.9 (7.3-10.5)	8.8 (7.7-10.0)	9.3 (8.1-10.5)	10.4 (9.4-11.4)	10.9 (9.2-12.5)	11.2 (9.9-12.5)	5.4 (4.4 to 6.5)	<.001

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. All estimates were age standardized to the 2017-2018 National Health and Nutrition Examination Survey non-pregnant adult population using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Estimates were obtained from the Joinpoint Regression Program. A heteroscedastic and uncorrelated error joinpoint regression model was fitted allowing one joinpoint. The joinpoint location, if existed, was identified using a grid search. The best-fitting model was selected by conducting 4499 permutation tests based on a Monte Carlo method, adjusting for multiple tests. Parameters were estimated using weighted least squares, with weights proportional to the inverse of the variance of the prevalence rate at each cycle.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Forty-two (0.1%) participants refused to report or did not know their education level. Education information was missing for one participant.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 537 (1.9%) participants among 27,837 participants included from the examination population.

[f] Waist circumference was missing for 1276 (4.6%) participants among 27,837 participants included from the examination population.

[g] Of the 28,143 participants included from the interview population, 127 (0.5%) had missing insurance data. For the uninsured subgroup, the trend changed in 2003-2004. The presented estimate was the average relative percent change during the entire study period. The relative percent change per 2-year cycle between 1999-2000 and 2003-2004 was -43.3% (95% CI, -80.9% to 68.3%; *P* for trend=.24) and between 2003-2004 and 2017-2018 was 13.1% (95% CI, -0.6% to 28.8%; *P* for trend=0.06).

eTable 2. Trends in prevalence of undiagnosed diabetes among US adults

	Adults with undiagnosed diabetes, % (95% CI)[a]											
	1999-2000 (n = 2375)	2001-2002 (n = 2712)	2003-2004 (n = 2539)	2005-2006 (n = 2415)	2007-2008 (n = 3018)	2009-2010 (n = 3261)	2011-2012 (n = 2900)	2013-2014 (n = 3035)	2015-2016 (n = 2923)	2017-2018 (n = 2965)	Relative percent change per 2-year cycle[b]	*P* for trend[b]
No. with undiagnosed diabetes	127	167	136	131	235	232	207	176	179	225		
Overall prevalence	3.0 (2.4-3.6)	3.6 (2.9-4.4)	3.5 (2.7-4.2)	2.9 (1.8-3.9)	3.9 (3.4-4.4)	3.6 (2.7-4.5)	3.1 (2.4-3.7)	2.7 (2.3-3.2)	3.1 (2.5-3.6)	3.4 (2.6-4.1)	-1.6 (-4.9 to 1.9)	.32
Age group, y												
18-44	1.1 (-0.2-2.3)	0.9 (0.6-1.2)	1.2 (0.5-1.9)	1.1 (0.4-1.8)	1.2 (0.6-1.7)	1.0 (0.7-1.3)	1.7 (1.1-2.4)	1.0 (0.7-1.2)	1.6 (0.9-2.4)	1.8 (1.1-2.6)	5.9 (-1.4 to 13.7)	.10
45-64	4.7 (3.2-6.2)	4.2 (2.3-6.0)	4.5 (2.9-6.2)	3.1 (1.3-5.0)	4.4 (3.3-5.4)	4.9 (2.8-7.0)	4.4 (3.0-5.8)	3.6 (2.6-4.6)	3.7 (2.1-5.3)	4.8 (2.7-6.8)	-1.6 (-4.7 to 1.7)	.30
≥65	4.7 (2.8-6.5)	8.9 (6.7-11.1)	6.8 (4.5-9.0)	6.6 (3.7-9.5)	9.4 (7.3-11.6)	7.3 (5.2-9.4)	3.8 (2.5-5.2)	5.3 (3.8-6.9)	5.2 (3.5-6.9)	4.4 (2.7-6.1)	-5.8 (-12.8 to 1.8)	.11
Sex												
Men	3.4 (2.5-4.4)	4.8 (3.5-6.2)	4.6 (3.3-5.9)	3.6 (1.8-5.3)	5.0 (3.8-6.2)	5.1 (3.7-6.6)	3.5 (2.4-4.7)	3.6 (2.6-4.5)	3.4 (2.6-4.2)	3.3 (1.8-4.7)	-2.5 (-6.9 to 2.1)	.24
Women	2.7 (1.9-3.5)	2.6 (1.9-3.4)	2.4 (1.7-3.2)	2.2 (1.2-3.2)	3.0 (2.3-3.7)	2.3 (1.5-3.0)	2.6 (1.7-3.5)	2.0 (1.4-2.6)	2.6 (1.7-3.5)	3.5 (2.3-4.7)	0.3 (-4.0 to 4.8)	.88
Race/ethnicity[c]												
Non-Hispanic White	3.1 (2.3-3.8)	3.1 (2.4-3.9)	3.1 (2.1-4.1)	2.7 (1.4-4.0)	3.3 (2.5-4.2)	3.2 (2.0-4.4)	1.9 (1.2-2.6)	2.2 (1.5-2.9)	2.7 (2.0-3.4)	2.5 (1.4-3.6)	-3.2 (-6.8 to 0.4)	.07
Non-Hispanic Black	3.3 (2.0-4.7)	5.8 (3.6-8.1)	3.1 (2.4-3.9)	4.2 (2.8-5.7)	5.8 (3.7-8.0)	3.7 (2.2-5.3)	5.2 (3.0-7.4)	3.4 (1.9-4.8)	3.0 (2.2-3.8)	5.8 (4.1-7.5)	1.2 (-6.0 to 8.9)	.72
Mexican American	3.4 (2.3-4.5)	4.2 (2.1-6.2)	3.6 (2.1-5.1)	5.4 (4.2-6.7)	5.8 (4.9-6.7)	7.4 (4.8-10.1)	5.7 (4.4-7.0)	3.9 (2.2-5.6)	5.3 (3.6-7.1)	6.2 (4.3-8.2)	4.6 (-1.2 to 10.8)	.11
Other	2.8 (1.2-4.4)	4.2 (1.6-6.7)	5.5 (2.2-8.8)	0.9 (0.0-1.9)	4.9 (2.3-7.5)	3.8 (1.7-5.9)	6.0 (4.6-7.4)	4.2 (2.7-5.8)	3.9 (2.6-5.2)	4.2 (2.6-5.8)	2.1 (-7.2 to 12.3)	.63
Education level[d]												
Less than High School	4.4 (2.8-6.0)	6.0 (4.4-7.5)	4.6 (3.4-5.8)	3.7 (1.6-5.7)	4.8 (3.6-6.1)	4.3 (3.8-4.9)	5.7 (4.3-7.0)	3.3 (1.9-4.6)	3.9 (2.5-5.4)	4.5 (3.2-5.9)	-2.1 (-6.4 to 2.5)	.32
High school graduate	4.0 (2.7-5.2)	3.2 (1.6-4.8)	3.0 (2.2-3.9)	3.8 (1.9-5.7)	5.3 (3.8-6.8)	4.1 (1.9-6.3)	3.6 (2.1-5.1)	2.9 (2.1-3.8)	3.7 (2.2-5.3)	3.5 (2.5-4.4)	-0.9 (-5.8 to 4.2)	.68
Some college	2.0 (0.5-3.5)	3.4 (1.8-5.0)	3.5 (2.2-4.7)	2.7 (1.3-4.1)	4.3 (2.8-5.7)	3.2 (2.1-4.3)	2.3 (1.7-3.0)	3.2 (2.1-4.2)	2.7 (1.7-3.6)	2.9 (1.9-3.9)	-2.2 (-7.7 to 3.7)	.41
College graduate or above	1.5 (0.2-2.9)	2.1 (0.6-3.5)	3.0 (0.8-5.2)	1.7 (0.4-3.1)	1.4 (0.3-2.6)	3.1 (1.0-5.2)	1.9 (0.8-3.0)	1.7 (0.7-2.8)	2.7 (1.1-4.3)	3.2 (1.7-4.7)	4.8 (-2.7 to 12.9)	.18
Weight group (body mass index range, kg/m^2)[e]												
Normal weight (18.5-24.9)	1.3 (0.4-2.3)	1.0 (0.4-1.7)	1.7 (0.8-2.6)	1.2 (0.4-1.9)	1.0 (0.4-1.6)	2.0 (0.3-3.7)	1.1 (0.4-1.9)	1.2 (0.6-1.9)	1.5 (0.9-2.2)	1.1 (0.4-1.8)	0.3 (-5.0 to 5.9)	.90
Overweight (25.0-29.9)	3.2 (2.0-4.4)	3.0 (1.8-4.1)	3.6 (2.6-4.6)	2.0 (0.6-3.3)	3.4 (2.5-4.4)	2.9 (1.9-3.8)	2.3 (1.3-3.2)	2.1 (1.3-2.8)	1.2 (0.5-1.9)	2.3 (0.8-3.8)	-7.0 (-12.6 to -1.1)	.03
Class I obesity (30.0-34.9)	5.4 (3.1-7.6)	5.9 (4.0-7.8)	5.2 (3.2-7.3)	3.2 (1.4-4.9)	5.2 (3.4-7.1)	4.4 (3.0-5.9)	3.9 (1.7-6.0)	3.5 (2.1-4.9)	5.7 (4.3-7.0)	3.4 (2.4-4.4)	-2.9 (-7.9 to 2.3)	.23
Class II obesity (35.0-39.9)	3.0 (0.9-5.2)	5.1 (2.3-8.0)	4.1 (1.2-6.9)	7.4 (1.6-13.1)	8.4 (5.4-11.3)	7.5 (4.6-10.3)	5.0 (2.4-7.7)	4.9 (3.2-6.6)	4.9 (2.3-7.4)	7.6 (3.9-11.2)	2.1 (-6.7 to 11.8)	.61
Class III obesity (≥40.0)	6.1 (1.6-10.6)	13.8 (7.2-20.3)	2.8 (0.9-4.7)	9.8 (5.1-14.6)	11.4 (6.8-16.0)	6.6 (4.4-8.7)	11.6 (7.0-16.2)	7.6 (3.0-12.2)	5.3 (2.9-7.7)	8.9 (4.8-13.0)	-2.1 (-13.4 to 10.7)	.70

Abdominal obesity status (waist circumference range, cm)[f]												
No (≤102 cm in men, ≤88 cm in women	1.3 (0.6-2.0)	1.5 (0.9-2.2)	2.2 (1.1-3.3)	1.0 (0.4-1.6)	1.6 (0.9-2.2)	2.7 (1.1-4.4)	1.6 (1.0-2.2)	1.4 (0.9-1.9)	1.6 (0.9-2.3)	1.7 (0.6-2.7)	0.5 (-5.6 to 6.9)	.87
Yes (>102 cm in men, >88 cm in women)	4.7 (3.7-5.6)	5.4 (4.2-6.5)	4.4 (3.3-5.6)	4.3 (2.5-6.2)	5.5 (4.6-6.4)	4.2 (3.3-5.0)	4.3 (3.3-5.3)	3.7 (2.9-4.4)	3.8 (3.0-4.5)	4.5 (3.3-5.7)	-2.9 (-6.1 to 0.4)	.07
Insurance status[g]												
Uninsured	3.0 (1.3-4.7)	4.3 (1.4-7.2)	2.9 (1.5-4.4)	3.3 (1.3-5.4)	4.3 (1.8-6.9)	4.6 (2.5-6.7)	6.7 (4.3-9.0)	3.7 (0.7-6.7)	4.0 (2.0-6.0)	5.7 (3.1-8.2)	6.8 (0.1 to 13.9)	.047
Insured	2.9 (2.3-3.5)	3.4 (2.7-4.1)	3.3 (2.5-4.1)	2.8 (1.6-3.9)	3.6 (2.9-4.4)	3.4 (2.3-4.4)	2.6 (1.8-3.3)	2.6 (2.2-3.1)	3.1 (2.6-3.6)	3.2 (2.3-4.2)	-0.9 (-3.7 to 1.9)	.47

[a] Undiagnosed diabetes was defined as having a hemoglobin A1c level of 6.5% or higher or fasting plasma glucose level of 126 mg/dL or higher among those without self-reported diabetes. All estimates were age standardized to the 2017-2018 National Health and Nutrition Examination Survey non-pregnant adult population using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Estimates were obtained from the Joinpoint Regression Program. A heteroscedastic and uncorrelated error joinpoint regression model was fitted allowing one joinpoint. The joinpoint location, if existed, was identified using a grid search. The best-fitting model was selected by conducting 4499 permutation tests based on a Monte Carlo method, adjusting for multiple tests. Parameters were estimated using weighted least squares, with weights proportional to the inverse of the variance of the prevalence rate at each cycle.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Forty-two (0.1%) participants refused to report or did not know their education level. Education information was missing for one participant.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 537 (1.9%) participants among 27,837 participants included from the examination population.

[f] Waist circumference was missing for 1276 (4.6%) participants among 27,837 participants included from the examination population.

[g] Of the 28,143 participants included from the interview population, 127 (0.5%) had missing insurance data.

eTable 3. Trends in percent of diabetes that was undiagnosed among US adults

	Adults with undiagnosed diabetes among those with diabetes, % (95% CI)[a]											
	1999-2000 (n=608)	2001-2002 (n=675)	2003-2004 (n=680)	2005-2006 (n=638)	2007-2008 (n=995)	2009-2010 (n=959)	2011-2012 (n=913)	2013-2014 (n=900)	2015-2016 (n=1022)	2017-2018 (n=1103)	Relative percent change per 2-year cycle[b]	*P* for trend[b]
No. with undiagnosed diabetes	127	167	136	131	235	232	207	176	179	225		
Overall percent	31.0 (26.1-36.0)	33.1 (28.3-37.9)	29.6 (24.1-35.0)	26.2 (18.5-33.9)	30.5 (26.2-34.8)	29.5 (25.7-33.3)	24.1 (20.2-28.0)	21.4 (18.1-24.8)	21.8 (17.8-25.8)	23.3 (18.9-27.8)	-4.6 (-6.8 to -2.3)	.002
Age group, y												
18-44	39.7 (10.0-69.4)	25.3 (17.8-32.9)	37.0 (24.2-49.8)	27.3 (11.1-43.6)	33.2 (22.0-44.5)	32.4 (24.4-40.4)	40.0 (29.7-50.4)	26.3 (19.7-32.9)	32.7 (22.2-43.2)	40.0 (29.3-50.6)	2.2 (-2.8 to 7.4)	.36
45-64	36.0 (27.8-44.3)	33.2 (22.6-43.9)	31.1 (21.7-40.4)	24.4 (13.1-35.7)	28.1 (22.7-33.6)	30.9 (24.1-37.8)	26.9 (20.9-33.0)	20.8 (14.6-26.9)	20.9 (13.1-28.7)	25.8 (16.6-34.9)	-4.9 (-7.6 to -2.1)	.004
≥65	22.6 (15.5-29.6)	35.6 (28.6-42.5)	25.3 (19.3-31.4)	27.8 (19.5-36.1)	32.1 (25.6-38.7)	27.0 (20.9-33.2)	15.5 (10.3-20.8)	20.6 (16.0-25.1)	19.0 (12.1-25.8)	14.9 (9.5-20.3)	-6.7 (-12.1 to -1.1)	.03
Sex[c]												
Men	32.5 (24.2-40.8)	38.5 (31.6-45.3)	35.9 (27.8-44.0)	31.6 (18.9-44.3)	35.4 (29.8-41.1)	35.1 (30.6-39.7)	25.7 (19.9-31.5)	25.8 (19.8-31.7)	21.0 (15.8-26.1)	21.2 (13.4-29.0)	-7.1 (-11.0 to -3.1)	<.001
Women	29.7 (23.7-35.6)	27.5 (20.3-34.7)	22.8 (17.0-28.6)	20.3 (12.4-28.1)	25.3 (17.7-32.9)	22.2 (16.3-28.0)	22.2 (15.8-28.6)	16.8 (11.6-22.0)	22.4 (15.0-29.8)	25.2 (19.9-30.4)	-1.4 (-7.6 to 5.2)	.67
Race/ethnicity[d]												
Non-Hispanic White	37.0 (29.3-44.7)	33.8 (28.7-38.9)	30.2 (22.4-37.9)	29.5 (18.0-41.0)	30.3 (23.0-37.6)	31.6 (24.8-38.4)	20.1 (13.9-26.3)	20.3 (14.4-26.2)	22.9 (16.4-29.4)	19.7 (12.5-26.9)	-6.3 (-8.9 to -3.7)	<.001
Non-Hispanic Black	19.7 (14.4-25.0)	34.2 (23.4-44.9)	19.7 (15.3-24.0)	22.2 (17.0-27.5)	25.5 (19.2-31.9)	20.6 (12.2-29.0)	24.9 (19.2-30.5)	19.3 (11.9-26.6)	14.9 (10.2-19.5)	31.4 (22.9-39.9)	0.6 (-5.6 to 7.1)	.84
Mexican American	25.4 (18.0-32.9)	25.6 (15.2-36.0)	21.2 (13.7-28.8)	29.3 (23.0-35.6)	32.2 (27.3-37.0)	35.9 (26.2-45.6)	26.6 (19.7-33.4)	21.0 (13.2-28.9)	21.4 (15.7-27.0)	29.6 (20.4-38.7)	-0.9 (-6.2 to 4.8)	.72
Other	20.2 (12.1-28.2)	24.7 (11.9-37.5)	33.6 (14.7-52.5)	7.4 (-0.9-15.7)	33.6 (22.8-44.4)	22.9 (12.8-32.9)	32.6 (25.4-39.9)	26.0 (17.9-34.1)	23.7 (18.3-29.2)	24.9 (19.0-30.7)	0 (-6.0 to 6.3)	.99
Education level[e]												
Less than High School	29.0 (21.7-36.3)	36.2 (28.9-43.5)	26.9 (21.2-32.6)	23.0 (13.3-32.6)	27.2 (21.8-32.6)	25.8 (22.4-29.3)	30.3 (23.3-37.3)	20.6 (13.5-27.8)	19.3 (13.3-25.2)	21.8 (15.0-28.7)	-4.5 (-7.9 to -0.9)	.02
High school graduate	37.4 (28.1-46.7)	29.9 (19.5-40.2)	27.5 (20.3-34.7)	31.7 (21.0-42.4)	38.3 (28.4-48.2)	34.1 (23.7-44.4)	23.7 (13.6-33.8)	20.3 (15.7-24.9)	24.9 (15.3-34.5)	23.5 (16.5-30.6)	-5.3 (-9.5 to -0.8)	.03
Some college	24.3 (4.7-43.9)	34.7 (24.5-44.9)	30.2 (19.4-40.9)	27.6 (16.8-38.3)	31.8 (23.4-40.3)	25.3 (18.2-32.4)	20.2 (14.4-26.1)	21.5 (15.2-27.8)	18.2 (12.2-24.2)	20.1 (13.8-26.3)	-7.2 (-10.2 to -4.1)	<.001
College graduate or above	31.2 (15.1-47.3)	27.9 (12.9-42.9)	33.0 (15.4-50.7)	22.3 (8.4-36.2)	21.0 (8.4-33.7)	34.3 (25.0-43.7)	22.2 (12.5-31.8)	23.8 (12.5-35.1)	25.6 (11.6-39.7)	28.3 (18.4-38.2)	-1.3 (-6.1 to 3.8)	.56
Weight group (body mass index range, kg/m^2)[f]												
Normal weight (18.5-24.9)	28.5 (14.3-42.6)	15.7 (9.0-22.4)	23.8 (7.9-39.6)	21.4 (6.9-36.0)	13.8 (9.1-18.5)	37.4 (25.0-49.8)	19.5 (8.9-30.1)	24.8 (15.0-34.6)	22.9 (13.3-32.5)	20.1 (8.3-31.8)	2.0 (-7.9 to 12.9)	.67
Overweight (25.0-29.9)	33.1 (22.3-43.8)	31.7 (21.8-41.7)	40.4 (31.7-49.1)	21.9 (10.3-33.4)	35.7 (27.8-43.6)	30.2 (22.9-37.5)	26.5 (18.1-34.8)	20.9 (15.0-26.9)	11.7 (5.9-17.5)	22.2 (10.9-33.6)	-7.8 (-13.7 to -1.6)	.02
Class I obesity (30.0-34.9)	39.8 (27.9-51.8)	37.2 (29.4-45.0)	32.5 (23.4-41.7)	22.7 (9.8-35.6)	30.1 (22.4-37.8)	27.6 (20.3-34.9)	24.8 (12.8-36.8)	20.2 (14.0-26.4)	27.7 (20.9-34.6)	20.8 (15.1-26.5)	-6.1 (-8.7 to -3.4)	.001
Class II obesity (35.0-39.9)	17.3 (5.9-28.6)	31.0 (16.4-45.6)	17.3 (8.9-25.6)	34.4 (18.6-50.3)	31.2 (20.1-42.3)	31.3 (22.8-39.8)	19.6 (11.3-27.9)	18.3 (12.5-24.0)	23.0 (13.8-32.2)	29.3 (19.6-39.0)	-0.8 (-8.4 to 7.5)	.83
Class III obesity (≥40.0)	22.2 (8.9-35.4)	40.3 (23.7-56.8)	9.2 (1.9-16.5)	40.5 (29.7-51.2)	30.8 (14.5-47.1)	22.9 (15.6-30.2)	28.2 (19.3-37.1)	27.3 (12.6-41.9)	17.2 (12.1-22.4)	20.7 (12.0-29.4)	-7.2 (-15.3 to 1.6)	.09

Abdominal obesity status (waist circumference range, cm)[g]												
No (≤102 cm in men, ≤88 cm in women	29.3 (16.7-41.9)	24.6 (14.0-35.3)	32.4 (18.7-46.2)	21.4 (9.8-33.0)	25.6 (16.4-34.9)	42.5 (33.7-51.2)	24.5 (16.9-32.0)	26.7 (17.7-35.6)	20.2 (12.0-28.3)	24.0 (15.2-32.7)	-2.2 (-9.9 to 6.3)	.56
Yes (>102 cm in men, >88 cm in women)	31.7 (26.1-37.2)	36.3 (31.4-41.3)	29.5 (23.2-35.7)	28.2 (19.3-37.1)	32.0 (26.8-37.2)	27.1 (24.0-30.2)	24.0 (19.5-28.5)	21.4 (17.3-25.4)	22.0 (18.0-26.1)	23.3 (18.6-28.0)	-5.4 (-7.6 to -3.2)	<.001
Insurance status[h]												
Uninsured	23.3 (16.5-30.1)	36.3 (18.5-54.0)	34.5 (12.0-56.9)	44.5 (23.6-65.4)	31.0 (14.8-47.2)	42.5 (29.1-55.9)	39.4 (25.6-53.2)	30.5 (15.7-45.2)	26.3 (15.3-37.3)	34.9 (20.7-49.0)	2.5 (-8.4 to 14.7)	.70
Insured	31.3 (25.4-37.3)	31.4 (26.9-35.9)	28.4 (23.4-33.4)	24.9 (16.6-33.2)	28.8 (23.0-34.5)	27.5 (22.8-32.2)	21.6 (17.0-26.2)	20.3 (16.7-23.9)	21.8 (17.9-25.7)	22.2 (16.8-27.6)	-5.0 (-6.8 to -3.0)	<.001

[a] Undiagnosed diabetes was defined as having a hemoglobin A1c level of 6.5% or higher or fasting plasma glucose level of 126 mg/dL or higher among those without self-reported diabetes. Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Diabetes included both diagnosed and undiagnosed diabetes. All estimates were age standardized to all diabetes cases other than during pregnancy in the 2017-2018 National Health and Nutrition Examination Survey adult population using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Estimates were obtained from the Joinpoint Regression Program. A heteroscedastic and uncorrelated error joinpoint regression model was fitted allowing one joinpoint. The joinpoint location, if existed, was identified using a grid search. The best-fitting model was selected by conducting 4499 permutation tests based on a Monte Carlo method, adjusting for multiple tests. Parameters were estimated using weighted least squares, with weights proportional to the inverse of the variance of the prevalence rate at each cycle.

[c] For men, the trend changed in 2009-2010. The presented estimate in the table was the average relative percent change during the entire study period. The relative percent change per 2-year cycle between 1999-2000 and 2009-2010 was -1.1% (95% CI, -6.3% to 4.3%; *P* for trend=.61), and between 2009-2010 and 2017-2018 was -14.1% (95% CI, -22.8% to -4.4%; *P* for trend=.01). For women, the trend changed in 2013-2014. The relative percent change per 2-year cycle between 1999-2000 and 2013-2014 was -5.7% (95% CI, -9.7% to -1.7%; *P* for trend=.02), and between 2013-2014 and 2017-2018 was 15.4% (95% CI, -19.1% to 64.6%; *P* for trend=.35).

[d] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as “Other”.

[e] Twenty participants refused to report or did not know their education level.

[f] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 272 (3.3%) participants among 8187 participants included from the examination population.

[g] Waist circumference was missing for 679 (8.3%) participants among 8187 participants included from the examination population.

[h] Of the 8493 participants included from the interview population, 38 (0.4%) had missing insurance data. For the uninsured subgroup, the trend changed in 2005-2006. The presented estimate in the table was the average relative percent change during the entire study period. The relative percent change per 2-year cycle between 1999-2000 and 2005-2006 was 21.6% (95% CI, -16.6% to 77.4%; *P* for trend=.24), and between 2005-2006 and 2017-2018 was -6.0% (95% CI, -16.2% to 5.6%; *P* for trend=.23).

eTable 4. Trends in prevalence of achieving individualized hemoglobin A1c targets among US adults with diagnosed diabetes

	Adults with diagnosed diabetes, % (95% CI)[a,b]					
	1999-2002 (n=849)	2003-2006 (n=937)	2007-2010 (n=1350)	2011-2014 (n=1324)	2015-2018 (n=1592)	*P* for trend[c]
Overall prevalence	58.9 (54.4-63.3)*	71.0 (67.6-74.5)	66.7 (62.6-70.8)	62.0 (58.3-65.6)	66.8 (63.2-70.4)	.51
Age group, y						
18-44	37.2 (22.6-51.8)	42.3 (33.1-51.6)	41.0 (28.7-53.4)	40.6 (29.4-51.8)	53.0 (44.3-61.7)	.08
45-64	53.6 (46.7-60.6)	64.4 (58.5-70.3)	61.7 (55.5-67.9)	54.7 (49.9-59.6)	60.4 (53.1-67.7)	.90
≥65	72.4 (65.2-79.6)	88.5 (85.6-91.4)*	81.3 (77.4-85.3)	77.6 (72.7-82.4)	78.9 (74.5-83.2)	.72
Sex						
Men	58.2 (52.5-63.8)	69.3 (64.1-74.5)	62.7 (56.7-68.7)	60.4 (55.6-65.3)	64.4 (59.3-69.4)	.87
Women	59.5 (53.6-65.4)*	72.6 (67.2-78.0)	70.7 (66.5-74.8)	63.6 (59.8-67.4)*	69.9 (66.2-73.6)	.30
Race/ethnicity[d]						
Non-Hispanic White	63.6 (58.0-69.3)	74.9 (70.3-79.6)	67.3 (61.8-72.8)	63.7 (58.4-68.9)	71.5 (65.3-77.7)	.73
Non-Hispanic Black	51.8 (45.1-58.4)	60.3 (53.4-67.2)	66.2 (60.6-71.8)*	63.1 (58.7-67.5)	57.3 (51.6-63.0)	.36
Mexican American	49.7 (44.7-54.7)	57.4 (52.0-62.7)	59.1 (52.8-65.3)	55.7 (48.0-63.4)	54.5 (47.0-62.0)	.73
Other	58.7 (45.5-72.0)	71.0 (59.4-82.6)	68.1 (58.5-77.8)	57.0 (49.1-64.9)	66.8 (61.4-72.2)	.48
Education level[e]						
Less than High School	58.5 (52.5-64.5)	60.2 (54.2-66.2)	66.0 (60.7-71.2)	64.4 (58.3-70.4)	63.2 (57.4-69.1)	.23
High school graduate	58.5 (51.8-65.3)	75.3 (69.6-81.1)	68.6 (61.6-75.6)	59.7 (53.4-65.9)	66.5 (59.5-73.4)	.71
Some college	57.1 (49.2-65.1)*	71.1 (64.7-77.6)	65.8 (59.4-72.2)	61.2 (55.4-67.0)	66.6 (61.0-72.2)	.38
College graduate or above	67.1 (54.3-79.9)	82.4 (74.5-90.3)*	65.9 (55.2-76.6)	62.3 (54.2-70.5)	71.2 (63.7-78.6)	.38
Weight group (body mass index range, kg/m^2)[f]						
Normal weight (18.5-24.9)	50.6 (37.2-64.0)*	58.7 (48.4-69.0)	67.4 (58.6-76.1)	64.8 (54.4-75.2)	71.1 (61.4-80.8)	.01
Overweight (25.0-29.9)	63.6 (54.1-73.1)	68.7 (62.6-74.9)	68.2 (60.5-76.0)	64.8 (59.6-69.9)	63.9 (57.2-70.6)	.44
Class I obesity (30.0-34.9)	54.9 (46.4-63.4)*	72.0 (64.6-79.4)	62.7 (55.1-70.3)	61.9 (56.6-67.3)	67.7 (60.6-74.8)	.42
Class II obesity (35.0-39.9)	54.8 (42.6-67.1)	76.3 (67.6-85.0)	70.1 (61.7-78.5)	62.7 (53.9-71.5)	68.2 (60.7-75.6)	.10
Class III obesity (≥40.0)	67.3 (53.7-80.9)	73.1 (63.8-82.4)	69.9 (62.1-77.7)	52.4 (40.3-64.4)*	65.3 (57.9-72.7)	.17
Abdominal obesity status (waist circumference range, cm)[g]						
No (≤102 cm in men, ≤88 cm in women)	57.6 (47.3-68.0)	60.2 (50.4-69.9)	66.2 (57.0-75.4)	67.0 (59.3-74.7)	65.5 (59.4-71.6)	.16
Yes (>102 cm in men, >88 cm in women)	58.2 (54.1-62.3)*	74.0 (70.3-77.7)*	67.1 (62.7-71.6)	61.3 (57.4-65.3)*	67.3 (63.4-71.2)	.87
Insurance status[h]						
Uninsured	49.2 (35.4-63.0)	59.7 (37.2-82.2)	58.8 (48.0-69.5)	54.0 (40.6-67.4)	58.4 (44.6-72.2)	.64
Insured	59.5 (54.6-64.5)*	72.0 (68.5-75.4)	67.7 (63.3-72.1)	62.7 (58.5-66.9)	67.4 (63.6-71.3)	.64
Presence of complication[i]						

No	54.3 (45.8-62.7)	68.1 (62.7-73.6)	62.6 (56.1-69.1)	61.0 (55.2-66.7)	62.1 (57.0-67.2)	.49
Yes	61.2 (55.2-67.1)*	73.6 (68.3-78.9)	69.4 (65.3-73.5)	61.7 (57.3-66.1)*	69.9 (65.1-74.7)	.69

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in the National Health and Nutrition Examination Survey 1999-2018 years using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Individualized hemoglobin A1c targets were <6.5% for young adults aged 18-44 years without complications, <7% for young adults with complications, <7% for middle-aged adults aged 45-64 years without complications, <8% for middle-aged adults with complication, <7.5% for older adults aged 65 years or greater without complications and <8% for older adults with complications, respectively.

[c] Assuming a linear trend.

[d] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. All other racial and ethnic groups were grouped as "Other".

[e] Eleven participants refused to report or did not know their education level.

[f] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 189 participants.

[g] Waist circumference was missing for 475 participants.

[h] Insurance status was missing for 18 participants.

[i] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

[*] Indicated *P* <.05 for comparing estimates in earlier years with the estimate in 2015-2018 within each stratum.

eTable 5. Trends in prevalence of achieving systolic/diastolic blood pressure <130/80 mm Hg among US adults with diagnosed diabetes

	Adults with diagnosed diabetes, % (95% CI)[a]					
	1999-2002 (n=862)	2003-2006 (n=908)	2007-2010 (n=1390)	2011-2014 (n=1333)	2015-2018 (n=1584)	*P* for trend[b]
Overall prevalence	38.5 (33.6-43.5)*	44.8 (39.9-49.6)	51.5 (48.0-55.1)	47.9 (44.1-51.6)	48.2 (44.6-51.8)	0.007
Age group, y						
18-44	48.9 (35.1-62.7)	61.2 (49.7-72.7)	59.3 (50.0-68.6)	55.3 (45.6-65.0)	57.3 (45.5-69.0)	.65
45-64	46.4 (39.0-53.7)	49.8 (42.4-57.2)	56.0 (50.6-61.3)	54.1 (48.9-59.3)	53.2 (48.5-57.9)	.13
≥65	26.1 (19.6-32.6)*	33.3 (27.4-39.2)	43.8 (39.2-48.4)	38.3 (33.3-43.4)	39.5 (34.9-44.1)	.003
Sex						
Men	39.4 (34.0-44.8)*	49.4 (43.2-55.6)	53.7 (47.8-59.5)	44.4 (38.8-49.9)	47.2 (43.6-50.8)	.50
Women	37.9 (29.5-46.3)*	41.1 (34.5-47.7)	49.7 (45.1-54.3)	50.7 (45.5-55.9)	49.0 (43.2-54.8)	.008
Race/ethnicity[c]						
Non-Hispanic White	43.6 (35.2-52.1)	46.2 (39.2-53.2)	53.7 (48.4-59.0)	48.8 (43.5-54.1)	47.9 (41.6-54.3)	.24
Non-Hispanic Black	30.1 (24.5-35.8)*	40.7 (33.5-47.9)	43.9 (39.7-48.0)*	38.6 (33.7-43.5)	37.5 (32.4-42.6)	.31
Mexican American	36.2 (31.1-41.2)*	50.9 (41.9-59.9)	48.1 (43.9-52.3)	42.8 (34.3-51.3)*	51.9 (46.3-57.5)	.02
Other	36.9 (24.6-49.1)*	44.8 (32.6-56.9)	53.5 (44.7-62.3)	56.1 (48.2-64.0)	51.9 (47.3-56.4)	.004
Education level[d]						
Less than High School	32.8 (26.2-39.4)*	44.6 (37.5-51.6)	48.3 (43.6-53.0)	46.7 (39.9-53.4)	45.5 (39.8-51.2)	.006
High school graduate	40.0 (32.0-48.1)	42.8 (34.0-51.6)	48.0 (41.0-55.1)	42.5 (35.3-49.7)	46.8 (40.5-53.2)	.26
Some college	40.8 (31.9-49.8)	47.0 (39.5-54.5)	53.8 (47.4-60.2)	51.5 (43.7-59.3)	45.9 (38.4-53.5)	.56
College graduate or above	47.3 (29.6-64.9)	50.1 (39.0-61.2)	59.6 (48.4-70.7)	52.4 (43.7-61.2)	52.8 (43.7-61.8)	.59
Weight group (body mass index range, kg/m^2)[e]						
Normal weight (18.5-24.9)	43.4 (31.5-55.3)	48.9 (32.8-65.0)	54.5 (45.9-63.0)	38.2 (27.1-49.3)	44.6 (31.3-58.0)	.71
Overweight (25.0-29.9)	39.7 (31.8-47.7)*	46.1 (38.4-53.9)	49.8 (41.8-57.8)	56.2 (50.7-61.6)	56.5 (49.4-63.6)	<.001
Class I obesity (30.0-34.9)	38.9 (30.2-47.6)*	48.2 (37.8-58.6)	55.1 (49.7-60.4)	48.5 (41.6-55.5)	51.3 (44.6-58.0)	.20
Class II obesity (35.0-39.9)	30.0 (19.1-40.9)	38.1 (25.5-50.8)	51.3 (43.6-59.1)*	45.3 (33.4-57.2)	38.9 (30.5-47.4)	.48
Class III obesity (≥40.0)	36.3 (22.8-49.8)	40.8 (28.9-52.7)	48.4 (40.6-56.2)	46.8 (36.2-57.3)	45.1 (35.7-54.4)	.64
Abdominal obesity status (waist circumference range, cm)[f]						
No (≤102 cm in men, ≤88 cm in women)	41.7 (34.4-49.0)	50.8 (41.0-60.7)	52.4 (45.4-59.3)	44.2 (35.8-52.7)	50.6 (41.6-59.5)	.44
Yes (>102 cm in men, >88 cm in women)	37.4 (31.1-43.6)*	43.5 (38.1-49.0)	51.7 (47.4-56.0)	48.8 (44.5-53.2)	48.5 (44.1-52.8)	.007
Insurance status[g]						
Uninsured	30.7 (18.6-42.9)*	29.3 (21.2-37.4)	53.4 (41.9-64.8)	48.6 (35.4-61.8)	45.8 (30.3-61.3)	.03
Insured	40.4 (34.5-46.3)*	45.0 (40.3-49.8)	51.8 (47.7-55.9)	48.2 (44.3-52.0)	48.0 (43.8-52.2)	.04

Presence of complication[h]						
No	46.2 (38.4-53.9)	50.4 (43.8-57.0)	55.9 (49.2-62.5)	55.8 (50.4-61.1)	53.9 (48.0-59.7)	.17
Yes	32.1 (26.3-38.0)*	41.8 (35.0-48.7)	48.0 (44.3-51.7)	41.0 (36.0-45.9)	42.9 (38.2-47.6)	.03

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in the National Health and Nutrition Examination Survey 1999-2018 years using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Assuming a linear trend.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Fourteen participants refused to report or did not know their education level.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 183 participants.

[f] Waist circumference was missing for 455 participants.

[g] Insurance status was missing for 18 participants.

[h] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

[*] Indicated P <.05 for comparing estimates in earlier years with the estimate in 2015-2018 within each stratum.

eTable 6. Trends in prevalence of achieving low-density lipoprotein cholesterol <100 mg/dL among US adults with diagnosed diabetes

	Adults with diagnosed diabetes, % (95% CI)[a]					
	1999-2002 (n=250)	2003-2006 (n=360)	2007-2010 (n=578)	2011-2014 (n=543)	2015-2018 (n=720)	*P* for trend[b]
Overall prevalence	35.4 (27.2-43.6)*	46.9 (40.8-52.9)*	56.6 (51.9-61.4)	54.8 (48.8-60.8)	59.7 (54.2-65.2)	<.001
Age group, y						
18-44	42.5 (25.4-59.7)	37.7 (20.6-54.7)	50.2 (34.8-65.6)	38.0 (18.4-57.5)	38.7 (22.4-55.0)	.78
45-64	28.0 (18.4-37.6)*	44.3 (33.8-54.8)	52.8 (43.9-61.8)	48.4 (37.9-58.8)	54.1 (43.7-64.4)	.005
≥65	41.2 (25.4-57.0)*	52.9 (45.3-60.5)*	63.2 (56.4-69.9)*	68.0 (61.5-74.4)	73.5 (68.4-78.5)	<.001
Sex						
Men	42.1 (32.4-51.7)*	52.9 (46.0-59.8)*	63.1 (56.8-69.4)	59.7 (52.9-66.5)	62.6 (56.3-69.0)	<.001
Women	28.8 (19.7-38.0)*	42.0 (33.7-50.2)*	48.7 (41.8-55.6)	49.9 (41.8-58.0)	56.6 (48.4-64.7)	<.001
Race/ethnicity[c]						
Non-Hispanic White	38.2 (26.2-50.2)*	48.3 (39.7-56.9)*	63.6 (55.8-71.4)	56.2 (46.2-66.2)	63.7 (54.6-72.8)	<.001
Non-Hispanic Black	23.1 (14.1-32.2)*	54.0 (44.5-63.5)	38.2 (29.0-47.5)	50.0 (43.3-56.7)	52.5 (45.1-59.9)	.055
Mexican American	32.9 (19.8-45.9)*	33.2 (24.7-41.7)	48.0 (40.4-55.5)	40.5 (29.6-51.3)	49.5 (41.6-57.3)	.04
Other	30.3 (7.5-53.1)*	48.0 (29.9-66.2)	52.5 (37.7-67.3)	59.7 (47.8-71.5)	59.1 (49.3-68.8)	.02
Education level[d]						
Less than High School	31.5 (18.5-44.6)*	44.9 (35.5-54.2)	50.0 (40.5-59.6)	49.7 (42.6-56.7)	50.7 (43.0-58.5)	.02
High school graduate	32.3 (13.7-50.9)	44.5 (34.2-54.7)	63.3 (53.5-73.2)	48.2 (36.6-59.9)	57.3 (44.8-69.7)	.09
Some college	29.9 (9.8-50.0)*	53.4 (42.0-64.8)	57.8 (47.9-67.6)	61.8 (49.8-73.8)	56.8 (44.7-68.9)	.054
College graduate or above	55.7 (33.7-77.7)	40.9 (18.9-62.9)*	56.6 (43.4-69.8)*	58.9 (49.2-68.7)*	73.7 (63.4-84.0)	.01
Weight group (body mass index range, kg/m^2)[e]						
Normal weight (18.5-24.9)	36.2 (16.9-55.4)*	45.8 (33.1-58.5)*	58.5 (40.4-76.7)	64.7 (51.9-77.5)	69.0 (57.7-80.4)	<.001
Overweight (25.0-29.9)	37.7 (22.4-52.9)*	37.1 (23.3-50.8)*	55.5 (43.3-67.7)	53.4 (42.5-64.2)	53.6 (43.3-64.0)	.009
Class I obesity (30.0-34.9)	51.4 (31.6-71.1)	42.9 (33.8-52.0)	66.7 (55.1-78.2)	51.9 (43.2-60.6)	53.5 (42.6-64.4)	.51
Class II obesity (35.0-39.9)	17.5 (1.5-33.6)	50.0 (37.4-62.6)	44.2 (37.2-51.2)	60.4 (45.4-75.4)	59.3 (48.9-69.8)	.03
Class III obesity (≥40.0)	15.5 (0.5-30.6)*	64.4 (48.7-80.2)	48.3 (33.1-63.5)*	58.3 (48.8-67.8)*	63.6 (56.1-71.0)	.04
Abdominal obesity status (waist circumference range, cm)[f]						
No (≤102 cm in men, ≤88 cm in women)	34.9 (20.1-49.7)*	39.9 (25.9-53.9)*	59.9 (50.2-69.7)	62.3 (51.0-73.6)	60.0 (51.1-68.9)	<.001
Yes (>102 cm in men, >88 cm in women)	36.8 (26.5-47.1)*	48.5 (40.7-56.4)*	55.8 (50.3-61.3)	53.9 (48.0-59.8)	60.0 (53.0-67.1)	<.001
Insurance status[g]						
Uninsured	43.6 (9.9-77.3)	31.4 (2.5-60.4)	55.0 (42.3-67.7)	57.5 (44.5-70.4)	56.5 (44.6-68.4)	.66
Insured	35.3 (26.8-43.8)*	49.5 (43.4-55.7)*	58.6 (53.1-64.1)	55.5 (48.9-62.1)	61.0 (55.5-66.4)	<.001
Presence of complication[h]						

No	32.7 (22.7-42.6)*	42.7 (32.4-52.9)*	52.9 (43.7-62.2)	55.8 (45.6-65.9)	62.9 (54.6-71.2)	<.001
Yes	36.3 (24.0-48.5)*	53.2 (45.4-61.0)	60.6 (55.5-65.6)	53.2 (46.7-59.7)	56.3 (49.7-62.9)	.01

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in the National Health and Nutrition Examination Survey 1999-2018 years using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Assuming a linear trend.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Four participants refused to report or did not know their education level.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 60 participants.

[f] Waist circumference was missing for 146 participants.

[g] Insurance status was missing for 5 participants.

[h] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

[*] Indicated P <.05 for comparing estimates in earlier years with the estimate in 2015-2018 within each stratum.

eTable 7. Trends in prevalence of achieving hemoglobin A1c <7% among US adults with diagnosed diabetes

	Adults with diagnosed diabetes, % (95% CI)[a]					
	1999-2002 (n=849)	2003-2006 (n=937)	2007-2010 (n=1350)	2011-2014 (n=1324)	2015-2018 (n=1592)	*P* for trend[b]
Overall prevalence	44.5 (39.5-49.4)	56.8 (52.2-61.4)	52.1 (47.1-57.1)	50.9 (47.4-54.5)	50.6 (45.7-55.5)	.78
Age group, y						
18-44	37.2 (22.6-51.8)*	49.5 (39.1-60.0)	43.1 (30.8-55.4)*	45.1 (34.2-56.0)*	59.6 (51.0-68.2)	.02
45-64	44.1 (36.9-51.3)	49.9 (42.4-57.3)	49.7 (42.8-56.6)	46.6 (42.5-50.7)	44.0 (37.8-50.2)	.52
≥65	47.4 (40.5-54.2)	67.2 (60.6-73.7)*	58.0 (52.6-63.4)	57.8 (51.7-64.0)	54.8 (49.0-60.7)	.85
Sex						
Men	42.3 (36.4-48.2)	54.6 (48.6-60.7)	50.5 (43.6-57.5)	48.6 (43.8-53.5)	46.2 (39.2-53.1)	.64
Women	46.0 (39.6-52.4)*	58.9 (53.2-64.6)	53.9 (49.0-58.7)	53.5 (49.5-57.5)	56.0 (51.1-60.9)	.18
Race/ethnicity[c]						
Non-Hispanic White	49.4 (42.4-56.4)	61.4 (55.2-67.7)	52.2 (45.7-58.8)	52.9 (47.9-57.9)	53.1 (44.9-61.3)	.73
Non-Hispanic Black	38.7 (32.8-44.6)*	46.4 (40.0-52.8)	51.8 (46.0-57.7)	50.4 (46.3-54.6)	47.6 (42.2-52.9)	.03
Mexican American	39.5 (34.6-44.4)	41.5 (35.7-47.4)	43.9 (37.4-50.3)	45.0 (38.2-51.8)	41.4 (33.5-49.3)	.62
Other	38.6 (25.4-51.9)*	52.7 (39.2-66.2)	55.5 (45.5-65.5)	46.3 (39.5-53.0)	52.1 (46.5-57.8)	.23
Education level[d]						
Less than High School	39.8 (33.6-46.0)	42.7 (35.9-49.4)	50.4 (45.2-55.6)	56.3 (50.1-62.5)	48.9 (43.5-54.2)	.004
High school graduate	48.8 (40.7-56.9)	59.4 (49.5-69.3)*	54.4 (44.8-64.1)	45.9 (38.7-53.2)	45.7 (38.2-53.3)	.07
Some college	47.0 (40.4-53.6)	62.0 (53.4-70.5)	50.1 (43.1-57.0)	51.0 (44.7-57.3)	54.5 (45.1-64.0)	.61
College graduate or above	47.7 (35.0-60.4)	69.3 (59.5-79.1)*	55.1 (43.9-66.3)	50.2 (42.6-57.8)	53.0 (44.2-61.7)	.18
Weight group (body mass index range, kg/m^2)[e]						
Normal weight (18.5-24.9)	42.3 (31.2-53.4)	47.5 (37.0-58.0)	55.1 (43.2-67.0)	55.2 (42.9-67.5)	53.3 (41.7-65.0)	.17
Overweight (25.0-29.9)	47.5 (36.4-58.7)	55.4 (47.4-63.4)	58.2 (49.8-66.6)	55.7 (48.4-63.1)	49.1 (41.4-56.8)	.82
Class I obesity (30.0-34.9)	40.9 (31.9-49.9)	57.5 (49.9-65.1)	47.4 (38.6-56.2)	49.6 (43.9-55.3)	52.1 (43.8-60.5)	.59
Class II obesity (35.0-39.9)	41.9 (30.2-53.5)	61.5 (54.3-68.7)*	53.2 (44.1-62.3)	48.7 (38.0-59.3)	49.1 (40.1-58.2)	.67
Class III obesity (≥40.0)	43.4 (30.0-56.9)	60.3 (48.0-72.5)	50.2 (40.0-60.4)	42.9 (32.6-53.3)	53.9 (46.1-61.8)	.94
Abdominal obesity status (waist circumference range, cm)[f]						
No (≤102 cm in men, ≤88 cm in women)	49.4 (38.4-60.4)	47.5 (37.7-57.3)	54.7 (43.9-65.5)	53.5 (45.1-61.9)	50.3 (42.1-58.5)	.66
Yes (>102 cm in men, >88 cm in women)	41.8 (37.1-46.5)*	58.7 (53.7-63.7)*	51.7 (46.9-56.6)	50.8 (46.9-54.7)	50.7 (45.7-55.6)	.71
Insurance status[g]						
Uninsured	37.9 (21.1-54.7)	56.5 (34.6-78.4)	43.2 (29.8-56.5)	46.1 (32.5-59.8)	31.3 (19.7-42.9)	.63
Insured	44.6 (39.2-50.1)	57.3 (52.4-62.1)	53.0 (47.7-58.4)	51.8 (47.7-55.9)	51.6 (46.4-56.9)	.70
Presence of complication[h]						

No	48.9 (40.0-57.8)	61.8 (54.3-69.4)	55.6 (48.2-62.9)	57.3 (51.1-63.5)	58.3 (52.3-64.3)	.24
Yes	41.6 (35.9-47.2)	53.3 (47.1-59.6)*	47.3 (42.6-52.1)	44.5 (40.2-48.8)	44.6 (38.1-51.0)	.50

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in the National Health and Nutrition Examination Survey 1999-2018 years using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Assuming a linear trend.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Eleven participants refused to report or did not know their education level.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 189 participants.

[f] Waist circumference was missing for 475 participants.

[g] Insurance status was missing for 18 participants.

[h] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

[*] Indicated P <.05 for comparing estimates in earlier years with the estimate in 2015-2018 within each stratum.

eTable 8. Trends in prevalence of achieving hemoglobin A1c <8% among US adults with diagnosed diabetes

	Adults with diagnosed diabetes, % (95% CI)[a]					
	1999-2002 (n=849)	2003-2006 (n=937)	2007-2010 (n=1350)	2011-2014 (n=1324)	2015-2018 (n=1592)	P for trend[b]
Overall prevalence	66.8 (62.5-71.2)*	77.2 (73.9-80.6)	77.5 (74.2-80.8)	70.3 (67.0-73.6)*	75.1 (71.9-78.4)	.27
Age group, y						
18-44	53.5 (40.3-66.7)	62.3 (52.3-72.4)	61.4 (50.2-72.6)	61.4 (50.9-71.9)	65.9 (56.7-75.1)	.19
45-64	63.8 (56.5-71.1)	70.6 (64.9-76.4)	76.5 (72.2-80.8)	64.9 (59.8-70.0)	71.6 (65.8-77.5)	.51
≥65	74.9 (67.6-82.3)	89.8 (87.0-92.6)*	84.3 (81.2-87.4)	79.5 (75.2-83.9)	82.3 (78.6-85.9)	.99
Sex						
Men	67.0 (61.5-72.4)	75.5 (69.8-81.1)	74.5 (69.5-79.5)	69.8 (64.9-74.6)	74.0 (69.6-78.4)	.45
Women	66.3 (60.5-72.1)*	78.8 (74.4-83.3)	80.5 (77.2-83.8)	70.8 (67.4-74.2)*	76.2 (73.1-79.4)	.33
Race/ethnicity[c]						
Non-Hispanic White	70.1 (64.3-76.0)*	81.2 (76.5-85.9)	79.4 (75.4-83.5)	71.7 (67.2-76.3)*	79.7 (74.5-84.9)	.39
Non-Hispanic Black	61.6 (56.4-66.8)	67.4 (61.4-73.5)	73.8 (69.3-78.4)*	71.2 (66.7-75.8)	66.5 (61.5-71.5)	.26
Mexican American	58.3 (52.2-64.5)	63.7 (58.5-68.9)	72.6 (65.1-80.0)	66.4 (59.7-73.0)	62.6 (55.2-69.9)	.79
Other	67.4 (56.5-78.3)	75.3 (63.6-87.1)	75.1 (67.3-83.0)	66.8 (58.3-75.2)	74.8 (69.4-80.1)	.46
Education level[d]						
Less than High School	62.8 (56.8-68.8)	67.4 (61.3-73.6)	74.9 (70.1-79.7)	73.4 (67.9-78.9)	69.5 (64.1-75.0)	.09
High school graduate	65.6 (59.0-72.2)	79.8 (74.2-85.5)	78.2 (71.4-85.1)	67.0 (60.8-73.1)	70.8 (63.4-78.3)	.47
Some college	67.3 (59.3-75.4)	77.9 (72.1-83.6)	77.5 (72.5-82.5)	69.4 (63.6-75.2)	76.1 (70.7-81.4)	.46
College graduate or above	76.8 (63.9-89.7)	86.8 (80.1-93.5)	79.4 (71.9-86.8)	72.1 (64.8-79.4)*	82.9 (77.4-88.3)	.86
Weight group (body mass index range, kg/m^2)[e]						
Normal weight (18.5-24.9)	61.8 (50.0-73.7)	70.1 (57.9-82.3)	76.5 (68.6-84.4)	72.7 (62.3-83.1)	76.2 (67.8-84.7)	.09
Overweight (25.0-29.9)	71.3 (63.0-79.6)	73.7 (67.2-80.2)	77.7 (72.3-83.0)	72.1 (67.0-77.2)	73.2 (67.7-78.7)	.90
Class I obesity (30.0-34.9)	59.1 (51.2-67.0)*	80.0 (72.8-87.2)	75.2 (68.2-82.2)	72.6 (66.3-78.9)	75.3 (68.6-82.1)	.22
Class II obesity (35.0-39.9)	63.1 (51.1-75.1)	79.5 (71.2-87.7)	79.3 (72.4-86.3)	66.6 (57.4-75.9)	77.7 (71.0-84.3)	.49
Class III obesity (≥40.0)	79.7 (68.8-90.6)	76.1 (67.1-85.0)	80.0 (72.4-87.7)	61.0 (48.6-73.3)*	73.2 (67.0-79.3)	.08
Abdominal obesity status (waist circumference range, cm)[f]						
No (≤102 cm in men, ≤88 cm in women)	66.9 (57.4-76.5)	69.9 (61.5-78.4)	77.5 (71.2-83.7)	76.2 (70.4-81.9)	75.3 (67.9-82.7)	.16
Yes (>102 cm in men, >88 cm in women)	66.5 (62.1-70.9)*	79.1 (75.3-82.8)	78.0 (74.8-81.2)	69.8 (65.9-73.8)*	75.4 (72.0-78.8)	.55
Insurance status[g]						
Uninsured	53.1 (39.5-66.8)	62.0 (39.3-84.7)	69.5 (60.1-79.0)	59.8 (46.1-73.5)	62.7 (49.7-75.8)	.51
Insured	68.3 (63.6-73.0)*	78.6 (75.3-81.9)	78.5 (74.7-82.4)	71.6 (68.0-75.2)	76.2 (72.8-79.7)	.40
Presence of complication[h]						

No	71.2 (64.4-78.1)*	80.5 (77.0-84.0)	83.2 (78.6-87.9)	75.9 (70.6-81.1)	80.6 (76.0-85.3)	.13
Yes	63.4 (57.8-68.9)	75.5 (70.0-81.1)	71.4 (67.5-75.3)	64.0 (59.4-68.5)	70.3 (65.5-75.0)	.97

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in the National Health and Nutrition Examination Survey 1999-2018 years using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Assuming a linear trend.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Eleven participants refused to report or did not know their education level.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 189 participants.

[f] Waist circumference was missing for 475 participants.

[g] Insurance status was missing for 18 participants.

[h] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

[*] Indicated P <.05 for comparing estimates in earlier years with the estimate in 2015-2018 within each stratum.

eTable 9. Trends in prevalence of achieving systolic/diastolic blood pressure <140/90 mm Hg among US adults with diagnosed diabetes

	Adults with diagnosed diabetes, % (95% CI)[a]					
	1999-2002 (n=862)	2003-2006 (n=908)	2007-2010 (n=1390)	2011-2014 (n=1333)	2015-2018 (n=1584)	*P* for trend[b]
Overall prevalence	63.6 (59.3-67.9)*	68.2 (64.7-71.6)	72.5 (69.2-75.7)	74.3 (70.9-77.6)	71.1 (67.7-74.5)	.004
Age group, y						
18-44	76.3 (65.0-87.6)	83.9 (76.8-91.0)	87.7 (81.4-94.0)	85.9 (79.3-92.6)	85.5 (78.5-92.6)	.19
45-64	73.4 (66.8-80.0)	74.7 (69.3-80.1)	75.6 (70.2-80.9)	75.8 (71.2-80.3)	76.8 (72.5-81.2)	.36
≥65	48.1 (42.2-54.0)*	55.4 (49.6-61.1)	63.6 (58.4-68.8)	68.5 (63.3-73.6)*	59.6 (54.8-64.3)	.001
Sex						
Men	69.4 (64.1-74.6)	72.5 (67.0-78.1)	75.6 (70.9-80.3)	71.5 (67.2-75.8)	72.1 (67.5-76.7)	.87
Women	59.1 (52.4-65.8)*	64.8 (61.4-68.3)	69.8 (66.3-73.3)	76.9 (71.8-82.0)*	69.6 (66.2-73.0)	<.001
Race/ethnicity[c]						
Non-Hispanic White	67.3 (61.5-73.1)	69.7 (64.7-74.6)	76.2 (71.8-80.6)	75.8 (70.7-80.8)	72.7 (66.8-78.6)	.07
Non-Hispanic Black	52.5 (45.7-59.2)	64.1 (59.1-69.2)	61.9 (57.2-66.7)	65.0 (60.9-69.0)	59.3 (53.2-65.3)	.30
Mexican American	60.1 (53.9-66.2)*	67.7 (59.7-75.7)	67.3 (62.4-72.3)*	72.6 (62.1-83.1)	73.4 (67.8-78.9)	.001
Other	66.6 (52.4-80.8)	67.8 (55.9-79.7)	74.9 (67.1-82.6)	78.0 (70.7-85.2)	72.8 (68.8-76.8)	.28
Education level[d]						
Less than High School	55.3 (48.9-61.6)*	66.4 (61.6-71.2)	68.6 (63.9-73.2)	73.1 (67.1-79.0)	70.0 (64.5-75.5)	<.001
High school graduate	67.6 (59.2-75.9)	65.8 (58.8-72.9)	70.7 (64.9-76.6)	71.7 (66.1-77.4)	71.7 (65.5-78.0)	.20
Some college	69.0 (62.3-75.8)	69.4 (63.3-75.5)	72.8 (66.8-78.8)	80.7 (75.3-86.2)*	67.3 (60.1-74.5)	.99
College graduate or above	69.9 (57.5-82.3)	74.5 (62.6-86.3)	82.0 (73.3-90.6)	70.9 (62.8-79.0)	75.7 (68.3-83.0)	.86
Weight group (body mass index range, kg/m^2)[e]						
Normal weight (18.5-24.9)	69.1 (62.9-75.4)	70.5 (58.2-82.8)	69.9 (59.7-80.1)	64.2 (54.8-73.5)	72.5 (64.6-80.3)	.90
Overweight (25.0-29.9)	64.8 (58.1-71.4)	63.8 (56.9-70.7)	71.2 (65.1-77.4)	80.7 (76.2-85.2)*	71.6 (65.3-77.8)	.02
Class I obesity (30.0-34.9)	67.8 (59.2-76.4)	70.2 (63.1-77.3)	76.4 (71.0-81.9)	75.9 (70.2-81.6)	74.6 (68.1-81.1)	.25
Class II obesity (35.0-39.9)	55.2 (43.7-66.8)	71.0 (60.4-81.5)	71.6 (64.6-78.5)	73.0 (63.9-82.2)	66.6 (59.4-73.8)	.45
Class III obesity (≥40.0)	59.0 (45.5-72.5)	68.4 (55.3-81.6)	69.1 (59.8-78.4)	76.2 (67.5-84.8)	72.4 (64.5-80.3)	.11
Abdominal obesity status (waist circumference range, cm)[f]						
No (≤102 cm in men, ≤88 cm in women)	69.7 (63.3-76.2)	72.9 (63.9-82.0)	71.5 (65.0-78.0)	70.4 (63.8-77.1)	75.5 (69.0-81.9)	.39
Yes (>102 cm in men, >88 cm in women)	62.0 (56.4-67.7)*	67.0 (62.2-71.8)	73.3 (69.5-77.2)	74.9 (71.4-78.5)	70.7 (66.2-75.3)	.01
Insurance status[g]						
Uninsured	48.9 (37.9-59.9)	45.3 (35.3-55.4)	66.8 (54.0-79.7)	76.6 (65.6-87.6)	62.2 (46.1-78.2)	.03
Insured	65.7 (61.1-70.2)*	69.0 (65.5-72.4)	73.4 (69.7-77.0)	74.1 (70.8-77.4)	71.7 (68.1-75.4)	.02
Presence of complication[h]						

No	77.2 (70.8-83.6)	71.0 (64.6-77.4)*	79.2 (72.6-85.9)	80.8 (75.6-86.0)	79.0 (74.9-83.1)	.23
Yes	54.2 (48.1-60.2)*	67.7 (62.9-72.4)	66.9 (62.8-70.9)	68.3 (63.3-73.4)	65.7 (61.3-70.1)	.01

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in the National Health and Nutrition Examination Survey 1999-2018 years using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Assuming a linear trend.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Fourteen participants refused to report or did not know their education level.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 183 participants.

[f] Waist circumference was missing for 455 participants.

[g] Insurance status was missing for 18 participants.

[h] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

[*] Indicated P <.05 for comparing estimates in earlier years with the estimate in 2015-2018 within each stratum.

eTable 10. Trends in prevalence of statin use among US adults with diagnosed diabetes

	Adults with diagnosed diabetes, % (95% CI)[a]					
	1999-2002 (n=989)	2003-2006 (n=1051)	2007-2010 (n=1487)	2011-2014 (n=1430)	2015-2018 (n=1721)	*P* for trend[b]
Overall prevalence	28.5 (24.7-32.3)*	43.6 (39.8-47.3)*	51.1 (48.4-53.7)*	56.0 (51.9-60.0)	55.5 (52.2-58.9)	<.001
Age group, y						
18-44	12.5 (4.0-21.0)	26.8 (13.6-39.9)	30.6 (22.1-39.1)	23.2 (15.2-31.1)	20.3 (13.4-27.2)	.58
45-64	28.6 (20.3-36.9)*	41.5 (35.7-47.4)*	46.6 (41.4-51.8)*	56.7 (50.5-62.9)	58.8 (53.3-64.3)	<.001
≥65	34.0 (28.1-39.8)*	51.7 (46.3-57.1)*	63.3 (59.2-67.4)	66.6 (61.4-71.9)	64.2 (59.1-69.3)	<.001
Sex						
Men	30.4 (25.9-34.9)*	46.3 (40.5-52.0)*	54.6 (52.1-57.2)	59.5 (55.2-63.7)	58.7 (54.1-63.3)	<.001
Women	26.5 (19.5-33.4)*	41.1 (35.8-46.4)*	47.6 (43.6-51.6)	52.8 (47.3-58.2)	52.1 (46.7-57.4)	<.001
Race/ethnicity[c]						
Non-Hispanic White	35.1 (29.0-41.1)*	45.4 (39.8-51.0)*	55.4 (51.0-59.8)	59.6 (53.9-65.4)	58.5 (53.6-63.4)	<.001
Non-Hispanic Black	14.9 (10.3-19.5)*	39.9 (33.8-46.0)*	46.1 (40.0-52.3)	54.2 (49.1-59.3)	52.3 (48.3-56.3)	<.001
Mexican American	19.1 (13.0-25.2)*	33.2 (27.8-38.6)*	44.9 (39.8-49.9)	46.1 (37.8-54.4)	51.4 (45.8-56.9)	<.001
Other	20.3 (10.8-29.7)*	46.6 (33.2-60.1)	45.8 (37.3-54.3)	50.2 (42.6-57.7)	53.0 (46.2-59.8)	<.001
Education level[d]						
Less than High School	24.8 (18.2-31.3)*	41.2 (35.2-47.3)*	48.4 (42.1-54.7)	52.2 (46.4-58.0)	52.3 (46.8-57.9)	<.001
High school graduate	28.8 (22.8-34.8)*	48.8 (41.1-56.4)	57.7 (51.0-64.3)	53.1 (43.2-63.0)	56.5 (51.3-61.6)	<.001
Some college	31.2 (24.2-38.2)*	39.7 (30.9-48.6)	50.4 (45.1-55.8)	60.4 (52.9-67.9)*	49.4 (44.3-54.4)	<.001
College graduate or above	34.7 (22.6-46.7)*	46.1 (35.3-56.8)*	48.5 (41.0-56.0)*	57.1 (48.5-65.6)	66.7 (59.4-74.0)	<.001
Weight group (body mass index range, kg/m^2)[e]						
Normal weight (18.5-24.9)	23.0 (12.8-33.1)*	41.3 (31.6-51.0)*	40.9 (32.8-49.0)*	54.2 (47.0-61.4)	59.1 (52.7-65.5)	<.001
Overweight (25.0-29.9)	35.9 (26.1-45.7)*	37.7 (30.4-45.0)*	49.7 (42.7-56.7)	53.1 (47.6-58.7)	53.5 (46.7-60.3)	<.001
Class I obesity (30.0-34.9)	29.4 (21.0-37.9)*	44.0 (36.2-51.9)*	54.7 (49.8-59.6)	56.1 (48.8-63.3)	57.1 (49.8-64.4)	<.001
Class II obesity (35.0-39.9)	20.7 (9.5-31.9)*	50.8 (42.8-58.8)	52.9 (45.7-60.1)	58.4 (46.8-70.0)	50.4 (42.3-58.5)	.004
Class III obesity (≥40.0)	37.2 (23.6-50.8)*	49.6 (39.4-59.9)	53.2 (43.9-62.4)	64.4 (57.3-71.5)	54.8 (44.4-65.3)	.04
Abdominal obesity status (waist circumference range, cm)[f]						
No (≤102 cm in men, ≤88 cm in women)	31.2 (22.7-39.7)*	38.7 (28.9-48.5)*	45.6 (37.4-53.8)	51.1 (44.1-58.2)	54.7 (47.4-62.0)	<.001
Yes (>102 cm in men, >88 cm in women)	29.3 (23.4-35.3)*	45.9 (40.7-51.2)*	53.6 (50.3-57.0)	57.0 (52.5-61.6)	55.4 (51.9-58.9)	<.001
Insurance status[g]						
Uninsured	10.2 (3.9-16.4)*	24.5 (10.8-38.1)	43.3 (33.0-53.6)	30.1 (17.4-42.8)	38.4 (23.2-53.6)	<.001
Insured	30.6 (26.5-34.8)*	45.6 (41.4-49.8)*	52.5 (49.8-55.3)*	59.1 (54.9-63.3)	57.4 (53.8-60.9)	.01
Presence of complication[h]						

No	22.9 (17.2-28.6)*	36.5 (30.1-42.8)*	50.2 (43.8-56.6)	49.8 (44.5-55.1)	51.3 (46.6-56.0)	<.001
Yes	32.1 (27.7-36.5)*	46.7 (41.3-52.1)*	53.4 (50.1-56.8)	58.7 (53.1-64.3)	58.7 (54.1-63.3)	<.001

[a] Diagnosed diabetes was defined based on self-report of diabetes diagnosis by a doctor or other health professional. Estimates were age standardized to all diagnosed diabetes cases other than during pregnancy in the National Health and Nutrition Examination Survey 1999-2018 years using the age groups of 18-44 years, 45-64 years, and 65 years or greater.

[b] Assuming a linear trend.

[c] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. There was no missing data. All other racial and ethnic groups were grouped as "Other".

[d] Sixteen participants refused to report or did not know their education level.

[e] Body mass index was computed by dividing weight in kilograms by height in meters squared. Estimates for those with body mass index <18.5 kg/m^2 were not presented due to small sample size. Body mass index was missing for 228 participants.

[f] Waist circumference was missing for 574 participants.

[g] Insurance status was missing for 27 participants. For the uninsured subgroup, an interaction term with age was not included when calculating the age-standardized estimate in 1999-2002 because only 8 participants were on statin.

[h] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

[*] Indicated P <.05 for comparing estimates in earlier years with the estimate in 2015-2018 within each stratum.

eTable 11. Factors associated with achieving selected risk factor control goals among US adults with diagnosed diabetes, 1999-2018

	Adults with diagnosed diabetes, Odds ratio (95% CI)[a,b]									
Characteristics	HbA1c <7.0%	HbA1c <8.0%	Individualized HbA1c targets	BP <130/80 mm Hg	BP <140/90 mm Hg	LDL-C <70 mg/dL	LDL-C <100 mg/dL	On statin	Individualized HbA1c targets and BP <130/80 mm Hg and LDL-C <100 mg/dL	Individualized HbA1c targets and BP <140/90 mm Hg and LDL-C <100 mg/dL
No. of adults with diagnosed diabetes[c]	5509	5509	5509	5555	5555	2285	2285	5726	2222	2222
Age group, y										
18-44	0.70 (0.54-0.91)	0.34 (0.25-0.46)	0.25 (0.19-0.33)	1.99 (1.52-2.60)	3.22 (2.34-4.44)	0.19 (0.10-0.37)	0.40 (0.27-0.58)	0.25 (0.19-0.33)	0.32 (0.16-0.63)	0.40 (0.24-0.65)
45-64	0.63 (0.53-0.75)	0.47 (0.38-0.58)	0.42 (0.34-0.52)	1.74 (1.46-2.08)	1.88 (1.56-2.27)	0.44 (0.30-0.63)	0.53 (0.40-0.71)	0.80 (0.68-0.94)	0.87 (0.59-1.28)	0.70 (0.50-0.99)
≥65	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
Sex										
Men	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
Women	1.31 (1.13-1.52)	1.16 (0.99-1.36)	1.35 (1.16-1.58)	1.08 (0.91-1.27)	0.92 (0.79-1.09)	0.65 (0.47-0.90)	0.66 (0.53-0.82)	0.75 (0.64-0.89)	0.65 (0.49-0.87)	0.73 (0.57-0.93)
Race/ethnicity[d]										
Non-Hispanic White	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
Non-Hispanic Black	0.78 (0.65-0.94)	0.65 (0.54-0.79)	0.64 (0.53-0.77)	0.65 (0.55-0.78)	0.56 (0.46-0.68)	1.08 (0.80-1.46)	0.76 (0.57-1.01)	0.74 (0.62-0.89)	0.60 (0.40-0.90)	0.59 (0.42-0.82)
Mexican American	0.65 (0.53-0.81)	0.61 (0.47-0.78)	0.59 (0.47-0.73)	1.04 (0.84-1.28)	0.98 (0.77-1.26)	1.06 (0.66-1.69)	0.64 (0.47-0.87)	0.80 (0.65-0.98)	0.48 (0.31-0.77)	0.50 (0.34-0.73)
Other	0.82 (0.68-1.004)	0.78 (0.61-1.002)	0.79 (0.61-1.01)	1.07 (0.87-1.32)	1.02 (0.80-1.31)	1.42 (0.99-2.04)	0.92 (0.64-1.33)	0.83 (0.64-1.06)	0.80 (0.49-1.32)	0.85 (0.54-1.33)
Education level										
Less than High School	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
High school graduate	1.02 (0.83-1.26)	1.00 (0.81-1.24)	1.09 (0.88-1.34)	1.04 (0.85-1.26)	1.03 (0.85-1.26)	0.97 (0.61-1.53)	1.06 (0.76-1.49)	1.15 (0.93-1.41)	1.01 (0.66-1.55)	1.04 (0.73-1.50)
Some college	1.10 (0.88-1.38)	1.03 (0.82-1.28)	0.97 (0.79-1.18)	1.13 (0.92-1.38)	1.11 (0.91-1.36)	1.17 (0.82-1.66)	1.19 (0.89-1.59)	1.01 (0.83-1.23)	0.99 (0.64-1.55)	1.04 (0.73-1.47)
College graduate or above	1.13 (0.91-1.41)	1.34 (1.02-1.76)	1.26 (0.98-1.61)	1.31 (1.05-1.64)	1.16 (0.89-1.51)	1.41 (0.84-2.36)	1.53 (1.05-2.24)	1.30 (1.03-1.64)	1.23 (0.78-1.94)	1.22 (0.80-1.88)
Weight group (BMI range, kg/m^2)[e]										
Normal weight (18.5-24.9)	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
Overweight (25.0-29.9)	1.05 (0.78-1.40)	1.06 (0.78-1.43)	1.10 (0.82-1.47)	1.35 (0.98-1.86)	1.26 (0.93-1.70)	1.19 (0.62-2.29)	0.89 (0.58-1.37)	1.02 (0.77-1.34)	1.49 (0.79-2.82)	1.87 (1.07-3.26)
Class I obesity (30.0-34.9)	0.89 (0.63-1.27)	1.06 (0.75-1.51)	0.99 (0.70-1.40)	1.38 (0.96-1.97)	1.74 (1.25-2.44)	1.34 (0.65-2.75)	1.17 (0.73-1.89)	1.19 (0.84-1.71)	1.64 (0.80-3.37)	2.62 (1.40-4.90)

Class II obesity (35.0-39.9)	0.90 (0.62-1.31)	1.10 (0.75-1.60)	1.08 (0.75-1.57)	0.99 (0.65-1.50)	1.30 (0.89-1.89)	1.22 (0.56-2.67)	1.01 (0.62-1.63)	1.12 (0.78-1.61)	1.34 (0.63-2.86)	2.35 (1.18-4.68)
Class III obesity (≥40.0)	0.80 (0.54-1.20)	1.06 (0.69-1.64)	0.90 (0.59-1.36)	1.14 (0.76-1.71)	1.40 (0.94-2.10)	1.44 (0.65-3.21)	1.44 (0.85-2.44)	1.40 (0.99-1.99)	1.14 (0.47-2.80)	2.66 (1.27-5.61)
Abdominal obesity status (WC range, cm)										
No (≤102 in men, ≤88 in women	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
Yes (>102 in men, >88 in women)	1.04 (0.78-1.39)	0.97 (0.70-1.33)	1.04 (0.79-1.37)	0.89 (0.67-1.17)	0.72 (0.54-0.95)	0.91 (0.52-1.58)	0.95 (0.66-1.36)	1.07 (0.80-1.42)	1.15 (0.65-2.04)	0.70 (0.43-1.11)
Insurance status										
Uninsured	0.84 (0.66-1.07)	0.67 (0.52-0.85)	0.81 (0.64-1.02)	0.96 (0.76-1.22)	0.74 (0.56-0.97)	0.79 (0.50-1.26)	0.71 (0.50-0.995)	0.37 (0.29-0.46)	0.89 (0.48-1.66)	0.74 (0.45-1.22)
Insured	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
Presence of complications[f]										
No	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]	1 [reference]
Yes	0.64 (0.54-0.77)	0.60 (0.49-0.73)	1.40 (1.18-1.66)	0.64 (0.55-0.76)	0.51 (0.42-0.62)	1.24 (0.89-1.74)	1.04 (0.82-1.32)	1.41 (1.19-1.66)	0.97 (0.70-1.34)	0.96 (0.73-1.25)

Abbreviations: BMI, body mass index; BP, blood pressure; HbA1c, hemoglobin A1c; LDL-C, low-density lipoprotein cholesterol; WC, waist circumference.

[a] Diagnosed diabetes was defined as having self-report of diabetes diagnosis by a doctor or other health professional.

[b] Logistic regressions were used with all shown risk factors included as covariates. Survey weights and design variables were considered.

[c] Unweighted number of adults with diagnosed diabetes.

[d] Race/ethnicity was determined by self-report in fixed categories. Non-Hispanic Asians were not available before 2011 due to the survey design and thus estimates could not be presented separately. All other racial and ethnic groups were grouped as "Other".

[e] BMI was computed by dividing weight in kilograms by height in meters squared. Estimates are not shown for adults with BMI <18.5 kg/m^2 (i.e., underweight) due to small sample size (n=19).

[f] Complications were defined as having self-reported cardiovascular disease (congestive heart failure, coronary heart disease, heart attack or stroke) or retinopathy or urine albumin-to-creatinine ratio ≥ 30 mg/g or estimated glomerular filtration rate <60 mL/min/1.73 m^2.

eTable 12. Trends in prevalence of diabetes including cases identified by 2-hour plasma glucose, 2005-2016[a]

	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016	Change per 2-year cycle[b]	P for trend[b]
Diabetes[c]	13.5 (11.8-15.2)	15.4 (13.2-17.5)	14.9 (12.8-17.0)	14.5 (12.6-16.5)	14.3 (13.5-15.2)	15.7 (13.9-17.4)	1.1 (-2.3 to 4.6)	.44
Diagnosed diabetes[d]	8.0 (7.0-8.9)	8.8 (7.4-10.2)	8.5 (7.5-9.6)	9.4 (8.1-10.6)	10.0 (9.1-10.9)	10.6 (9.1-12.1)	5.8 (3.9 to 7.8)	.001
Undiagnosed diabetes[e]	5.5 (4.3-6.8)	6.6 (5.4-7.7)	6.4 (5.0-7.8)	5.1 (3.9-6.3)	4.3 (3.8-4.9)	5.0 (4.1-6.0)	-7.1 (-15.1 to 1.7)	.09
% of diabetes that was undiagnosed[f]	40.4 (34.2-46.6)	42.3 (38.0-46.7)	42.8 (38.4-47.1)	35.3 (29.7-40.9)	30.3 (26.6-34.1)	31.8 (26.2-37.4)	-7.5 (-13.7 to -0.9)	.04

[a] All estimates were age standardized to the 2017-2018 National Health and Nutrition Examination Survey non-pregnant adult population using the age groups of 18-44 years, 45-64 years, and 65 years or greater.
[b] Estimated using the Joinpoint Regression Program.
[c] Included both diagnosed and undiagnosed diabetes.
[d] Self-report of diabetes diagnosis by a doctor or other health professional.
[e] Hemoglobin A1c level of 6.5% or higher or fasting plasma glucose level of 126 mg/dL or higher or 2-hour plasma glucose level of 200 mg/dL or higher among those without self-reported diabetes.
[f] Estimates were age standardized to all diabetes cases in 2017-2018 other than during pregnancy in the National Health and Nutrition Examination Survey using the age groups of 18-44 years, 45-64 years, and 65 years or greater.