Diabetes (D)

Lead Agencies

Centers for Disease Control and Prevention
National Institutes of Health

Contents

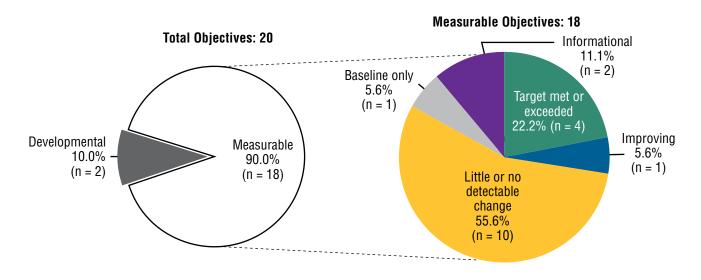# Goal: Reduce the disease burden of diabetes mellitus (DM) and improve the quality of life for all persons who have, or are at risk for, DM.

This chapter includes objectives that monitor diabetes incidence, mortality, diagnosis, treatment and control, proportion of diagnosed diabetes, education, and prevention behaviors. The Reader's Guide provides a step-by-step explanation of the content of this chapter, including criteria for highlighting objectives in the Selected Findings.[1]

Status of Objectives

Figure 8–1. Midcourse Status of the Diabetes Objectives

Of the 20 objectives in the Diabetes Topic Area, 2 were developmental,[2] and 18 objectives were measurable[3] (Figure 8–1, Table 8–1). The midcourse status of the measurable objectives was as follows (Table 8–2):

- 4 objectives had met or exceeded their 2020 targets,[4]

- 1 objective was improving,[5]

- 10 objectives had demonstrated little or no detectable change,[6]

- 1 objective had baseline data only,[7] and

- 2 objectives were informational.[8]

Selected Findings

Diabetes Incidence and Mortality

Of the two objectives tracking diabetes incidence and mortality, one exceeded the 2020 target, and one had improved (Table 8–2).

- The age-adjusted rate of **new cases of diagnosed diabetes among persons aged 18–84** (D-1) declined from 8.0 cases per 1,000 population in 2006–2008 to 6.7 in 2012–2014, exceeding the 2020 target (Table 8–2).

  » In 2012–2014, disparities in the age-adjusted rate of new cases of diagnosed diabetes among adults (D-1) by race and ethnicity, education, family income, disability status, and geographic location were statistically significant (Table 8–3). The disparity by sex was not statistically significant.

- The age-adjusted rate of **diabetes-related deaths**[9] (D-3) declined from 74.0 deaths per 100,000 population in 2007 to 69.2 in 2013, moving toward the 2020 target (Table 8–2).

  » The age-adjusted diabetes-related death rate (D-3) varied by state. In 2013, 24 states had met or exceeded the national 2020 target (Map 8–1).

  » In 2013, disparities in the age-adjusted rate of diabetes-related deaths (D-3) by sex, race and ethnicity, and geographic location were statistically significant (Table 8–3).

Diabetes Control Among Persons With Diagnosed Diabetes

Three objectives tracking diabetes control demonstrated little or no detectable change. A target was not set for two objectives, so progress toward target attainment was not assessed (Table 8–2).

- The age-adjusted rate of **lower extremity amputations in persons with diagnosed diabetes** (D-4) was 3.5 per 1,000 population in 2005–2007 and 3.4 in 2008–2010 (Table 8–2). A 2020 target was not set for this objective.

  » In 2008–2010, disparities in the age-adjusted rate of lower extremity amputations in persons with diagnosed diabetes (D-4) by sex and race and ethnicity were statistically significant (Table 8–3).

- From 2005–2008 to 2009–2012, there was little or no detectable change in the age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes whose A1c value was greater than 9%** (18.0% and 21.0%, respectively) (Table 8–2, D-5.1).

  » In 2009–2012, disparities in the age-adjusted proportion of adults with diagnosed diabetes whose A1c value was greater than 9% (D-5.1) by sex and race and ethnicity were statistically significant (Table 8–3). The disparities by education, family income, and disability status were not statistically significant.

- The age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes whose A1c value was less than 7%** (D-5.2) was 53.1% in 2005–2008 and 48.2% in 2009–2012. A 2020 target was not set for this objective (Table 8–2).

  » In 2009–2012, the disparity in the age-adjusted proportion of adults with diagnosed diabetes whose A1c value was less than 7% (D-5.2) by sex was statistically significant (Table 8–3). The disparities by race and ethnicity, education, family income, and disability status were not statistically significant.

- From 2005–2008 to 2009–2012, there was little or no detectable change in the age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes whose LDL cholesterol level was under control** (53.0% and 49.9%, respectively) (Table 8–2, D-6).

  » In 2009–2012, disparities in the age-adjusted proportion of adults with diagnosed diabetes whose LDL cholesterol level was under control (D-6) by sex, race and ethnicity, education, family income, and disability status were not statistically significant (Table 8–3).

- From 2005–2008 to 2009–2012, there was little or no detectable change in the age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes whose blood pressure was under control** (51.8% and 55.4%, respectively) (Table 8–2, D-7).

  » In 2009–2012, disparities in the age-adjusted proportion of adults with diagnosed diabetes whose blood pressure was under control (D-7) by race and ethnicity and education were statistically significant (Table 8–3). The disparities by sex, family income, and disability status were not statistically significant.

Diagnosis and Treatment

Of the eight objectives monitoring diabetes diagnosis and treatment, one objective exceeded the 2020 target, six objectives demonstrated little or no detectable change, and one objective had baseline data only (Table 8–2).

- Between 2008 and 2014, there was little or no detectable change in the age-adjusted proportion of **persons aged 2 years and over with diagnosed diabetes who had an annual dental examination** (55.6% and 54.5%, respectively) (Table 8–2, D-8).

  » In 2014, disparities in the age-adjusted proportion of persons with diagnosed diabetes who had an annual dental examination (D-8) by race and ethnicity, education, family income, and disability status were statistically significant (Table 8–3). The disparities by sex and geographic location were not statistically significant.

- Between 2008 and 2010, there was little or no detectable change in the age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes who had annual foot examinations** (68.0% and 68.4%, respectively) (Table 8–2, D-9).

  » In 2010, disparities in the age-adjusted proportion of adults with diagnosed diabetes who had annual foot examinations (D-9) by race and ethnicity and education were statistically significant (Table 8–3). The disparities by sex, household income, disability status, and geographic location were not statistically significant.

- The age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes who had received an annual dilated eye examination** (D-10) was 53.4% in 2008 (Table 8–2). Data beyond the baseline were not available, so progress toward the 2020 target could not be assessed.

» In 2008, the disparity by education in the age-adjusted proportion of adults with diagnosed diabetes who had received an annual dilated eye examination (D-10) was statistically significant (Table 8–3). The disparities by sex, race and ethnicity, family income, and geographic location were not statistically significant.

■ Between 2008 and 2010, there was little or no detectable change in the age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes who had an A1c test at least twice a year** (64.6% and 66.5%, respectively) (Table 8–2, D-11).

» In 2010, disparities in the age-adjusted proportion of adults with diagnosed diabetes who had an A1c test at least twice a year (D-11) by education and household income were statistically significant (Table 8–3). The disparities by sex, race and ethnicity, disability status, and geographic location were not statistically significant.

■ The proportion of **Medicare beneficiaries with diagnosed diabetes who received an annual urinary microalbumin measurement** (D-12) increased from 33.3% in 2007 to 42.4% in 2012, exceeding the 2020 target (Table 8–2).

» In 2012, disparities in the proportion of Medicare beneficiaries with diagnosed diabetes who received an annual urinary microalbumin measurement (D-12) by sex and race and ethnicity were statistically significant (Table 8–3).

■ Between 2008 and 2010, there was little or no detectable change in the age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes who self-monitored their blood glucose at least once daily** (64.0% and 65.0%, respectively) (Table 8–2, D-13).

» In 2010, disparities in the age-adjusted proportion of adults with diagnosed diabetes who self-monitored their blood glucose at least once daily (D-13) by sex, race and ethnicity, household income, disability status, and geographic location were statistically significant (Table 8–3). The disparity by education was not statistically significant.

■ Between 2008 and 2010, little or no detectable change was observed in the age-adjusted proportion of **persons aged 18 and over with diagnosed diabetes who had ever had formal education in diabetes self-management** (56.8% and 58.0%, respectively) (Table 8–2, D-14).

» In 2010, disparities in the age-adjusted proportion of adults with diagnosed diabetes who had ever had formal education in diabetes self-management (D-14) were statistically significant by sex, education, household income, and geographic location (Table 8–3). The disparities by race and ethnicity and disability status were not statistically significant.

■ From 2005–2008 to 2009–2012, there was little or no detectable change in the age-adjusted proportion of **persons aged 20 and over with diabetes whose condition had been diagnosed** (72.5% and 67.7%, respectively) (Table 8–2, D-15).

» In 2009–2012, the disparity by disability status in the age-adjusted proportion of adults with diabetes whose condition had been diagnosed (D-15) was statistically significant (Table 8–3). Disparities by sex, race and ethnicity, education, and family income were not statistically significant.

Prevention Behaviors: Persons With Prediabetes

Two of the three objectives addressing behaviors to reduce the risk of developing type 2 diabetes among persons with prediabetes had exceeded their targets, and one demonstrated little or no detectable change (Table 8–2).

■ From 2005–2008 to 2011–2012, the age-adjusted proportion of **persons aged 18 and over with prediabetes who increased their physical activity levels** (D-16.1) increased from 44.6% to 54.7%, exceeding the 2020 target (Table 8–2).

» In 2011–2012, disparities by sex and education in the age-adjusted proportion of adults with prediabetes who increased their physical activity levels (D-16.1) were statistically significant (Table 8–3). The disparities by race and ethnicity, family income, and disability status were not statistically significant.

■ The age-adjusted proportion of **persons aged 18 and over with prediabetes who were trying to lose weight** (D-16.2) increased from 50.0% in 2005–2008 to 56.5% in 2011–2012, exceeding the 2020 target (Table 8–2).

» In 2011–2012, disparities in the age-adjusted proportion of adults with prediabetes who were trying to lose weight (D-16.2) by sex, race and ethnicity, education, and disability status were statistically significant (Table 8–3). The disparity by family income was not statistically significant.

- There was little or no detectable change in the age-adjusted proportion of **persons aged 18 and over with prediabetes who reduced fat or calories in their diet** (D-16.3) between 2005–2008 and 2011–2012 (48.5% and 49.1%, respectively) (Table 8–2).

  » In 2011–2012, disparities in the age-adjusted proportion of adults with prediabetes who reduced fat or calories in their diet (D-16.3) by sex and disability status were statistically significant (Table 8–3). The disparities by race and ethnicity, education, and family income were not statistically significant.

More Information

In clinical settings, safe and practical threshold values for poor glycemic control, good glycemic control, lipid control, and blood pressure control may vary for individuals with diabetes based on factors such as age, co-morbidities, symptomatic history, or social circumstances.

Readers interested in more detailed information about the objectives in this topic area are invited to visit the HealthyPeople.gov website, where extensive substantive and technical information is available:

- For the background and importance of the topic area, see: http://www.healthypeople.gov/2020/topics-objectives/topic/diabetes

- For data details for each objective, including definitions, numerators, denominators, calculations, and data limitations, see: http://www.healthypeople.gov/2020/topics-objectives/topic/diabetes/objectives
  Select an objective, then click on the "Data Details" icon.

- For objective data by population group (e.g., sex, race and ethnicity, or family income), including rates, percentages, or counts for multiple years, see: http://www.healthypeople.gov/2020/topics-objectives/topic/diabetes/objectives
  Select an objective, then click on the "Data2020" icon.

Data for the measurable objectives in this chapter were from the following data sources:

- Behavioral Risk Factor Surveillance System: http://www.cdc.gov/brfss/

- Bridged-race Population Estimates: http://www.cdc.gov/nchs/nvss/bridged_race.htm

- National Health and Nutrition Examination Survey: http://www.cdc.gov/nchs/nhanes.htm

- National Health Interview Survey: http://www.cdc.gov/nchs/nhis.htm

- National Hospital Discharge Survey: http://www.cdc.gov/nchs/nhds.htm

- National Vital Statistics System–Mortality: http://www.cdc.gov/nchs/deaths.htm

- United States Renal Data System: https://www.usrds.org/

Footnotes

[1]The Technical Notes provide more information on Healthy People 2020 statistical methods and issues.

[2]**Developmental** objectives did not have a national baseline value.

[3]**Measurable** objectives had a national baseline value.

[4]**Target met or exceeded**—One of the following, as specified in the Midcourse Progress Table:
» At baseline the target was not met or exceeded and the midcourse value was equal to or exceeded the target. (The percentage of targeted change achieved was equal to or greater than 100%.)
» The baseline and midcourse values were equal to or exceeded the target. (The percentage of targeted change achieved was not assessed.)

[5]**Improving**—One of the following, as specified in the Midcourse Progress Table:
» Movement was toward the target, standard errors were available, and the percentage of targeted change achieved was statistically significant.
» Movement was toward the target, standard errors were not available, and the objective had achieved 10% or more of the targeted change.

[6]**Little or no detectable change**—One of the following, as specified in the Midcourse Progress Table:
» Movement was toward the target, standard errors were available, and the percentage of targeted change achieved was not statistically significant.

» Movement was toward the target, standard errors were not available, and the objective had achieved less than 10% of the targeted change.

» Movement was away from the baseline and target, standard errors were available, and the percentage change relative to the baseline was not statistically significant.

» Movement was away from the baseline and target, standard errors were not available, and the objective had moved less than 10% relative to the baseline.

» There was no change between the baseline and the midcourse data point.

[7]**Baseline only**—The objective only had one data point, so progress toward target attainment could not be assessed.

[8]**Informational**—A target was not set for this objective, so progress toward target attainment could not be assessed.

[9]Diabetes-related mortality data are derived from the National Vital Statistics System multiple-cause-of-death files. Data include all mentions of diabetes on the death certificate, whether as an underlying or multiple cause of death.

Suggested Citation

National Center for Health Statistics. Chapter 8: Diabetes. Healthy People 2020 Midcourse Review. Hyattsville, MD. 2016.

Table 8–1. Diabetes Objectives

LEGEND

🚦 Data for this objective are available in this chapter's Midcourse Progress Table.

📊 Disparities data for this objective are available, and this chapter includes a Midcourse Health Disparities Table.

🗺️ A state or county level map for this objective is available at the end of the chapter.

Not Applicable	Midcourse data availability is not applicable for developmental and archived objectives. **Developmental** objectives did not have a national baseline value. **Archived** objectives are no longer being monitored due to lack of data source, changes in science, or replacement with other objectives.

Objective Number	Objective Statement	Data Source	Midcourse Data Availability
D-1	Reduce the annual number of new cases of diagnosed diabetes in the population	National Health Interview Survey (NHIS), CDC/NCHS	🚦 📊
D-2.1	(Developmental) Reduce the rate of all-cause mortality among persons with diabetes	(Potential) National Death Index (NDI), CDC/NCHS; National Health Interview Survey (NHIS), CDC/NCHS	Not Applicable
D-2.2	(Developmental) Reduce the rate of cardiovascular disease deaths in persons with diagnosed diabetes	(Potential) National Death Index (NDI), CDC/NCHS; National Health Interview Survey (NHIS), CDC/NCHS	Not Applicable
D-3	Reduce the diabetes death rate	National Vital Statistics System–Mortality (NVSS–M), CDC/NCHS; Bridged-race Population Estimates, CDC/NCHS and Census	🚦 📊 🗺️
D-4	Reduce the rate of lower extremity amputations in persons with diagnosed diabetes	National Hospital Discharge Survey (NHDS), CDC/NCHS; National Health Interview Survey (NHIS), CDC/NCHS	🚦 📊
D-5.1	Reduce the proportion of persons with diabetes with an A1c value greater than 9 percent	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	🚦 📊
D-5.2	Proportion of the diabetic population with an A1c value less than 7 percent	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	🚦 📊
D-6	Improve lipid control among persons with diagnosed diabetes	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	🚦 📊
D-7	Increase the proportion of persons with diagnosed diabetes whose blood pressure is under control	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	🚦 📊
D-8	Increase the proportion of persons with diagnosed diabetes who have at least an annual dental examination	National Health Interview Survey (NHIS), CDC/NCHS	🚦 📊
D-9	Increase the proportion of adults with diabetes who have at least an annual foot examination	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP	🚦 📊
D-10	Increase the proportion of adults with diabetes who have an annual dilated eye examination	National Health Interview Survey (NHIS), CDC/NCHS	🚦 📊

Table 8–1. Diabetes Objectives—Continued

LEGEND

Data for this objective are available in this chapter's Midcourse Progress Table.

Disparities data for this objective are available, and this chapter includes a Midcourse Health Disparities Table.

A state or county level map for this objective is available at the end of the chapter.

Not Applicable

Midcourse data availability is not applicable for developmental and archived objectives. **Developmental** objectives did not have a national baseline value. **Archived** objectives are no longer being monitored due to lack of data source, changes in science, or replacement with other objectives.

Objective Number	Objective Statement	Data Source	Midcourse Data Availability
D-11	Increase the proportion of adults with diabetes who have a glycosylated hemoglobin measurement at least twice a year	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP	
D-12	Increase the proportion of persons with diagnosed diabetes who obtain an annual urinary microalbumin measurement	United States Renal Data System (USRDS), NIH/NIDDK	
D-13	Increase the proportion of adults with diabetes who perform self-blood glucose–monitoring at least once daily	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP	
D-14	Increase the proportion of persons with diagnosed diabetes who receive formal diabetes education	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP	
D-15	Increase the proportion of persons with diabetes whose condition has been diagnosed	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	
D-16.1	Increase the proportion of persons at high risk for diabetes with prediabetes who report increasing their levels of physical activity	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	
D-16.2	Increase the proportion of persons at high risk for diabetes with prediabetes who report trying to lose weight	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	
D-16.3	Increase the proportion of persons at high risk for diabetes with prediabetes who report reducing the amount of fat or calories in their diet	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS	

Table 8–2. Midcourse Progress for Measurable[1] Diabetes Objectives

LEGEND

☑ Target met or exceeded[2,3] ✚ Improving[4,5] ◉ Little or no detectable change[6–10] ▬ Getting worse[11,12] ▉ Baseline only[13] ▉ Informational[14]

	Objective Description	Baseline Value (Year)	Midcourse Value (Year)	Target	Movement Toward Target[15]	Movement Away From Baseline[16]	Movement Statistically Significant[17]
☑[2]	**D-1** New cases of diabetes (age-adjusted, per 1,000 population, 18–84 years)	8.0 (2006–2008)	6.7 (2012–2014)	7.2	162.5%		Yes
✚[4]	**D-3** Diabetes-related deaths (age-adjusted, per 100,000 population)	74.0 (2007)	69.2 (2013)	66.6	64.9%		Yes
▉[14]	**D-4** Lower extremity amputations in persons with diagnosed diabetes (age-adjusted, per 1,000 population)	3.5 (2005–2007)	3.4 (2008–2010)				
◉[8]	**D-5.1** Persons with diagnosed diabetes whose A1c value is greater than 9 percent (age-adjusted, percent, 18+ years)	18.0% (2005–2008)	21.0% (2009–2012)	16.2%		16.7%	No
▉[14]	**D-5.2** Persons with diagnosed diabetes whose A1c value is less than 7 percent (age-adjusted, percent, 18+ years)	53.1% (2005–2008)	48.2% (2009–2012)				
◉[8]	**D-6** Persons with diagnosed diabetes whose LDL cholesterol is under control (age-adjusted, percent, 18+ years)	53.0% (2005–2008)	49.9% (2009–2012)	58.3%		5.8%	No
◉[6]	**D-7** Persons with diagnosed diabetes whose blood pressure is under control (age-adjusted, percent, 18+ years)	51.8% (2005–2008)	55.4% (2009–2012)	57.0%	69.2%		No
◉[8]	**D-8** Annual dental examinations among persons with diagnosed diabetes (age-adjusted, percent, 2+ years)	55.6% (2008)	54.5% (2014)	61.2%		2.0%	No
◉[6]	**D-9** Annual foot examinations among adults with diagnosed diabetes (age-adjusted, percent, 18+ years)	68.0% (2008)	68.4% (2010)	74.8%	5.9%		No
▉[13]	**D-10** Annual dilated eye examinations among adults with diagnosed diabetes (age-adjusted, percent, 18+ years)	53.4% (2008)		58.7%			
◉[6]	**D-11** A1C test, at least twice a year among adults with diagnosed diabetes (age-adjusted, percent, 18+ years)	64.6% (2008)	66.5% (2010)	71.1%	29.2%		No
☑[2]	**D-12** Annual urinary microalbumin measurement among Medicare beneficiaries with diagnosed diabetes (percent)	33.3% (2007)	42.4% (2012)	36.6%	275.8%		Yes

Table 8–2. Midcourse Progress for Measurable[1] Diabetes Objectives—Continued

LEGEND

| ✓ Target met or exceeded[2,3] | ✚ Improving[4,5] | ◯ Little or no detectable change[6–10] | ▬ Getting worse[11,12] | ▊ Baseline only[13] | ▊ Informational[14] |

Objective Description	Baseline Value (Year)	Midcourse Value (Year)	Target	Movement Toward Target[15]	Movement Away From Baseline[16]	Movement Statistically Significant[17]
◯[6] **D-13** Self blood-glucose monitoring at least once daily among adults with diagnosed diabetes (age-adjusted, percent, 18+ years)	64.0% (2008)	65.0% (2010)	70.4%	15.6%		No
◯[6] **D-14** Diabetes education among persons with diagnosed diabetes (age-adjusted, percent, 18+ years)	56.8% (2008)	58.0% (2010)	62.5%	21.1%		No
◯[8] **D-15** Persons with diabetes whose condition has been diagnosed (age-adjusted, percent, 20+ years)	72.5% (2005–2008)	67.7% (2009–2012)	79.8%		6.6%	No
✓[2] **D-16.1** Persons with prediabetes who increase their physical activity levels (age-adjusted, percent, 18+ years)	44.6% (2005–2008)	54.7% (2011–2012)	49.1%	224.4%		Yes
✓[2] **D-16.2** Persons with prediabetes who are trying to lose weight (age-adjusted, percent, 18+ years)	50.0% (2005–2008)	56.5% (2011–2012)	55.0%	130.0%		Yes
◯[6] **D-16.3** Persons with prediabetes who reduce fat or calories in their diet (age-adjusted, percent, 18+ years)	48.5% (2005–2008)	49.1% (2011–2012)	53.4%	12.2%		No

Table 8–2. Midcourse Progress for Measurable[1] Diabetes Objectives—Continued

NOTES

See HealthyPeople.gov for all Healthy People 2020 data. The Technical Notes provide more information on the measures of progress.

FOOTNOTES

[1]**Measurable** objectives had a national baseline value.

Target met or exceeded:

[2]At baseline the target was not met or exceeded and the midcourse value was equal to or exceeded the target. (The percentage of targeted change achieved was equal to or greater than 100%.)

[3]The baseline and midcourse values were equal to or exceeded the target. (The percentage of targeted change achieved was not assessed.)

Improving:

[4]Movement was toward the target, standard errors were available, and the percentage of targeted change achieved was statistically significant.

[5]Movement was toward the target, standard errors were not available, and the objective had achieved 10% or more of the targeted change.

Little or no detectable change:

[6]Movement was toward the target, standard errors were available, and the percentage of targeted change achieved was not statistically significant.

[7]Movement was toward the target, standard errors were not available, and the objective had achieved less than 10% of the targeted change.

[8]Movement was away from the baseline and target, standard errors were available, and the percentage change relative to the baseline was not statistically significant.

[9]Movement was away from the baseline and target, standard errors were not available, and the objective had moved less than 10% relative to the baseline.

[10]There was no change between the baseline and the midcourse data point.

Getting worse:

[11]Movement was away from the baseline and target, standard errors were available, and the percentage change relative to the baseline was statistically significant.

[12]Movement was away from the baseline and target, standard errors were not available, and the objective had moved 10% or more relative to the baseline.

[13]**Baseline only:** The objective only had one data point, so progress toward target attainment could not be assessed.

[14]**Informational:** A target was not set for this objective, so progress toward target attainment could not be assessed.

[15]For objectives that **moved toward** their targets, movement toward the target was measured as the percentage of targeted change achieved (unless the target was already met or exceeded at baseline):

$$\text{Percentage of targeted change achieved} = \frac{\text{Midcourse value} - \text{Baseline value}}{\text{HP2020 target} - \text{Baseline value}} \times 100$$

[16]For objectives that **moved away** from their baselines and targets, movement away from the baseline was measured as the magnitude of the percentage change from baseline:

$$\text{Magnitude of percentage change from baseline} = \frac{|\text{Midcourse value} - \text{Baseline value}|}{\text{Baseline value}} \times 100$$

[17]Statistical significance was tested when the objective had a target and at least two data points, standard errors of the data were available, and a normal distribution could be assumed. Statistical significance of the percentage of targeted change achieved or the magnitude of the percentage change from baseline was assessed at the 0.05 level using a normal one-sided test.

DATA SOURCES

D-1	National Health Interview Survey (NHIS), CDC/NCHS
D-3	National Vital Statistics System–Mortality (NVSS–M), CDC/NCHS; Bridged-race Population Estimates, CDC/NCHS and Census
D-4	National Hospital Discharge Survey (NHDS), CDC/NCHS; National Health Interview Survey (NHIS), CDC/NCHS
D-5.1	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-5.2	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-6	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-7	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-8	National Health Interview Survey (NHIS), CDC/NCHS
D-9	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-10	National Health Interview Survey (NHIS), CDC/NCHS
D-11	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-12	United States Renal Data System (USRDS), NIH/NIDDK
D-13	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-14	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-15	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-16.1	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-16.2	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-16.3	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

Table 8–3. Midcourse Health Disparities[1] for Population-based Diabetes Objectives

Most favorable (least adverse) and least favorable (most adverse) group rates and summary disparity ratios[2,3] for selected characteristics at the midcourse data point

LEGEND

At the midcourse data point — ■ Group with the most favorable (least adverse) rate ■ Group with the least favorable (most adverse) rate ▢ Data are available, but this group did not have the highest or lowest rate. ▢ Data are not available for this group because the data were statistically unreliable, not collected, or not analyzed.

Characteristics and Groups

Population-based Objectives	Sex: Summary Disparity Ratio[2]	Race and Ethnicity: Summary Disparity Ratio[3]	Education[4]: Summary Disparity Ratio[3]	Family Income[5]: Summary Disparity Ratio[3]	Disability: Summary Disparity Ratio[2]	Location: Summary Disparity Ratio[2]
D-1 New cases of diabetes (age-adjusted, per 1,000 population, 18–84 years) (2012–2014)	1.112	1.518*	2.068*	2.441*	3.009*	1.277*
D-3 Diabetes-related deaths (age-adjusted, per 100,000 population) (2013)	1.502*	1.701* (a, a)				1.215*
D-4 Lower extremity amputations in persons with diagnosed diabetes (age-adjusted, per 1,000 population) (2008–2010)	2.332*	1.525* (b, b)				
D-5.1 Persons with diagnosed diabetes whose A1c value is greater than 9 percent (age-adjusted, percent, 18+ years) (2009–2012)	1.463*	1.847* (c)	1.183	1.175	1.063 (d, e / d, f)	
D-5.2 Persons with diagnosed diabetes whose A1c value is less than 7 percent (age-adjusted, percent, 18+ years) (2009–2012)	1.275*	1.237 (c, g)	1.085	1.360 (h, i)	1.050 (d, e / d, f)	
D-6 Persons with diagnosed diabetes whose LDL cholesterol is under control (age-adjusted, percent, 18+ years) (2009–2012)	1.284	1.423 (c, g)	1.253	1.361 (h, i)	1.008 (d, e / d, f)	
D-7 Persons with diagnosed diabetes whose blood pressure is under control (age-adjusted, percent, 18+ years) (2009–2012)	1.076	1.264* (c, g)	1.293*	1.228 (h, i)	1.010 (e / f)	
D-8 Annual dental examinations among persons with diagnosed diabetes (age-adjusted, percent, 2+ years) (2014)	1.092	1.372*	1.431*	1.525*	1.269* (j, j)	1.181

Table 8–3. Midcourse Health Disparities[1] for Population-based Diabetes Objectives—Continued

Most favorable (least adverse) and least favorable (most adverse) group rates and summary disparity ratios[2,3] for selected characteristics at the midcourse data point

LEGEND

At the midcourse data point | ■ Group with the most favorable (least adverse) rate | ■ Group with the least favorable (most adverse) rate | ▢ Data are available, but this group did not have the highest or lowest rate. | ▢ Data are not available for this group because the data were statistically unreliable, not collected, or not analyzed.

Population-based Objectives	Sex: Male	Female	Summary Disparity Ratio[2]	R&E: American Indian or Alaska Native	Asian	Native Hawaiian or other Pacific Islander	Two or more races	Hispanic or Latino	Black, not Hispanic	White, not Hispanic	Summary Disparity Ratio[3]	Edu: Less than high school	High school graduate	At least some college	Associate's degree	4-year college degree	Advanced degree	Summary Disparity Ratio[3]	Inc: Poor	Near-poor	Middle	Near-high	High	Summary Disparity Ratio[3]	Dis: Persons with disabilities	Persons without disabilities	Summary Disparity Ratio[2]	Loc: Metropolitan	Nonmetropolitan	Summary Disparity Ratio[2]
D-9 Annual foot examinations among adults with diagnosed diabetes (age-adjusted, percent, 18+ years) (2010)	■	■	1.022	▢	▢	■	▢	■	▢	▢	1.290*	■		k		l		1.082*	m	m	mn	mo		1.072	e	f	1.008	■	■	1.039
D-10 Annual dilated eye examinations among adults with diagnosed diabetes (age-adjusted, percent, 18+ years) (2008)	■	■	1.012		■				■		1.286	■				■		1.328*		■			■	1.247				■	■	1.014
D-11 A1C test, at least twice a year among adults with diagnosed diabetes (age-adjusted, percent, 18+ years) (2010)	■	■	1.006		■				▢		1.162	■		k		l		1.190*	m	m	mn	mo		1.167*	e	f	1.001	■	■	1.023
D-12 Annual urinary microalbumin measurement among Medicare beneficiaries with diagnosed diabetes (percent) (2012)	■	■	1.042*	■	a	a			b	b	1.330*																			
D-13 Self blood-glucose monitoring at least once daily among adults with diagnosed diabetes (age-adjusted, percent, 18+ years) (2010)	■	■	1.161*		▢				■		1.229*	■		k		l		1.060	m	m	mn	mo		1.143*	e	f	1.098*	■	■	1.072*
D-14 Diabetes education among persons with diagnosed diabetes (age-adjusted, percent, 18+ years) (2010)	■	■	1.068*		▢			■	▢		1.102	■		k		l		1.229*	m	m	mn	mo		1.146*	e	f	1.043	■	■	1.110*
D-15 Persons with diabetes whose condition has been diagnosed (age-adjusted, percent, 20+ years) (2009–2012)	■	■	1.058						■		1.087	■		c		g		1.158				h	i	1.246	e	f	1.259*			
D-16.1 Persons with prediabetes who increase their physical activity levels (age-adjusted, percent, 18+ years) (2011–2012)	■	■	1.257*					▢	■		1.202	▢		c		g		1.360*				h	i	1.145	de	df	1.175			

Most favorable (least adverse) and least favorable (most adverse) group rates and summary disparity ratios[2,3] for selected characteristics at the midcourse data point

LEGEND

| At the midcourse data point | ■ Group with the most favorable (least adverse) rate | ■ Group with the least favorable (most adverse) rate | □ Data are available, but this group did not have the highest or lowest rate. | □ Data are not available for this group because the data were statistically unreliable, not collected, or not analyzed. |

Characteristics and Groups

Population-based Objectives	Sex			Race and Ethnicity								Education[4]							Family Income[5]						Disability			Location		
	Male	Female	Summary Disparity Ratio[2]	American Indian or Alaska Native	Asian	Native Hawaiian or other Pacific Islander	Two or more races	Hispanic or Latino	Black, not Hispanic	White, not Hispanic	Summary Disparity Ratio[3]	Less than high school	High school graduate	At least some college	Associate's degree	4-year college degree	Advanced degree	Summary Disparity Ratio[3]	Poor	Near-poor	Middle	Near-high	High	Summary Disparity Ratio[3]	Persons with disabilities	Persons without disabilities	Summary Disparity Ratio[2]	Metropolitan	Nonmetropolitan	Summary Disparity Ratio[2]
D-16.2 Persons with prediabetes who are trying to lose weight (age-adjusted, percent, 18+ years) (2011–2012)	■	■	1.235*	□	□	□	□	□	■	■	1.219*	■	□	c		■ g	□	1.214*	□	□	□	■ h	■ i	1.221	■ d e	■ d f	1.199*	□	□	
D-16.3 Persons with prediabetes who reduce fat or calories in their diet (age-adjusted, percent, 18+ years) (2011–2012)	■	■	1.472*	□	□	□	□	■	□	■	1.199	■	□	c		■ g	□	1.142	□	□	□	■ h	■ i	1.315	■ d e	■ d f	1.204*	□	□	

Table 8–3. Midcourse Health Disparities[1] for Population-based Diabetes Objectives—Continued

NOTES

See HealthyPeople.gov for all Healthy People 2020 data. The Technical Notes provide more information on the measures of disparities.

FOOTNOTES

[1]**Health disparities** were assessed among population groups within specified demographic characteristics (sex, race and ethnicity, educational attainment, etc.). This assessment did not include objectives that were not population-based, such as those based on states, worksites, or those monitoring the number of events.

[2]When there were only two groups (e.g., male and female), the **summary disparity ratio** was the ratio of the higher to the lower rate.

[3]When there were three or more groups (e.g., white non-Hispanic, black non-Hispanic, Hispanic) and the most favorable rate (R_b) was the highest rate, the **summary disparity ratio** was calculated as R_b/R_a, where R_a = the average of the rates for all other groups. When there were three or more groups and the most favorable rate was the lowest rate, the summary disparity ratio was calculated as R_a/R_b.

[4]Unless otherwise footnoted, data do not include persons under age 25 years.

[5]Unless otherwise footnoted, the poor, near-poor, middle, near-high, and high income groups are for persons whose family incomes were less than 100%, 100%–199%, 200%–399%, 400%–599%, and at or above 600% of the poverty threshold, respectively.

*The summary disparity ratio was significantly greater than 1.000. Statistical significance was assessed at the 0.05 level using a normal one-sided test on the natural logarithm scale.

[a]Data are for Asian or Pacific Islander persons.

[b]Data include persons of Hispanic origin.

[c]Data are for persons who completed some college or received an associate's degree.

[d]Data do not include persons under age 20 years.

[e]Data are for persons with activity limitations.

[f]Data are for persons without activity limitations.

[g]Data are for persons who graduated from college or above.

[h]Data are for persons whose family income was 400% to 499% of the poverty threshold.

[i]Data are for persons whose family income was 500% or more of the poverty threshold.

[j]Data do not include persons under age 18 years.

[k]Data are for persons who completed some college or technical school.

[l]Data are for persons who completed a 4-year college degree or above.
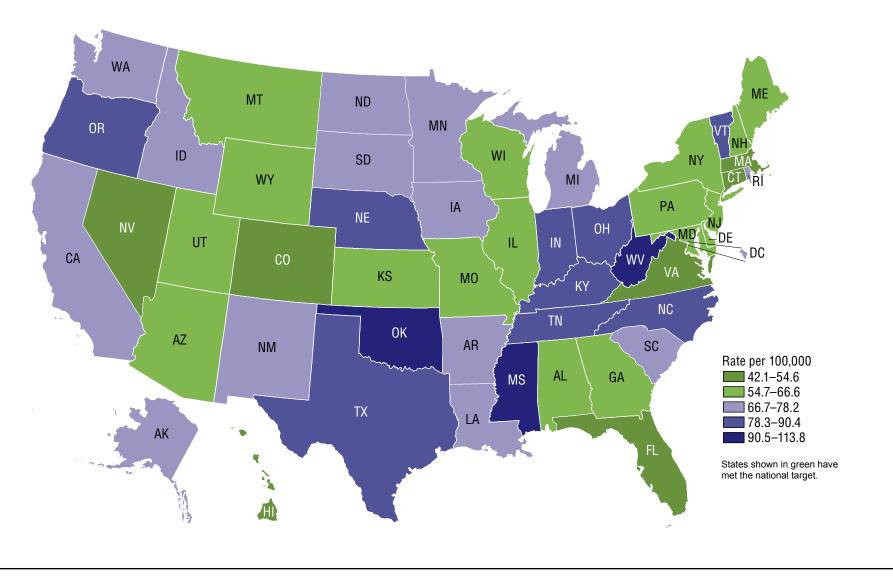
[m]Data are for household income.

[n]Data are for persons whose household income was 200% to 299% of the poverty threshold.

[o]Data are for persons whose household income was 300% or more of the poverty threshold.

DATA SOURCES

D-1	National Health Interview Survey (NHIS), CDC/NCHS
D-3	National Vital Statistics System–Mortality (NVSS–M), CDC/NCHS; Bridged-race Population Estimates, CDC/NCHS and Census
D-4	National Hospital Discharge Survey (NHDS), CDC/NCHS; National Health Interview Survey (NHIS), CDC/NCHS
D-5.1	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-5.2	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-6	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-7	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-8	National Health Interview Survey (NHIS), CDC/NCHS
D-9	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-10	National Health Interview Survey (NHIS), CDC/NCHS
D-11	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-12	United States Renal Data System (USRDS), NIH/NIDDK
D-13	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-14	Behavioral Risk Factor Surveillance System (BRFSS), CDC/NCCDPHP
D-15	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-16.1	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-16.2	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS
D-16.3	National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

Map 8–1. Diabetes-related Deaths, by State: 2013

Healthy People 2020 Objective D-3 ● National Target = 66.6 per 100,000 population ● National Rate = 69.2 per 100,000 population

Rate per 100,000
- 42.1–54.6
- 54.7–66.6
- 66.7–78.2
- 78.3–90.4
- 90.5–113.8

States shown in green have met the national target.

NOTES: Data are for any mention of diabetes (ICD–10 codes E10–E14) as the underlying or the multiple cause of death and are age-adjusted to the 2000 standard population. Data are displayed by a modified Jenks classification for U.S. states which creates categories that minimize within-group variation and maximize between-group variation. The Technical Notes provide more information on the data and methods.

DATA SOURCES: National Vital Statistics System–Mortality (NVSS–M), CDC/NCHS; Bridged-race Population Estimates, CDC/NCHS and Census