



Public Health Infrastructure



CHAPTER 23

Co-Lead Agencies

Centers for Disease Control and Prevention
Health Resources and Services Administration

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GOAL:

Ensure that Federal, Tribal, State, and local health agencies have the infrastructure to provide essential public health services effectively.



The Public Health Infrastructure Focus Area supports the goals and objectives of all other Focus Areas, particularly those that address preparedness and prevention, the management of chronic disease, and those that emphasize healthy behavioral choices. The Public Health Infrastructure objectives encompass Tribal, rural, and urban populations. They focus on four components: data and information systems, workforce, public health organizations, and prevention research.

All Healthy People tracking data quoted in this chapter, along with technical information and Operational Definitions for each objective, can be found in the Healthy People 2010 database, DATA2010, available from <http://wonder.cdc.gov/data2010/>.

More information about this Focus Area can be found in the following publications:

- › *Healthy People 2010: Understanding and Improving Health*, available from <http://www.healthypeople.gov/2010/Document/tableofcontents.htm#under>.
- › *Healthy People 2010 Midcourse Review*, available from <http://www.healthypeople.gov/2010/data/midcourse/html/default.htm#FocusAreas>.

Highlights

- › Over two-thirds of the Public Health Infrastructure objectives were developmental when Healthy People 2010 was first published [1,2]. During the past decade, data sources were identified for many of these objectives, allowing them to be tracked and monitored. Because a number of objectives were revised and others added, the counts of objectives

are not strictly comparable. As of this Final Review, 6 of the 43 objectives in this Focus Area (14%) have remained developmental, and 3 (7%) were deleted at the Midcourse Review.

- › Substantial progress was achieved in objectives for this Focus Area during the past decade, although the tracking period for a number of objectives was 5 years or less [3]. Seventy percent of the Public Health Infrastructure objectives with data to measure progress moved toward or achieved their Healthy People 2010 targets (see Figure 23-1).
- › The timely release of Healthy People 2010 data increased over the decade. The proportion of objectives measured by major data systems from which data were released within 1 year of the end of data collection (objective 23-7) increased 83.3% between 2000 and 2009, from 36% to 66%, moving toward the Healthy People 2010 target of 100%.
- › The National Public Health Performance Standards Program assesses the public health system's capacity to perform essential services (objectives 23-11a through d).
 - The use of performance standards by State public health systems (objective 23-11a) increased 177.8% between 2004 and 2009, from 9 to 25 states, moving toward the 2010 target of 35 states. The use of standards by local public health systems (objective 23-11b) more than doubled between 2004 and 2009, from 12% to 28%, moving toward the target of 50%.
 - During the same period, there was a small increase in the number of states meeting the optimal performance standards (objective 23-11c), from 0% to 4%, moving toward the target of 50%. The proportion of local public health

systems meeting the standards (objective 23-11d) increased 52.8% between 2004 and 2009, from 36% to 55%, exceeding the 2010 target of 50%.

- › The percent of State epidemiologists with formal training in epidemiology (objective 23-14a) increased 50.0% between 2001 and 2008, from 58% to 87%, exceeding the target of 80%.

Summary of Progress

- › Figure 23-1 presents a quantitative assessment of progress in achieving the Healthy People 2010 objectives for Public Health Infrastructure [3]. Data to measure progress toward target attainment were available for 30 objectives. Of these:
 - Five objectives (23-2a, c and d; 23-11d; and 23-14a) met or exceeded their Healthy People 2010 targets.
 - Sixteen objectives (23-4; 23-6; 23-7; 23-11a through c; 23-13c, e, g, i, j, and k; 23-14c and d; and 23-15a and b) moved toward their targets. Data to test the significance of the difference between the baseline and final data points were unavailable for all of these objectives.
 - One objective (23-3) showed no change.
 - Eight objectives moved away from their targets. A statistically significant difference between the baseline and final data points was observed for one objective (23-8b). Data to test the significance of the difference were unavailable for the other seven objectives (23-12c and d, and 23-13a, b, d, f, and h).
- › Six objectives (23-2b, 23-8a, 23-10a, 23-12a, 23-14b, and 23-17) remained developmental and four objectives (23-9, 23-10b and c, and 23-12b) had no follow-up data available to measure progress [1]. Three objectives (23-1, 23-5, and 23-16) were deleted at the Midcourse Review.

Transition to Healthy People 2020

The objectives in the Healthy People 2020 Public Health Infrastructure Topic Area continue to be anchored in the provision of essential services. See HealthyPeople.gov for a complete list of Healthy People 2020 topics and objectives. In addition, the Healthy People 2020 objectives focus more on education of the workforce and improvement of health departments than in Healthy People 2010.

The Healthy People 2020 objectives can be grouped into three sections:

- › Workforce
- › Data and information systems
- › Public health organizations.

The differences between the Healthy People 2010 objectives and Healthy People 2020 are summarized below:

- › The Healthy People 2020 Public Health Infrastructure Topic Area has 44 objectives, 19 of which are developmental, whereas the Healthy People 2010 Focus Area had 43 objectives, including 6 that were still developmental at the end of the decade [1].
- › Fifteen Healthy People 2010 objectives with data were retained “as is” [4]. These include: the use of core competencies in job descriptions at local health agencies and in public health curricula (objectives 23-8b and 23-9), the use of performance standards in local public health systems (objective 23-11b), provision or assurance of comprehensive laboratory services to support essential public health services (objectives 23-13a through k), and the formal training of State epidemiologists (objective 23-14a). An additional four objectives that address Tribal health agency activities (objectives 23-8a, 23-10a, 23-12a, and 23-14b) were also retained “as is” in developmental status [1].
- › Ten Healthy People 2010 objectives were modified [5]. A new data source is being sought for monitoring the provision of continuing education to public health workers (objectives 23-10b and c); health improvement plans implemented at the State and local levels (objectives 23-12b through d) will be tracked and counted if conducted within the last 5, rather than 3, years; and the mechanisms for measuring several other objectives (23-4, 23-6, 23-7, and 23-14c and d) will be changed.
- › Three Healthy People 2010 objectives were deleted at the Midcourse Review. These include: public health employee access to the Internet (objective 23-1), data for Leading Health Indicators (objective 23-5), and data on public health expenditures (objective 23-16).
- › Two Healthy People 2010 objectives that remained developmental were removed during the Healthy People 2020 planning process: availability of Tribal health indicators data (objective 23-2b) and population-based prevention research (objective 23-17).
- › Eight Healthy People 2010 objectives were archived [6]. Of these, the availability of health indicators

data was considered complete (objectives 23-2a, c, and d); geocoding of major data systems (objective 23-3) could not expand further than it had during the previous decade; the meeting of national performance standards (objective 23-11c and d) will be subsumed into the accreditation objective; and public health law and public health systems research (objectives 23-15a and b) cannot be adequately measured at this time.

- › Sixteen new objectives were added to the Healthy People 2020 Topic Area:
 - Five new objectives measure availability of public health programs at the community college and undergraduate levels, as well as the uniformity of undergraduate programs in public health that incorporate core competencies in their curriculum.
 - Objectives that track the levels of government expected to incorporate core competencies for public health professionals into job descriptions and performance evaluations have been expanded to include Federal and State public health agencies. Local boards of health were added to the objective targeting public health system assessment.
 - Three objectives monitoring the number of states using the most recent edition of the U.S. Standard Certificates to collect vital statistics data were added.
 - Objectives that track the quality and quantity of Healthy People 2020 data were expanded.
 - A public health laboratory systems performance objective was added.
 - Objectives addressing public health agency quality improvement and accreditation of State, Tribal, and local health departments also were added.

The Healthy People 2020 objectives reflect the ever-present importance of public health infrastructure to effectively provide essential public health services. For objectives that were deleted at the Midcourse Review or removed during the Healthy People 2020 planning process due to lack of data, the Department of Health and Human Services (DHHS) and the agencies that serve as the leads for the Healthy People 2020 initiative will consider ways to ensure that these public health issues retain prominence despite the lack of data to track them.

[Appendix D](#), “A Crosswalk Between Objectives From Healthy People 2010 to Healthy People 2020,” summarizes the changes between the two decades of objectives, reflecting new knowledge and direction for this area.

Data Considerations

Data collection and data analysis have been a challenge for measuring the Tribal objectives in the Public Health Infrastructure Focus Area due to the diversity of services, methods of service delivery, and data collection and measurement.

The data source used to measure continuing education of public health workers (objectives 23-10b and c) was a national survey of registered nurses. These data were used to characterize all public health workers but only include one type of such employee. Furthermore, the survey was discontinued in 2000.

The Epidemiology Capacity Assessment, conducted by the Council of State and Territorial Epidemiologists, was the data source for tracking State epidemiology services (objectives 23-14a and c). States were asked if they had adequate epidemiologic capacity to provide the four essential public health services. The National Profile of Local Health Departments, conducted by the National Association of County and City Health Departments, was the data source for tracking epidemiology services provided through local public health agencies (objective 23-14d). Respondents were asked to indicate which organization provided epidemiology and surveillance services in six categories. Agencies responding that services were provided by the local health department only, another local government agency only, a State agency only, or a nongovernment organization only, were categorized as providing adequate epidemiology services. Because of the different definitions of adequate services used, the data for State and local health departments should not be compared.

Additional information on data issues is available from the following sources:

- › All Healthy People 2010 tracking data can be found in the Healthy People 2010 database, DATA2010, available from <http://wonder.cdc.gov/data2010/>.
- › Detailed information about the data and data sources used to support these objectives can be found in the Operational Definitions on the DATA 2010 website, available from <http://wonder.cdc.gov/data2010/focusod.htm>.
- › More information on statistical issues related to Healthy People tracking and measurement can be found in the [Technical Appendix](#) and in *Healthy People 2010: General Data Issues*, which is available in the General Data Issues section of the NCHS Healthy People website under Healthy People 2010; see http://www.cdc.gov/nchs/healthy_people/hp2010/hp2010_data_issues.htm.

References and Notes

1. To be included in Healthy People 2010, an objective must have a national data source that provides a baseline and at least one additional data point for tracking progress. Some objectives lacked baseline data at the time of their development but had a potential data source and were considered of sufficient national importance to be included in Healthy People. These are called “developmental” objectives. When data become available, a developmental objective is moved to measurable status and a Healthy People target can be set.
2. Department of Health and Human Services (DHHS). Healthy People 2010. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, D.C.: Government Printing Office, November 2000.
3. Displayed in the Progress Chart (Figure 23-1), the percent of targeted change achieved expresses the difference between the baseline and the final value relative to the initial difference between the baseline and the Healthy People 2010 target. As such, it is a relative measure of progress toward attaining the Healthy People 2010 target. See the [Reader’s Guide](#) for more information. When standard errors were available, the difference between the baseline and the final value was tested at the 0.05 level of significance. See the Figure 23-1 footnotes, as well as the [Technical Appendix](#), for more detail.
4. As of the Healthy People 2020 launch, Healthy People 2020 objectives that were retained “as is” from Healthy People 2010 had no change in the numerator or denominator definitions, the data source(s), or the data collection methodology. These include objectives that were developmental in Healthy People 2010 and are developmental in Healthy People 2020, and for which no numerator information is available.
5. As of the Healthy People 2020 launch, objectives that were modified from Healthy People 2010 had some change in the numerator or denominator definitions, the data source(s), or the data collection methodology. These include objectives that went from developmental in Healthy People 2010 to measurable in Healthy People 2020, or vice versa.
6. Archived objectives had at least one data point in Healthy People 2010 but were not carried forward into Healthy People 2020.

Comprehensive Summary of Objectives: Public Health Infrastructure

Objective	Description	Data Source or Objective Status
23-1	Public health employee access to the Internet	Deleted at the Midcourse Review.
23-2a	Health-related indicator data available—National	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-2b	Health-related indicator data available—Tribal	Developmental.
23-2c	Health-related indicator data available—State	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-2d	Health-related indicator data available—Local	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-3	Use of geocoding in major health data systems	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-4	Data for all population groups in Healthy People 2010 objectives	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-5	Data for Leading Health Indicators	Deleted at the Midcourse Review.
23-6	Healthy People 2010 objectives tracked at least every 3 years	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-7	Release of data on Healthy People 2010 objectives within 1 year of collection	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-8a	Tribal agencies with core competencies in job descriptions and performance evaluations	Developmental.

Comprehensive Summary of Objectives: Public Health Infrastructure (continued)

Objective	Description	Data Source or Objective Status
23-8b	Local agencies with core competencies in job descriptions and performance evaluations	National Profile of Local Health Departments, National Association of County and City Health Officials (NACCHO).
23-9	Core competencies in public health curricula	Public Health Competencies Survey, Council on Linkages, American Schools of Public Health, Association of Teachers of Preventive Medicine, and the Quad Council.
23-10a	Continuing education—Tribal public health personnel	Developmental.
23-10b	Continuing education—State public health personnel	National Sample Survey of Registered Nurses, HRSA, Bureau of Health Professionals.
23-10c	Continuing education—Local public health personnel	National Sample Survey of Registered Nurses, HRSA, Bureau of Health Professionals.
23-11a	Use of performance standards—State public health systems (no. States)	National Public Health Performance Standards Program, CDC, OCPHP.
23-11b	Use of performance standards—Local public health systems	National Public Health Performance Standards Program, CDC, OCPHP.
23-11c	Met performance standards—State public health systems	National Public Health Performance Standards Program, CDC, OCPHP.
23-11d	Met performance standards—Local public health systems	National Public Health Performance Standards Program, CDC, OCPHP.
23-12a	Health improvement plans—Tribal health agencies	Developmental.
23-12b	Health improvement plans—State health agencies	Salary Survey of State and Territorial Health Officials, Association of State and Territorial Health Officials (ASTHO).
23-12c	Health improvement plans—Local health agencies	National Profile of Local Health Departments, National Association of County and City Health Officials (NACCHO).
23-12d	Health improvement plans—Local plan linked to State plan	National Profile of Local Health Departments, National Association of County and City Health Officials (NACCHO).
23-13a	Public health laboratory services (States and D.C.)—Disease prevention control and surveillance	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13b	Public health laboratory services (States and D.C.)—Integrated data management	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13c	Public health laboratory services (States and D.C.)—Reference and specialized testing	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13d	Public health laboratory services (States and D.C.)—Environmental health and protection	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13e	Public health laboratory services (States and D.C.)—Food safety	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13f	Public health laboratory services (States and D.C.)—Laboratory improvement and regulation	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13g	Public health laboratory services (States and D.C.)—Policy development	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13h	Public health laboratory services (States and D.C.)—Emergency response	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13i	Public health laboratory services (States and D.C.)—Public health related research	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).

Comprehensive Summary of Objectives: Public Health Infrastructure (continued)

Objective	Description	Data Source or Objective Status
23-13j	Public health laboratory services (States and D.C.)—Training and education	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-13k	Public health laboratory services (States and D.C.)—Partnerships and communication	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-14a	Provide or assure comprehensive epidemiology services—State epidemiologists with formal training	Epidemiology Capacity Assessment, Council of State and Territorial Epidemiologists (CSTE).
23-14b	Provide or assure comprehensive epidemiology services—Tribal agencies	Developmental.
23-14c	Provide or assure comprehensive epidemiology services—State agencies	Epidemiology Capacity Assessment, Council of State and Territorial Epidemiologists (CSTE).
23-14d	Provide or assure comprehensive epidemiology services—Local agencies	National Profile of Local Health Departments, National Association of County and City Health Officials (NACCHO).
23-15a	Evaluation of public health laws—Turning Point Model State Public Health Act (no. States and D.C.)	Center for Public Health Law and the Public's Health, Georgetown University Law Center and Johns Hopkins Bloomberg School of Public Health.
23-15b	Evaluation of public health laws—Model State Emergency Powers Act (no. States and D.C.)	Center for Public Health Law and the Public's Health, Georgetown University Law Center and Johns Hopkins Bloomberg School of Public Health.
23-16	Data on public health expenditures	Deleted at the Midcourse Review.
23-17	Population-based prevention research	Developmental.

Figure 23-1. Progress Toward Target Attainment for Focus Area 23: Public Health Infrastructure

LEGEND		 Moved away from target ¹	 Moved toward target	 Met or exceeded target					
Objective	Percent of targeted change achieved ²	2010 Target	Baseline (Year)	Final (Year)	Baseline vs. Final				
					Difference ³	Statistically Significant ⁴	Percent Change ⁵		
23-2. Health-related indicator data available									
a. National		100%	100% (2008)	N/A ⁶	N/A ⁶	N/A ⁶	N/A ⁶		
c. State		100%	100% (2008)	N/A ⁶	N/A ⁶	N/A ⁶	N/A ⁶		
d. Local		100%	100% (2008)	N/A ⁶	N/A ⁶	N/A ⁶	N/A ⁶		
23-3. Use of geocoding in major health data systems	0.0%	100%	50% (2000)	50% (2009)	0	Not tested	0.0%		
23-4. Data for all population groups in Healthy People 2010 objectives	 14.9%	100%	13% (2004)	26% (2008)	13	Not tested	100.0%		
23-6. Healthy People 2010 objectives tracked at least every 3 years	 3.6%	100%	44% (2004)	46% (2008)	2	Not tested	4.5%		
23-7. Release of data on Healthy People 2010 objectives within 1 year of collection	 46.9%	100%	36% (2000)	66% (2009)	30	Not tested	83.3%		
23-8b. Local agencies with core competencies in job descriptions and performance evaluations		31%	21% (2005)	15% (2008)	-6	Yes	-28.6%		
23-11. Use of performance standards									
a. State public health systems (no. States)	 61.5%	35	9 (2004)	25 (2009)	16	Not tested	177.8%		
b. Local public health systems	 42.1%	50%	12% (2004)	28% (2009)	16	Not tested	133.3%		
Met performance standards									
c. State public health systems	 8.0%	50%	0% (2004)	4% (2009)	4	Not tested	N/A ⁷		
d. Local public health systems	 135.7%	50%	36% (2004)	55% (2009)	19	Not tested	52.8%		
23-12. Health improvement plans									
c. Local health agencies		80%	53% (1999)	49% (2008)	-4	Not tested	-7.5%		
d. Local plan linked to State plan		41%	37% (2005)	33% (2008)	-4	Not tested	-10.8%		

Figure 23-1. Progress Toward Target Attainment for Focus Area 23: Public Health Infrastructure (continued)

Objective	Percent of targeted change achieved ²					2010 Target	Baseline (Year)	Final (Year)	Baseline vs. Final			
	0	25	50	75	100				Difference ³	Statistically Significant ⁴	Percent Change ⁵	
23-13. Public health laboratory services (States and D.C.)												
a. Disease prevention control and surveillance						100%	98% (2006)	88% (2008)	-10	Not tested	-10.2%	
b. Integrated data management						73%	59% (2006)	55% (2008)	-4	Not tested	-6.8%	
c. Reference and specialized testing						82%	67% (2006)	78% (2008)	11	Not tested	16.4%	
d. Environmental health and protection						100%	57% (2006)	55% (2008)	-2	Not tested	-3.5%	
e. Food safety						100%	17% (2006)	31% (2008)	14	Not tested	82.4%	
f. Laboratory improvement and regulation						50%	46% (2006)	41% (2008)	-5	Not tested	-10.9%	
g. Policy development						100%	63% (2006)	67% (2008)	4	Not tested	6.3%	
h. Emergency response						100%	72% (2006)	61% (2008)	-11	Not tested	-15.3%	
i. Public health related research						50%	26% (2006)	29% (2008)	3	Not tested	11.5%	
j. Training and education						50%	28% (2006)	47% (2008)	19	Not tested	65.9%	
k. Partnerships and communication						81%	52% (2006)	61% (2008)	9	Not tested	17.3%	
23-14. Provide or assure comprehensive epidemiology services												
a. State epidemiologists with formal training						80%	58% (2001)	87% (2009)	29	Not tested	50.0%	
c. State agencies						15%	10% (2004)	12% (2009)	2	Not tested	20.0%	
d. Local agencies						57%	52% (2005)	56% (2008)	4	Not tested	7.7%	
23-15. Evaluation of public health laws												
a. Turning Point Model State Public Health Act (no. States and D.C.)						51	30 (2003)	33 (2007)	3	Not tested	10.0%	
b. Model State Emergency Powers Act (no. States and D.C.)						51	35 (2003)	44 (2006)	9	Not tested	25.7%	

Figure 23-1. Progress Toward Target Attainment for Focus Area 23: Public Health Infrastructure (continued)

NOTES

See the [Reader's Guide](#) for more information on how to read this figure. See DATA2010 at <http://wonder.cdc.gov/data2010> for all HealthyPeople 2010 tracking data. Tracking data are not available for objectives 23-2b, 23-8a, 23-9, 23-10a through c, 23-12a, 23-12b, 23-14b, and 23-17. Objectives 23-1, 23-5, and 23-16 were deleted at the Midcourse Review.

FOOTNOTES

¹ Movement away from target is not quantified using the percent of targeted change achieved. See [Technical Appendix](#) for more information.

² Percent of targeted change achieved = $\frac{\text{Final value} - \text{Baseline value}}{\text{Healthy People 2010 target} - \text{Baseline value}} \times 100$.

³ Difference = Final value – Baseline value. Differences between percents (%) are measured in percentage points.

⁴ When estimates of variability are available, the statistical significance of the difference between the final value and the baseline value is assessed at the 0.05 level. See [Technical Appendix](#) for more information.

⁵ Percent change = $\frac{\text{Final value} - \text{Baseline value}}{\text{Baseline value}} \times 100$.

⁶ Data beyond the baseline are not available; difference, statistical significance, and percent change cannot be calculated. See [Technical Appendix](#) for more information.

⁷ Percent change cannot be calculated. See [Technical Appendix](#) for more information.

DATA SOURCES

23-2a.	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-2c-d.	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-3-23-4.	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-6-23-7.	Assessment of Objective Data Availability (AODA), CDC, NCHS.
23-8b.	National Profile of Local Health Departments, National Association of County and City Health Officials (NACCHO).
23-11a-d.	National Public Health Performance Standards Program, CDC, OCPHP.
23-12c-d.	National Profile of Local Health Departments, National Association of County and City Health Officials (NACCHO).
23-13a-k.	Comprehensive Laboratory Services Survey, Association of Public Health Laboratories (APHL).
23-14a.	Epidemiology Capacity Assessment, Council of State and Territorial Epidemiologists (CSTE).
23-14c.	Epidemiology Capacity Assessment, Council of State and Territorial Epidemiologists (CSTE).
23-14d.	National Profile of Local Health Departments, National Association of County and City Health Officials (NACCHO).
23-15a-b.	Center for Public Health Law and the Public's Health, Georgetown University Law Center and Johns Hopkins Bloomberg School of Public Health.

