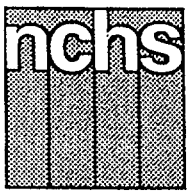
Summer 1993
Vol. 1, No. 4

NATIONAL CENTER FOR HEALTH STATISTICS



HEALTHY PEOPLE 2000 Statistical Notes

From the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

Issues Related to Monitoring the Year 2000 Objectives

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The publication of *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* in the fall of 1990 was the culmination of three years of collaborative effort toward the crafting of 300 specific objectives (1). These activities relied heavily on the experiences gained over the previous decade in the development and monitoring of the 1990 objectives (2).

The National Center for Health Statistics (NCHS) has the lead responsibility for monitoring progress toward the Year 2000 objectives at the national level; we have received inquiries about data and tracking issues. In this article, we describe a number of these issues; some issues are settled, others are yet to be resolved fully. Future *Statistical Notes* will focus on some of the problems raised below in more detail.

Baseline measures

In a number of instances, the baselines published in Healthy People 2000 have been revised. The reasons for these revisions are varied. A large portion of these revisions involved baselines for mortality objectives which were revised when the Census Bureau released updated 1980–1989 intercensal population estimates based on the 1990 census. The development of new computational procedures has also resulted in baseline changes (e.g., see race-specific infant mortality, and American Indians and Alaska Natives, below). For several other objectives, the baselines have been changed because of modifications in methodology, typographical errors, changes in data sources, or because the baseline data were based on preliminary analyses.

The revised baselines will be published in the *1992 Healthy People 2000 Review*, released with Health United States. In addition, the Centers for Disease Control and Prevention (CDC) will incorporate any revised baseline data into its computerized inventory and monitoring data base, described below. The baseline revisions will be discussed in detail in a future issue of *Statistical Notes.*

Tracking Variables

NCHS has received a number of questions about specific measures and data sources used to track each objective. Although many of the objectives have a well-defined method for tracking, accompanying baseline data reflecting that measure, and an implied or obvious data source, there are objectives for which this is not the case. In some instances, a data source is not well-defined, but the baseline shown implies a specific tracking measure. In others, the baseline is a proxy measure, with more appropriate data expected in the future. For some broad objectives, more specific tracking, by proxy, can give valuable information. Finally, there are objectives for which baseline data were not available and the tracking measure is not explicit in the objective. We are working with the Public Health Service agencies responsible for achieving the objectives in each priority area and have identified at least a partial source for each objective.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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In early 1993, CDC released a computerized inventory of data sources for tracking the objectives at the national levels. The inventory includes the full text of each objective, a description of data sources and contact organization by objective, and an assessment of the relative utility of the data source for monitoring progress toward a specific objective. The inventory is accessible through CDC WONDER. A monitoring component, providing baseline and current data for each objective, is also under development.*

Cause-of-death terminology and codes

Twenty-four objectives (excluding duplicates) in *Healthy People 2000* are tracked using mortality data. For most of these objectives, the cause-of-death terminology used in *Healthy People 2000* is different from that used in *Vital Statistics of the United States; Health, United States*; and other NCHS publications. In some cases, both the terminology and the identifying International Classification of Disease (ICD-9) codes are different (Table A).

Specifically, for five objectives both the terminology and the codes are different from those used for similar cause-of-death categories in the NCHS tabulation lists. One example, objective 7.1, concerns the reduction of "homicides". Progress toward this objective is measured by deaths coded to ICD-9 categories E960-E969. The NCHS mortality tabulation lists use "Homicide and legal intervention" (ICD-9 categories E960-E978), which includes deaths resulting from law enforcement activities. For 14 objectives, only the terminology differs; the defining ICD-9 identifying codes are the same. For example, objective 15.2 calls for reduction in mortality from "stroke", for which NCHS mortality tabulation lists use the term "Cerebrovascular diseases" (Both cause titles are referred to by ICD-9 categories 430–438). Only one objective, suicide, has both the same title and the same codes in both uses. The remaining four mortality *Healthy People 2000* objectives have no comparable category in NCHS publications. With the exception of heart disease, the differences between mortality rates defined by the *Healthy People 2000* ICD categories and those defined by the NCHS rubrics are relatively small, if not trivial.

Age-adjustment

Most of the original baselines for mortality objectives published in *Healthy People 2000* are derived from the National Vital Statistics System and are age adjusted to the 1940 population. Exceptions are objectives 4.1 (alcohol-related motor vehicle crash deaths), 9.3 (motor vehicle crash deaths, and 10.1 (work-related injury deaths). Data for 4.1 and 9.3 are crude rates from the National Highway and Traffic Safety Administration's Fatal Accident Reporting System (FARS); data for 10.1 are crude rates from the Department of Labor's Annual Survey of Occupational Injuries and Illnesses. Most of the previously published mortality subobjective baselines are age adjusted as well; the exceptions are subobjectives 4.1a, (a crude rate from FARS), 9.1b, 9.1c, 9.5c, 9.6c, and 9.6d. From now on, all mortality objectives and subobjectives, except for those tracked by FARS, or Department of Labor data, will be tracked with age-adjusted rates.

Minority Health Data

There are 220 subobjectives in *Healthy People 2000* which target special populations, most of which address the health of specific racial or ethnic minority groups. The guidelines for drafting the subobjectives required the identification of a data source to track progress before a subobjective for a minority or special population could be set. Thus, while there are virtually no data gaps for existing subobjectives, lack of data sources prevented the establishment of subobjectives for some population groups. There are a number of issues related to the data requirements for these subobjectives. Many issues will not be easily resolved.

Insufficient sample size/small numbers. While most, but not all, large national data bases include data for minority subgroups, the number of respondents representing these groups is often too small to make reliable estimates. The problem of small numbers is exacerbated when state and local data are required. For those subobjectives which can be tracked with annual or continuous surveys, this problem can be partially overcome by combining adjacent years of data. (The issue of small numbers at the state and local level is not restricted to racial/ethnic data; the broader issue of developing statistical estimates for small areas will be addressed in a future issue of Statistical Notes.)

The collection instruments for many of the NCHS data systems are being modified to capture more detail on race and ethnicity. This will not solve the small numbers issue; in fact, it will exacerbate the problem by creating more specific categories for which there will be small numbers. NCHS has awarded grants under the Disadvantaged Minority Health Improvement Act of 1990 to improve data on the health of racial or ethnic populations, including a focus on specific geographic areas with higher concentrations of the smaller minority populations.

The need for sufficient sample size at the state and local level was recognized and addressed, to some extent, in Objective 22.5a, which recommends the monitoring of sub-objectives only for those racial/ethnic groups that comprise at least 10 percent of a state's population. Based on data from the 1990 census, 26 states and the District of Columbia have at least one minority group meeting this criterion.

*CDC WONDER (Wide-ranging ONline Data for Epidemiologic Research) is an easy-to use information system on the CDC mainframe computer. For information on CDC WONDER and this inventory, call (404)332–4569.

Denominators. The issue of appropriate denominator data for racial and ethnic subgroups has been a problem. In the past, population estimates for many subgroups have not been available for the years between the decennial censuses, particularly at the state level. NCHS is working with the Bureau of the Census to alleviate this concern. Based on recent agreements, we anticipate that national age and sex-specific estimates of the white, black, Asian or Pacific Islander, American Indian/Alaska Natives, and Hispanic populations will be available throughout the coming decade. We also anticipate that state and county-level population estimates will be available by race and/or ethnicity throughout the 1990's.

Standard race/ethnicity classifications. The categorization of race and ethnicity is an ongoing issue. In 1978, the Office of Federal Statistical Policy and Standards, U.S. Department of Commerce, published Directive no. 15 that established classification guidelines for race and ethnicity (4). The directive offered two alternative schemes for record keeping and reporting. They are as follows:

> *To provide flexibility, it is preferable to collect race and ethnicity separately. If separate race and ethnic categories are used, the minimum designations are:*
>
> a. Race:
> —American Indian or Alaskan Native
> —Asian or Pacific Islander
> —Black
> —White
>
> b. Ethnicity
> —Hispanic origin
> —Not of Hispanic origin
>
> *When race and ethnicity are collected separately, the number of White and Black persons who are Hispanic must be identifiable, and capable of being reported in that category.*
>
> *If a combined format is used to collect racial and ethnic data, the minimum acceptable categories are:*
> *American Indian or Alaskan Native*
> *Asian or Pacific Islander*
> *Black, not of Hispanic origin*
> *Hispanic White, not of Hispanic origin*
>
> *The category which most closely reflects the individual's recognition in his community should be used for purposes of reporting on persons who are of mixed racial and/or ethnic origins.*

In 1981, the guidelines in Directive No. 15 were put into effect for the agencies of the Department of Health and Human Services. Interpretation and application of the federal statistical directive to various data bases have not been consistent. The lack of consistency is particularly troublesome when numerators and denominators are derived from different data sources using different methods (e.g., vital statistics with census denominators).

Definitional issues will be addressed in the process of developing comparable data collection procedures (objective 22.3). Our ability to achieve complete comparability may well be limited by real differences in sources of data (surveys as compared to administrative records) and by differences in agency and departmental requirements and research needs.

American Indians and Alaska Natives. The baseline data for many of the subobjectives related to the American Indian and Alaska Native populations were calculated from data for those American Indians and Alaska Natives who reside in an Indian Health Service (IHS) service area or in states containing an IHS service area (commonly called "Reservation States"). Baselines for a few subobjectives were developed from estimates of the prevalence of a given characteristic within certain tribal groups. Other subobjectives used data for the total U.S. American Indian and Alaska Native population.

NCHS staff recently met with representatives of the Office of Disease Prevention and Health Promotion and IHS to discuss monitoring the objectives for American Indians. When possible, we will track the American Indian and Alaska Native subobjectives with data for the entire American Indian population, regardless of whether or not the subobjective baseline data are specific to tribes, IHS service areas, or Reservation States. In these cases, the baselines have been revised accordingly. The more limited data will be used only when information on the total American Indian and Alaska Native population is not available.

Standard tabulation definitions: natality/infant mortality. In 1989, NCHS changed the method of tabulating race-specific data on live births from a complex algorithm for determining race of child to simply using the race of the mother. This modification affects most of the race-specific natality objectives in *Healthy People 2000*, Chapter 14 (Maternal and Infant Health) and several Health Status Indicators. In addition, because live births comprise the denominator of both infant (including neonatal and postneonatal) and maternal mortality and fetal death rates, these rates are also affected. No changes were made in the way in which the numerators for the race-specific infant and maternal mortality and fetal death rates are determined.

The decision to modify the race-specific tabulation algorithm was influenced by three factors: the growing proportion of births for which no information on the father is reported, the increase in interracial parentage, and the topical content of the birth certificate, which was expanded in 1989 to include considerable health and demographic information related to the mother.

Quantitatively, this change results in more white births and fewer births to the black population and other races. Therefore, the change in the denominators causes the infant and maternal mortality and fetal death rates

Table A. Mortality objective cause-of-death categories

Objective number	Healthy People 2000		National Center for Health Statistics	
	Cause of death	ICD–9 Identifying Code	Cause of death	ICD–9 Identifying Codes
1.1	Coronary Heart Disease	410–414, 402, 429.2	Diseases of heart Ischemic heart disease	390–398, 402, 404–429 410–414
1.1a	[Blacks]			
2.1	See 1.1			
2.1a	See 1.1a			
2.2	Cancer	140–208	Malignant neoplasms, including neoplasms of lymphatic hematopoietic tissues	(Same as HP2000)
3.1	See 1.1			
3.1a	See 1.1a			
3.2	Lung cancer	162.2–162.9	Malignant neoplasms of trachea, bronchus, and lung	162
3.3	Chronic obstructive pulmonary diseases	490–496	Chronic obstructive pulmonary diseases and allied conditions	(Same as HP2000)
4.1	Alcohol-related motor vehicle crashes	E810–E819	No comparable category	. . .
4.1a	[American Indians/Alaska Natives]			
4.1b	[Ages 15–24]			
4.2	Cirrhosis	571	Chronic liver disease and cirrhosis	(Same as HP2000)
4.2a	[Black males]			
4.2b	[American Indians/Alaska Natives]			
4.3	Drug-related deaths	292, 304, 305.2–305.9, E850–E858, E950.0–E950.5, E962.0, E980.0–E980.5	Drug-induced causes	(Same as HP2000)
6.1	Suicides	E950–E959	(Same as HP2000)	(Same as HP2000)
6.1a	[Ages 15–19]			
6.1b	[Males 20–34]			
6.1c	[White males 65 and older]			
6.1d	[American Indian/Alaska Native males]			
7.1	Homicides	E960–E969	Homicide and legal intervention	E960–E978
7.1a	[Children 0–3]			
7.1b	[Spouses 15–34]			
7.1c	[Black males 15–34]			
7.1d	[Hispanic males 15–34]			
7.1e	[Black females 15–34]			
7.1f	[American Indians/Alaska Natives]			
7.2	See 6.1			
7.2a	See 6.1a			
7.2b	See 6.1b			
7.2c	See 6.1c			
7.2d	See 6.1d			
7.3	Firearm injuries	E922.0–E922.3, E922.8–E922.9, E955.0–E955.4, E965.0–E965.4, E970, E985.0–E985.4	No comparable category	. . .
	Knife injuries	E920.3, E956, E966, E974, E986	No comparable category	. . .
9.1	Unintentional injuries	E800–E949	Accidents and adverse effects	(Same as HP2000)
9.1a	[American Indians/Alaska Natives]			
9.1b	[Black males]			
9.1c	[White males]			
9.3	Motor vehicle crashes	E810–E825	Motor vehicle accidents	(Same as HP2000)
9.3a	[Ages 14 and younger]			
9.3b	[Ages 15–24]			
9.3c	[Ages 70 and older]			
9.3d	[American Indians/Alaska Natives]			
9.3e	[Motorcyclists]			
9.3f	[Pedestrians]			
9.4	Falls and fall-related injuries	E880–E888	Accidental falls	(Same as HP2000)
9.4a	[Ages 65–84]			
9.4b	[Ages 85+]			
9.4c	[Black males 30–69]			

Table A. Mortality objective cause-of-death categories—Con.

Objective number	Healthy People 2000		National Center for Health Statistics	
	Cause of death	ICD–9 Identifying Code	Cause of death	ICD–9 Identifying Codes
9.5	Drowning	E830, E832, E910	Accidental drowning and submersion	E910
9.5a	[Ages 0–4]			
9.5b	[Males 15–34]			
9.5c	[Black males]			
9.6	Residential fires	E890–E899	Accidents caused by fire and flames (place of accident–home)	(Same as HP2000)
9.6a	[Ages 0–4]			
9.6b	[Ages 65 and older]			
9.6c	[Black males]			
9.6d	[Black females]			
10.1	Work–related injuries	E800–E999	No comparable category	. . .
10.1a	[Mine workers]			
10.1b	[Construction workers]			
10.1c	[Transportation workers]			
10.1d	[Farm workers]			
13.7	Cancer of the oral cavity and pharynx	140–149	Malignant neoplasms of lip, oral cavity, and pharynx	(Same as HP2000)
14.3	Maternal mortality	630–676	Complications of pregnancy, childbirth, and the puerperium or maternal mortality	(Same as HP2000)
14.3a	[Blacks]			
15.1	See 1.1			
15.1a	See 1.1a			
15.2	Stroke	430–438	Cerebrovascular diseases	(Same as HP2000)
15.2a	[Blacks]			
16.1	See 2.2			
16.2	See 3.2			
16.3	Breast cancer in women	174	Malignant neoplasm of female breast	(Same as HP2000)
16.4	Cancer of the uterine cervix	180	Malignant neoplasm of cervix uteri	(Same as HP2000)
16.5	Colorectal cancer	153.0–154.3, 154.8, 159.0	Malignant neoplasms of colon, rectum, rectosigmoid junction, and anus	153, 154
17.9	Diabetes–related deaths[1]	250	Diabetes mellitus	(Same as HP2000)
17.9a	[Blacks]			
17.9b	[American Indians/Alaska Natives]			
20.2	Epidemic–related pneumonia and influenza deaths for ages 65+	480–487	No comparable category	. . .

[1]Healthy People 2000 uses multiple-cause-of-death data.

to be lower for white infants and higher for infants of other races than they were when computed by the previous method. Conversely, population-based natality rates tend to be higher for births to white mothers and lower for births to mothers of other races.

Most race-specific sub-objectives in Chapter 14 are now being tracked by race of mother. The original baselines for these subobjectives (by race of child) have been recomputed to provide comparable trend comparisons. (For more information about this issue see the 1989 Advance Report of Final Natality Statistics.(5))

Data sources for race-specific infant mortality rates. Studies in which race on the birth and death certificates for the same infant were compared demonstrate that infant mortality rates for specified races other than white or black from the annual vital statistics files may be understated (6). As a result, infant mortality for smaller racial or ethnic subgroups is best measured using birth cohort data** from linked infant death and birth files. In a linked file system, the death records are matched to the birth records and infant mortality tabulations are based on the race of mother as reported on the birth certificate. Therefore, the race and ethnicity classification for the numerator and denominator of the infant mortality rate come from the same source (i.e., the birth certificate). State and national data are available from the National Linked Birth-Infant Death file at NCHS.

**Infant Mortality rates for a birth cohort are based on all deaths to infants born during a given year who died before their first birthday. In contrast, a death cohort would include all infants under one year of age who died within a given year.

Linked file data for local areas may be available from state health departments.

Years of Healthy Life

Increasing years of healthy life is one of the three *Healthy People 2000* goals, and is included as three duplicate objectives (8.1, 17.1, 21.1). The 1980 baseline has been updated to 1990, using a revised methodology developed by NCHS and external consultants. This interim measure, which will be used to monitor progress until the year 2000, combines mortality data from the National Vital Statistics System with health status data from the National Health Interview Survey. The definition and measurement of years of healthy life are still being refined; research will continue in this area. Information on this new measure will be published in a forthcoming issue of Statistical Notes.

We hope that this discussion of issues is helpful to state and local agencies in the development of their own Year 2000 monitoring activities. Please feel free to contact us if you have questions or comments about any of the issues raised here, or if there are additional concerns that you would like to see addressed in future Statistical Notes.

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ERRATUM

In Vol. 1 No. 3 the codes for following paragraph on page 3:

- **Homicides per 100,000 population.(*)**
  ICD–9 Codes: **E970–E978** (see comments below)

are incorrect. The correct codes are:

- **Homicides per 100,000 population.(*)**
  ICD–9 Codes: **E960–E978** (see comments below)