Number 11
February 1997

HEALTHY PEOPLE 2000 Statistical Notes

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

Operational Definitions for Year 2000 Objectives: Priority Area 20, Immunization and Infectious Diseases

Colleen Ryan, Susan Schober, and Kathleen Turczyn

Introduction

Healthy People 2000, with its Midcourse Revisions, presents 319 objectives to improve the health of Americans by the year 2000 (1,2). Because these objectives are national, not solely Federal, the achievement of these objectives is dependent in part on the ability of health agencies at all levels of government to assess objective progress. To permit comparison of local and State health data with national data and that of other States and localities, *Healthy People 2000* objective 22.3 targets the development, dissemination, and use of collection methods that improve comparability among data collected by all levels of government. The objective states:

> Develop and disseminate among Federal, State, and local agencies procedures for collecting comparable data for each of the year 2000 national health objectives and incorporate these into Public Health Service data collection systems.

Achieving this objective entails determining and defining the information needed to measure progress toward each national health objective. The purpose of this Statistical Note is to provide definitions and data collection specifications that are used at the national level for objectives in Priority Area 20: Immunization and Infectious Diseases, one of 22 priority areas of *Healthy People 2000*. In this publication the text (appendix A) and operational definitions of the objectives are presented, important data issues are discussed, and references are cited for expanded discussions of the data systems (appendix B) that provide data for the national objectives. When appropriate, the text of questionnaire items used to measure the objectives is also provided.

Table 1 is a data comparability worktable with objective definitions, data sources and issues. This table presents the short text of each objective, the measure, the operational definition (numerator and denominator where applicable), national data source, and a brief description of data issues. The data issues for each objective are discussed in greater detail below.

Acknowledgments

Publication of this *Statistical Note* would not have been possible without the contributions of several Centers for Disease Control and Prevention staff members, to whom we are very grateful. We especially acknowledge the *Healthy People 2000* coordinators, Jeanne Walsh and Victoria Sepe, for their time and commitment, cooperation, and assistance.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics

CENTERS FOR DISEASE CONTROL AND PREVENTION

Table 1. Objective definitions, data sources, and issues for Healthy People 2000 priority area 20

Objective	Measure	Operational definition: Numerator	Operational definition: Denominator	Healthy People 2000 data source	Data issues
20.1 Vaccine preventable diseases - Diphtheria among people 25 years and under - Tetanus among people 25 years and under - Polio (wild type virus) - Measles - Rubella - Congenital Rubella Syndrome - Mumps - Pertussis	Number of cases	Disease cases as described in Centers for Disease Control. Case definitions for public health surveillance. MMWR 39(RR-13):39. October 1990.	Not applicable	NNDSS, CDC, EPO	Data are published annually in MMWR Summary of Notifiable Diseases which may include cases that are not included in MMWR weekly reports due to delays in reporting. Although this objective specifies indigenous cases of measles, all categories of cases are included.
20.2 Epidemic-related pneumonia and influenza deaths among people 65 years and over	Number of deaths per 100,000 population (Three-year moving average)	Deaths from pneumonia and influenza that occur above and beyond normal yearly fluctuations of mortality. ICD-9 codes 480-487	Mid-year US Census population for middle year of the 3-year average	NCID, CDC NVSS, CDC, NCHS	A cyclical regression model is used to establish baseline level to define epidemic-related deaths. Due to high variability in this measure, a three-year moving average is used. Data are calculated by NCID using data from NVSS.
20.3 Viral hepatitis cases - Hepatitis B - Hepatitis A - Hepatitis C *Hepatitis B special populations:* a. Injection drug users b. Heterosexually active people c. Homosexual men d. Children of Asian Pacific Islanders e. Occupationally exposed workers f. Infants g. Alaska Natives h. Blacks *Hepatitis A special populations:* i. Hispanics j. American Indians/ Alaska Natives *Hepatitis C special population:* k. Hispanics	Number of cases per 100,000 population Number of cases (20.3 a-e) Number of new chronic infections (f,g) Number of cases per 100,000 population (20.3 h-k)	For hepatitis B, a case that meets the clinical case definition and is laboratory-confirmed as outlined in: Centers for Disease Control. Case definitions for public health surveillance. MMWR 39(RR-13):17. October 1990. For hepatitis A, a case that meets the clinical case definition and is laboratory-confirmed, or a case that meets the clinical case definition and occurs in a person who has had an epidemiological link with a case of laboratory-confirmed hepatitis A (i.e., household or sexual contact with an infected person in the 15-50 days before onset of symptoms. For hepatitis C, a case that meets the clinical case definition and is laboratory-confirmed as outlined in MMWR to be published early 1997.	Mid-year population estimates based on the July 1 post-censal estimates made by the U.S. Bureau of the Census. Not applicable (20.3 a-g) Mid-year population estimates based on the July 1 post-censal estimates made by the U.S. Bureau of the Census (20.3 h–k)	NNDSS, CDC, EPO NNDSS, CDC, EPO SCSAVH, CDC 20.3 a-c, e, k: SCSAVH 20.3 a-c, e, h-j: NNDSS, CDC, EPO 20.3 d: McMahon BJ, Rhoades ER, Heyward WL, et al. A comprehensive programme to reduce the incidence of hepatitis B virus infection and its sequelae in Alaskan natives. *Lancet* 2:1134-6. 1987. 20.3 e: VHSP, CDC,NCID 20.3 f: Margolis HS. Estimates and reported cases of hepatitis B infection in children. *Pediatr Infect Dis* 12: 542-4. 1993. 20.3 g: IHS Alaskan Carrier Registry	NCID corrects for underreporting in its analysis by using sentinel surveillance system. This system also attributes cases to high risk groups. When multiple data sources are cited for a subobjective, NNDSS is used as the base, data from sentinel counties are used to calculate the proportion at risk, and VHSP data are used when sentinel counties numbers are small.

Table 1. Objective definitions, data sources, and issues for Healthy People 2000 priority area 20—Con.

Objective	Measure	Operational definition: Numerator	Operational definition: Denominator	Healthy People 2000 data source	Data issues
20.4 Tuberculosis (TB) incidence - Special Populations: a. Asians/ Pacific Islanders b. Blacks c. Hispanics d. American Indians/ Alaska Natives	Number of new cases in past 12 months per 100,000 population	TB cases as described in Centers for Disease Control. Case definitions for public health surveillance. MMWR 39(RR-13):39. October 1990. A revised document will be published in February, 1997.	Mid-year population estimates based on the July 1 post-censal estimates made by the U.S. Bureau of the Census.	CDC, NCHSTP, Division of Tuberculosis Elimination Centers for Disease Control and Prevention. Reported Tuberculosis in the United States, annual.	
20.5 Surgical wound and nosocomial infections - Bloodstream infections - Urinary tract infections - Pneumonia	Infections per 1,000 device-days Categories: - Medical/ coronary - Surgical/ medical - Surgical - Pediatric	Device-associated nosocomial infections as defined in: - Garner JS, et al. CDC definitions for nosocomial infections. *Am. J. Inf. Control* 16(3): 128-40. 1988. - NNIS Semi-annual Report, May 1995. -Horan TC, et al. CDC definitions of nosocomial site infections, 1992: a modification of CDC definitions of surgical wound infections. *Infect. Control Hosp. Epidemiol.* 13:606-608. 1992.	Device days in intensive care units (ICUs) *(See NNIS Semi-annual Report, May 1995 for complete instructions for calculating device days)*	NNISS, CDC, NCID	Data are not nationally representative (collected from non-random sample of hospitals that volunteered to participate in survey). Categories of ICU types are now listed individually. Calculations and interpretation of data are detailed in the NNIS Semi-annual Report, 1995.
- Surgical wound infection	Infections per 100 operations Categories: - Low-risk patients - Medium-low risk patients - Medium-high risk patients - High-risk patients	Culver DH, Horan TC, Gaynes RP, et al. Surgical wound infection rates by wound class, operative procedure, and patient risk index. *Am J Med* 91 (3B): 152S-7S. 1991.	Number of operations		
20.6 Illness among international travelers - Typhoid fever - Hepatitis A - Malaria	Number of cases	CDC. Case definitions for public health surveillance. MMWR 39(RR-13). October 1990.	Not applicable	TSS, CDC, NCID NNDSS, CDC, EPO VHSP, CDC, NCID MSS, CDC, NCID	Data are obtained from four different surveillance systems. Definition of "international traveler" differs among systems.
20.7 Bacterial meningitis Pathogenic agents: - *H. Influenzae* - *S. Pneumoniae* - *N. Meningitis* - *S. Agalactiae* - *L. Monocytogenes* - Other	Number of cases per 100,000 population	Wenger JD, et al. Bacterial meningitis in the United States, 1986: Report of a multistate surveillance study. *J. Inf. Diseases.* 162: 1316-23. 1990.	Population estimates based on the 4-5 states that participate, with a combined population ranging from 12 to 15 million	BMSS, CDC, NCID AIL, CDC, NCID	1987 baseline was only data set with all six classes of bacterial meningitis. There is no total number of meningitis cases for subsequent years.

Table 1. Objective definitions, data sources, and issues for Healthy People 2000 priority area 20—Con.

Objective	Measure	Operational definition		Healthy People 2000 data source	Data issues
		Numerator	Denominator		
20.8 Diarrhea among children in child care centers	Percent	Number reporting child having diarrhea and receiving child care outside of the home at any time in the past 12 months *(See table 2 for list of questions)*	Number reporting child receiving child care outside of the home at any time in the past 12 months	NHIS, CDC, NCHS	Civilian non-institutionalized population only. Plans to incorporate the NHIS questions into the NIS are underway.
20.9 Ear infections among children 4 years and under	Number of days per 100 children	Restricted activity days due to ear infections	Number of children in specified age range	NHIS, CDC, NCHS	Civilian non-institutionalized population only. From 1987 to 1996, this measure was extracted from the core section of NHIS and was published annually in *Current Estimates from the National Health Interview Survey*. These data will be unavailable after 1996.
20.10 Pneumonia-related illness among: -People aged 65 and over -Children aged 4 and under	Number of days per 100 people	Restricted activity days due to pneumonia	Number of persons in specified age range	NHIS, CDC, NCHS	Civilian non-institutionalized population only. From 1987 to 1996, this measure was extracted from the core section of NHIS and was published annually in *Current Estimates from the National Health Interview Survey*. These data will be unavailable after 1996.

Table 1. Objective definitions, data sources, and issues for Healthy People 2000 priority area 20—Con.

Objective	Measure	Operational definition: Numerator	Operational definition: Denominator	Healthy People 2000 data source	Data issues
20.11 Immunization	Percent	Number immunized	(*See text section 20.11 for discussion of denominators)*	USIS, CDC, NCHSTP NHIS, CDC, NCHS NIS, CDC, NIS SIS, CDC, NIP	
Basic Immunization Series - Children 0-2 years - Children 19-35 months		*(See table 3 in text section 20.11 for survey questions)* *Technical assistance is available from the National Immunization Program, CDC, at (404) 639-8235.*			
- Children in licensed care facilities	(Presented as a range)			SIS, CDC, NIP	
- Children in kindergarten-post secondary education institutions					
Pneumococcal and influenza immunizations		*(See tables 4 and 5 in text section 20.11 for survey questions)*			
- Institutionalized chronically ill or older people			Nursing home residents	NNHS,CDC, NCHS	1995 data from the NNHS will be available in 1997.
- Non-institutionalized high-risk populations as defined by the Advisory Committee on Immunization Practices: a. Blacks 65+ years b. Hispanics 65+ years			People ages 65 years and over	NHIS, CDC, NCHS	NHIS covers the civilian, non-institutionalized population only.
Hepatitis B immunization				PHSGP, CDC, NCID	Estimate for infants of antigen-positive mothers is derived from public sector data only.
- Infants of antigen-positive mothers				CDC, NCID	
- Occupationally exposed workers				No data available	
- IV-drug users in drug treatment programs				CDC. MMWR 45(10). March 1996 Vol. 45 (No.10)	Survey is limited to young MSM. Measure is under-estimated because it is based on serological data.
- Men who have sex with men (MSM)					
20.12 Postexposure rabies treatments	Number of treatments (presented as a range)	Treatments purchased For detailed explanation of calculations, contact NCID (404)639-2762	Not applicable	RVIGMSD, CDC, NCID	Data reflect only the amount purchased, not the amount utilized in treatments. Measure is an extrapolation of rates from previous years for the lower end of estimate and biologics for upper end.
20.13 Immunization laws	Number of States	States with laws	Not applicable	SIL, CDC, NIP	Laws are counted in terms of which antigens are required by the law and in what facility the law is upheld.

Table 1. Objective definitions, data sources, and issues for Healthy People 2000 priority area 20—Con.

Objective	Measure	Operational definition		Healthy People 2000 data source	Data issues
		Numerator	Denominator		
20.14 Provision of immunizations by clinicians *Children*: - DTP vaccination - Oral polio vaccination - Tetanus-diphtheria booster - Hib vaccination *Adults*: - Tetanus-diphtheria booster - Influenza vaccination - Pneumococcal vaccination	Percent	Clinicians routinely providing service to 81-100 percent of patients	Number of clinicians who report providing services	PCPS, OPHS, ODPHP	Data were collected with five separate surveys; there is variability in response rates. It is not possible to combine data on five clinician categories into one measure.
20.15 Financial barriers to immunization - Conventional insurance plans - Preferred provider organization plans - Health maintenance organization plans	Percent	Employer-based insurance plans that provide coverage for immunizations	Number of employer-based insurance plans	HIAAES, Health Insurance Association of America	Each plan type is calculated separately. Data do not address all types of plans.
20.16 Public health department provision of immunizations	Percent	Local health departments (LHDs) providing immunizations to adults within prior 12 months	Number of responding LHDs	IGPP, CDC, NCPS NACCHO	Baseline established in 1990 by IGPP with follow-up data from NACCHO.
20.17 Local health programs to identify persons with clinical tuberculosis or latent tuberculosis infection	Percent	Local health departments (LHDs) reporting tuberculosis services	Number of responding LHDs	NACCHO	This baseline measure reflects the number of LHDs that have some tuberculosis services, and does not specify the details of their activities.
20.18 Preventive therapy for tuberculosis	Percent	Infected persons completing preventive therapy	Number of individuals starting preventive therapy	Program Management Report Series, DTBE, CDC, NCHSTP	The number of reporting areas and percent of TB cases being reported varies.
20.19 Laboratory capability for influenza diagnosis - Tertiary care hospitals - Secondary care hospitals - Health Maintenance Organizations (HMOs)	Percent	Hospitals/HMOs with laboratories capable of diagnosing influenza	Number of hospitals/ HMOs	SL, CDC, NCID	

Table 1. Objective definitions, data sources, and issues for Healthy People 2000 priority area 20—Con.

Data system acronyms:

AIL	Arctic Investigations Laboratory
BMSS	Bacterial Meningitis Surveillance System
HIAESS	Health Insurance Association of American Employer Survey
IGPP	Immunization Grant Program Profiles
MSS	Malaria Surveillance System
NACCHO	National Association of County and City Health Officials
NHIS	National Health Interview Survey
NIS	National Immunization Survey
NNDSS	National Notifiable Disease Surveillance System
NNHS	National Nursing Home Survey
NNIS	National Nosocomial Infection Surveillance System
NVSS	National Vital Statistics Sysytem
PCPS	Primary Care Provider Survey
PHSGP	Perinatal Hepatitis Screening Grant Program
RVIGMSD	Rabies Vaccine and Immune Globulin Manufacturers Sales Data
SCSAVH	Sentinel Counties Surveillance for Acute Viral Hepatitis
SIL	Survey of Immunization Laws
SIS	State Immunization Survey
SL	Survey of Laboratories Using Rapid Viral Diagnosis of Influenza
TMD	Tuberculosis Morbidity Data
TPMRD	Tuberculosis Program Management Report Data on Completion of Preventive Therapy
TSS	Typhoid Surveillance System
USIS	United States Immunization Survey
VHSP	Viral Hepatitis Surveillance Program

Agency abbreviations:

CDC	Centers for Disease Control and Prevention
EPO	Epidemiology Program Office
NCHS	National Center for Health Statistics
NCHSTP	National Center for HIV, STD, and TB Prevention
NCID	National Center for Infectious Diseases
NCPS	National Center for Preventive Services
NIP	National Immunization Program
ODPHP	Office of Disease Prevention and Health Promotion
OPHS	Office of Public Health and Science

Objective 20.1: Vaccine preventable diseases

Vaccine preventable diseases (see list in Table 1) are measured by the number of reported cases. Cases are determined by using criteria established by the Centers for Disease Control and Prevention (CDC) (3) in collaboration with the Council of State and Territorial Epidemiologists (CSTE). Data collected by each State for the different diseases listed under this objective are aggregated and published annually by CDC as the Summary of Notifiable Diseases in the Morbidity and Mortality Weekly Report (MMWR). The Summary of Notifiable Diseases may include cases not reported in MMWR weekly reports due to reporting delays. The data source for this objective is the CDC's National Notifiable Disease Surveillance System. Although objective 20.1 specifies indigenous cases of measles, all cases are included.

Objective 20.2: Epidemic-related pneumonia and influenza deaths among people 65 years of age and over

The estimated number of epidemic-related pneumonia and influenza deaths among people 65 years and over involves several steps. The deaths attributable to pneumonia and influenza are identified using ICD-9 codes 480–487. A cyclical regression model (4), based on pneumonia- and influenza-related death rates from previous years, is used to predict the average expected pneumonia- and influenza-related deaths for a given year (the baseline). Periods of increased mortality due to influenza epidemics are excluded from baseline calculations. Epidemic-related deaths are the number of influenza deaths that exceed the baseline by 1.645 standard deviations (4). These deaths are tallied on a weekly basis and totaled annually, starting July 1st and ending June 30th, to encompass the peak flu season in the winter months. Further, the measure used for this objective is the mean of 3 consecutive years divided by the U.S. Census mid-season population of the middle year in the denominator (i.e., the population estimate of January 1, 1995 for people 65 years and over would be used for the 3-year average of the 1993–1994, 1994–1995, and 1995–1996 seasons). The statistic is reported as a rate (deaths per 100,000 population). The National Center for Infectious Diseases (NCID), CDC, calculates this statistic based on data obtained from the National Vital Statistics System (NVSS) of the National Center for Health Statistics (NCHS), CDC.

Each year vaccine efficacy rates fluctuate, the strains of influenza viruses differ, and the virulency of those strains fluctuates, making trends in this statistic difficult to track, predict, and compare.

Objective 20.3: Viral hepatitis cases

Viral hepatitis cases are categorized into types A, B, and C, as described in the case definition of the disease (3). The measure for each type of hepatitis is the estimated annual number of cases per 100,000 population, as reported to CDC. These estimates are adjusted for underreporting by multiplying reported cases by a factor of 3 for hepatitis A, 5.96 for hepatitis B, and 2.38 for hepatitis C (6). The use of these correction factors reflect the results of studies comparing the level of reporting between active and passive surveillance systems, which have found substantial underreporting of viral hepatitis (6). Hepatitis B cases among special high risk populations are reported as number of cases among injection drug users, heterosexually active people, homosexual men, children of Asians and/or Pacific Islanders, and occupationally-exposed workers, and number of new chronic infections among infants and Alaska Natives. Hepatitis B cases in black people are measured as a rate (cases per 100,000 population). Baseline data for hepatitis B subobjectives have been revised by NCID to take into account various adjustments, including underreporting and estimates of the distribution of various risk factors for hepatitis infection (7). Hepatitis A is tracked as a rate (cases per 100,000 population) for Hispanics and American Indian/Alaska Natives. Hepatitis C is tracked as a rate (cases per 100,000 population) for Hispanics.

Objective 20.4: Tuberculosis incidence

The tuberculosis (TB) incidence rate is calculated by dividing the number of new cases reported to CDC in a year by the mid-year U.S. Bureau of the Census population estimate for that year. The data, published in ''Reported Tuberculosis in the United States,'' are reported as the number of new cases per 100,000 population (8). Between 1992 and 1995, there was a 14.5-percent decline in the number of TB cases being reported to the tuberculosis surveillance system. This decline in reported TB cases is attributed to improvements in TB control and prevention efforts in the United States.

Objective 20.5: Surgical wound and nosocomial infections

The measure of nosocomial infections for objective 20.5 is the device-associated nosocomial infection rate, reported as infections per 1,000 device days in intensive care units (ICUs). The nosocomial infection rate is reported by the National Nosocomial Infections Surveillance (NNIS) System by ICU category: coronary, medical, medical/surgical, surgical, and pediatric (9). The NNIS Semiannual Report details the methods used to determine the device-associated nosocomial infection rates. Case definitions for the infection types are listed in table 1. The data for this objective are not nationally representative because the NNIS is based on a non-random sample of 82 hospitals that volunteered to participate. Surgical wound infection rates are also measured by NNIS; they are reported as infections per 100 operations for four risk categories based on an index established by Culver, et al.: low risk, medium-low risk, medium-high risk, and high risk (10). This article details the derivation of the surgical wound infection rate and explains the patient risk categories. Methods used to calculate this measure are also covered in the NNIS manual (9).

Objective 20.6: Illness among international travelers

Illness among international travelers is measured as the number of reported cases compiled from specific surveillance systems. Hepatitis A for objective 20.6 is reported as the number of cases, not cases per 100,000 population as in objective 20.3. The base numbers are obtained from the National Notifiable Disease Surveillance System (NNDSS); the proportion attributed to travelers is obtained from the Viral Hepatitis Surveillance Program (VHSP); the result is multiplied by 3.0 to adjust for underreporting. An international traveler is defined by the VHSP as a person with an identified case who traveled outside the U.S. or Canada to an area highly endemic for hepatitis A 2–6 weeks prior to onset of illness. Malaria data are obtained from the Malaria Surveillance System (MSS), and typhoid data from the Typhoid Surveillance System (TSS). Case definitions are listed in table 1.

Objective 20.7: Bacterial meningitis

To measure objective 20.7, the number of cases involving the isolated pathogenic agents of bacterial meningitis—*H. Influenzae, S. Pneumoniae, N. Meningitis, S. Agalactiae* (Group B streptococcus), *L. Monocytogenes*, and ''other''—are compiled from surveillance of 4–5 States having a combined population of 12–15 million (11). The measure is the number of cases in those surveillance States divided by the total population of the States and is reported as the number of cases per 100,000 population. The rates are calculated for each pathogenic agent category collected, with the sum of all six categories constituting the total number of bacterial meningitis cases per 100,000 population. The ''other'' category includes pathogens such as *Escherichia Coli, Staphylococcus aureus, Klebsiella-Enterobacter-Serratia sp, Streptococcus sp, Staphylococcus epidermidis,* group A streptococcal sp, *Pseudomonas sp, Hemophilus sp, Streptococcus viridans, Salmonella, Arizona sp*, and other infections that were not further identified (12).

Table 2. Diarrhea questions for objective 20.8

□	During the past 12 months, how many times has (*child*) had diarrhea severe enough the (*he/she*) had to cut down on more than a half a day on things that (*he/she*) usually does?
□	During the past twelve months, did (*child*) ever receive child care in a place that cares for more than 6 children? This includes day care centers, pre-school, nursery school, religious school, kindergarten, but does not include child care that is provided in this home.
□	In how many of the past 12 months did (*child*) receive such child care?

Source: 1991 Healthy People 2000 Supplement (Child Health), National Health Interview Survey, National Center for Health Statistics, CDC.

Objective 20.8: Diarrhea among children in child care centers

Objective 20.8 addresses the occurrence of diarrhea among children 0–3 and 0–5 years of age who have received child care outside of the home. Data have been collected in the National Health Interview Survey (NHIS) Healthy People 2000 Supplement (see table 2 for survey questions) and are reported as a percent. The measure for this objective is the population-weighted number of children who were reported as having experienced a case of diarrhea in the past year that made the child cut down on the things he/she does for at least half of a day (numerator) among all those reported as having received child care outside of the home in a setting that contained at least six children at any time during the past year (denominator).

Objective 20.9: Ear infections among children in child care centers

Objective 20.9 is measured by the number of restricted activity days per 100 people for children 4 years of age and under. This measure has been taken directly from the NHIS core questionnaire. The number of restricted activity days for children under 5 years old is the total number of bed days (i.e., the person stays in bed for more than half the day) and cut-down days (i.e., the person cuts down more than half of a day on things he/she usually does) attributed to ear infections and is divided by the total number of children in that age group. The procedures and technical notes regarding the calculations of this measure are published annually in *Current Estimates from the National Health Interview Survey* (13). These data will not be available after 1996.

Objective 20.10: Pneumonia-related illness

The measure for this objective is given in terms of the number of restricted activity days due to pneumonia per 100 people. The total number of restricted activity days for adults 65 years and over is the sum of the number of bed days (i.e., the person stays in bed for more than half the day), work-loss days (i.e., the person 18 years and over misses at least half of a day from a job or business) and cut-down days (i.e., the person cuts down more than half of a day on things he/she usually does) attributed to pneumonia-related illnesses for persons 65 years and over (13). For children 4 years of age and under, the total number of bed days and cut-down days attributed to pneumonia-related illness are aggregated. The denominators are the total number of persons 65 years and over for the adult measure and 4 years and under for the child measure. The procedures and technical notes regarding the calculations of these measures are published annually in *Current Estimates from the National Health Interview Survey* (13). These data will not be available after 1996.

20.11: Immunization

Immunization is measured in categories based on age, risk, and specific vaccination regimen. The percent immunized in children 2 years of age and under is measured in terms of the proportion who received the complete schedule of the basic immunization series (four doses of diphtheria-tetanus-pertussis, three oral live polio, and

one measles-mumps-rubella), as well as recommended doses of specific antigens (*Haemophilus Influenzae* type b conjugate, hepatitis B virus, and *varicella zoster* virus) as reported on the NHIS.

In 1995 the objective was modified to track children 19–35 months of age. The revised age range allows comparability with the National Immunization Survey (see table 3 for survey questions) which collects State-level data

Table 3. Children's immunization questions for objective 20.11

Shot record available:

- ☐ Looking at the shot record, please tell me how many times (*child*) has received (*vaccine*):
  - ☐ a DPT or DT shot (sometimes called a DPT shot, diphtheria-tetanus-pertussis shot, baby shot, or three-in-one shot)
  - ☐ a polio vaccine (pink drops) or a polio shot
  - ☐ a measles or MMR (Measles-Mumps-Rubella) shot
  - ☐ an H-I-B shot (this is for Meningitis and is called Haemophilus Influenzae H-I-B vaccine, or H flu vaccine)
  - ☐ a Hepatitis B shot

Shot record unavailable:

- ☐ Has (*child*) ever received an immunization (that is a shot or drops)?
- ☐ Has (*child*) ever received (*vaccine*)?
- ☐ How many (*vaccine*) shots did (*child*) ever receive?
  - ☐ DPT or DT shots (sometimes called a DPT shot, diphtheria-tetanus-perussis shot, baby shot, or three-in-one shot)
  - ☐ Polio vaccine by mouth, pink drops, or a polio shot
  - ☐ Measles or MMR (Measeles-Mumps-Rubella) shots
  - ☐ H-I-B shots (this is for Meningitis and is call Haemophilus Influenzae H-I-B vaccine, or H flu vaccine)
  - ☐ Hepatitis B shots

Source: National Immunization Survey, National Immunization Program, CDC; National Health Interview Survey, National Center for Health Statistics, CDC.

and complements the NHIS. Immunization is also measured according to involvement of children in specific institutions: by the proportion immunized in licensed child care facilities and by the proportion immunized who are enrolled in kindergarten through post-secondary education institutions. The measure is a range of immunization levels for specific antigens. To obtain a complete explanation of calculations of childhood immunization levels, contact the National Immunization Program (NIP) technical service at (404) 639–8235.

Other measures being monitored are the pneumococcal and influenza immunizations in non-institutionalized chronically ill people or people 65 years and over, as well as high-risk populations. These measures are obtained directly from NHIS (see table 4 for survey questions).

Table 4. National Health Interview Survey pneumonia and influenza vaccination questions

- ☐ Have you EVER had a pneumonia vaccination? This shot is given only one in a person's lifetime.
- ☐ During the past 12 months, have you had a flu shot? This vaccination is usually given in the fall and protects against influenza for the flu season.

Source: 1994 National Health Interview Survey, National Center for Health Statistics, CDC.

Between 1986 and 1994 there have been no sources of data to measure immunization levels among the institutionalized chronically ill or institutionalized persons 65 years and over. In 1995 NCHS conducted a National Nursing Home Survey (NNHS) that will be repeated every other year. This survey includes questions about influenza and pneumococcal vaccination in nursing home residents (table 5).

Hepatitis B immunization among infants of antigen-positive mothers is measured as the percent of

Table 5. National Nursing Home Survey pneumonia and influenza vaccination questions

- ☐ During the past 12 months, has (*patient*) had a flu shot at this facility or any other location?
- ☐ Has (*patient*) EVER has a pneumococcal vaccine, that is, pneumonia vaccination?

Source: National Nursing Home Survey, National Center for Health Statistics, CDC.

infants in this category who receive three doses of the vaccine. The data are estimated based on public sector data reported from local health departments, which represent about 50 percent of the cohort. Data for occupationally-exposed workers are from random sample surveys of approximately 3,000 hospital employee vaccination records. These surveys are completed every 2–3 years by the Hepatitis Branch, Division of Viral and Rickettsial Diseases, NCID, CDC, and cover approximately two-thirds of occupationally-exposed workers. Hepatitis B immunization baseline data for men who have sex with men are from an analysis of serologic data from a local survey in San Francisco (14); there are no national estimates for this high-risk group. At time of publication, there are no data sources to monitor hepatitis B immunizations among injecting drug users.

20.12: Postexposure rabies treatments

Two indirect methods are used to produce a range of estimated numbers of postexposure prophylaxis treatments for rabies. The lower end of the range extrapolates annual numbers of treatments by applying the treatment incidence rates calculated for participating States during an earlier study performed by Helmick (15) to annual U.S. Census population estimates, adjusted to reflect current preponderant State animal rabies reservoirs. The high end of the range utilizes sales data for rabies immune globulin furnished by rabies vaccine manufacturers (Rabies Vaccine and Immune Globulin Manufacturers Sales Data), which reflect the amount purchased, not the amount used in treatments. Because the amount of rabies immune globulin used is based on body weight, the number of treatments calculated using this method is based on an assumed average body weight. The estimates generated by these two methods represent both an underestimate and an overestimate of the actual number of treatments. For more information regarding this measure, contact Jeannie Walsh at NCID, (404) 639–2762.

20.13: Immunization Laws

The measures used to track objective 20.13 are based on the antigen (diphtheria toxoid, tetanus toxoid, pertussis

vaccine, measles vaccine, mumps vaccine, rubella vaccine, polio vaccine, haemophilus vaccine, and hepatitis B vaccine) and the type of facility (schools (K-12) and day care centers). Data are obtained from the Survey on Immunization Laws (SIL). The 1989 baseline was established as a single measure, but subsequent measures have been ranges, based on whether or not the law mandates immunization at preschool and/or kindergarten level and above, and based on which antigens are specified in the law. The measures are reported as the number of States with a particular attribute of the law.

20.14: Provision of immunization by clinicians

Provision of immunizations is measured by the proportion of clinicians who routinely provide services to 81–100 percent of their patients in each of the different clinician categories: pediatricians, nurse practitioners, and family physicians for services provided to children; nurse practitioners, obstetricians/gynecologists, internists, and family physicians for services provided to adults. The data were collected in the 1992 Primary Care Provider Surveys (PCPS). Five primary care provider professional associations participated in the 1992 PCPS by mailing the survey to their members who were randomly selected to participate. These associations also compiled and analyzed the data. Data were collected for children (DTP vaccination, oral polio vaccination, tetanus-diphtheria booster, and Hib vaccination) and adults (tetanus-diphtheria booster, influenza vaccination, and pneumococcal vaccination).

Further discussion on collection procedures, interpretation of data, lists of survey questions, and discussion of the results of this survey can be obtained by contacting the Office of Disease Prevention and Health Promotion (16). Because the data are derived from five independently administered surveys, the results of this survey cannot be combined to create one measure for this objective. The survey is planned to be re-administered in 1997.

20.15: Financial barriers to immunization

Financial barriers to immunization are measured by the percent of employer-based insurance plans that provide coverage for immunizations. The plans that are included are conventional insurance plans, preferred provider organizations, and health maintenance organizations. The data were collected by the Health Insurance Association of America (HIAA) Employer Survey and each plan was measured separately. HIAA has no plans to re-administer the survey at this time.

20.16: Public health department provision of immunizations

Objective 20.16 is measured in terms of the percent of public health departments that provide immunizations. The baseline data for this objective were collected in 1990 by Immunization Grant Program Profiles (IGPP). Follow-up data are from the 1992–1993 National Profile of Local Health Departments, a survey conducted by the National Association of County and City Health Officials (NACCHO). The latest measure is a range based on the percent of local health departments (LHDs) that provide adult immunizations such as influenza, tetanus, diphtheria, hepatitis B, or pneumococcal disease within 12 months prior to completing the survey (17). According to this study, an LHD is defined as an administrative or service unit of local or state government concerned with health and carrying some responsibility for the health of a jurisdiction smaller than the State. A total of 2,079 LHDs meeting the study definition of an LHD completed the survey instrument, with an overall response rate of 72 percent. Because the information provided in this study came from 1992 data for some LHDs and 1993 data for others, the study is dated as 1992–93. However, the data from each LHD reflects a 1-year time period only. The findings of this study have been published by NACCHO in their report, *1992–1993 National Profile of Local Health Departments* (17). The next survey to be administered by NACCHO is in 1996.

20.17: Local health programs to identify tuberculosis

The measure for monitoring LHDs with ongoing programs geared to identify TB and latent infections in high-risk populations is the percent of departments with such programs among all LHDs. This measure was determined in a survey that assessed the total number of LHDs that reported tuberculosis services as a service provided directly or indirectly through contractual arrangement (17). The data for this objective were obtained from the *1992–93 National Profile of Local Health Departments* (see description in discussion of objective 20.16). This objective is not likely to be monitored in this format in the future. Most tuberculosis screening is done to identify persons with latent infection who may be candidates for preventive therapy. Much of this screening is done in settings outside of the health departments (for example, hospitals or prisons). CDC is developing systems to assist LHDs assess the outcomes of screening programs in their communities.

20.18: Preventive therapy for tuberculosis

To monitor successful completion of preventive therapy for tuberculosis-infected individuals, the percent of persons who started on such therapy who complete the therapy is used. This number is a compilation of State and selected metropolitan area data that are submitted to the Division of Tuberculosis Elimination, National Center for HIV, STD, and TB Prevention, CDC, which compiles the data and summarizes them in the Tuberculosis Program Management Report Series (18). States submit Tuberculosis Program Management Report forms which report aggregate data on the number of persons starting preventive therapy and the subsequent number of persons completing therapy. The number of persons starting therapy include those who are contacts to TB cases, recent tuberculin skin test converters,

and others with tuberculous infection. Completion is determined by the number of people who started therapy and have completed taking the prescribed medication for the full six months, or those who, by a physician's determination, received an adequate course of therapy in less than six months. There is variability in the number of States that participate as well as in the percent of TB cases that are being reported.

20.19: Laboratory capability for influenza diagnosis

Objective 20.19 measures the percent of tertiary care hospitals, secondary care hospitals, and health maintenance organizations (HMOs) that contain laboratories with the technologies to perform rapid viral diagnosis of influenza. Tertiary care facilities are defined by the presence of at least one sub-specialty intensive care unit (cardiac ICU, neonatal ICU, pediatric ICU, burn care, or other ICU) (19). Secondary care facilities possess none of the listed specialty intensive care units. HMOs are organizations that are members of the Group Health Association of America and are listed in the National Directory of Health Maintenance Organizations (20). The baseline was established in 1993 from the Survey of Laboratories Using Rapid Viral Diagnosis of Influenza, developed and administered by the Viral and Rickettsial Disease Division, NCID, CDC.

References

1. U.S. Department of Health and Human Services. Healthy people 2000: National health promotion and disease prevention objectives. Washington: Public Health Service. 1991.
2. U.S. Department of Health and Human Services. Healthy people 2000 midcourse review and 1995 revisions. Washington: Public Health Service. 1995.
3. Centers for Disease Control and Prevention. Case definitions for public health surveillance. MMWR Vol. 39 No. RR-13. 1990.
4. Lui, K-J, and Kendal, AP. Impact of influenza epidemics on mortality in the United States from October 1972 to May 1985. Am J Public Health 77:712–6. 1987.
5. Schonberger, Larry. Personal communication. March 8, 1996.
6. Coleman, Patrick. Personal communication. July 16, 1996.
7. Center for Disease Control and Prevention, National Center for Infectious Diseases. Viral Hepatitis Surveillance Report, annual.
8. Centers for Disease Control and Prevention, National Center for HIV, STD and TB Prevention. Reported tuberculosis in the United States, 1995. July 1996.
9. Centers for Disease Control and Prevention, National Center for Infectious Diseases. NNIS Semiannual Report. May 1995.
10. Culver DH, Horan TC, Gaynes RP, et al. Surgical wound infection rates by wound class, operative procedure, and patient risk index. Amer J of Med 91(Suppl. 3B):152S-7S. 1991.
11. Walsh, Jeannie. Personal communication. July 19, 1996.
12. Schlech III, WF, Ward, JI, Band, JD, et al. Bacterial meningitis in the United States, 1978 through 1981: The National Bacterial Meningitis Surveillance Study. JAMA 253(12):1749–54. 1985.
13. Adams PF, Marano MA. Current estimates from the National Health Interview Survey, 1994. National Center for Health Statistics. Vital Health Stat 10(193). 1995.
14. Katz M. Undervaccination for hepatitis B among young men who have sex with men—San Francisco and Berkeley, California, 1992–1993. MMWR 45(10):215–217. 1996.
15. Helmick CG. The epidemiology of human rabies postexposure prophylaxis, 1980- 1981. JAMA 250(15):1990–6. 1983.
16. Contact Debbie Maiese, M. A., Office of Disease Prevention and Health Promotion, for information on the 1992 Primary Care Providers Surveys, at 202–205-8611.
17. National Association of County and City Health Officials. 1992–1993 National profile of local health departments. Washington, D.C. 1995.
18. For copies of the most recent report, telephone the Centers for Disease Control and Prevention, National Center for HIV, STD, and TB Prevention, Division of Tuberculosis Elimination at 404–639-8135.
19. Brammer, Lynette. Personal communication. March 7, 1996.
20. Group Health Association of America. 1995 National directory of health maintenance organizations. Washington, D.C. 1995.

Appendix A: Immunization and Infectious Diseases Objectives

20.1: Reduce indigenous cases of vaccine-preventable diseases as follows:

Disease	2000 target
Diphtheria among people aged 25 and younger	0
Tetanus among people aged 25 and younger	0
Polio (wild-type virus)	0
Measles(indigenous)	0
Rubella	0
Congenital Rubella Syndrome	0
Mumps	500
Pertussis	1,000

20.2: Reduce epidemic-related pneumonia and influenza deaths among people aged 65 and older to no more than 15.9 per 100,000 people.

NOTE: Epidemic-related pneumonia and influenza deaths are those that occur above and beyond the normal yearly fluctuations of mortality. Because of the extreme variability in epidemic-related deaths from year to year, the it will be measured using a 3-year average.

20.3*: Reduce viral hepatitis as follows:

Hepatitis B: 40 per 100,000 people
Hepatitis A: 16.1 per 100,000 people
Hepatitis C: 13.7 cases per 100,000 people

20.3a: Reduce hepatitis B among injecting drug users to no more than 7,932 cases.

20.3b*: Reduce hepatitis B among heterosexually active people to no more than 22,663 cases.

Duplicate objective: 19.7

20.3c*: Reduce hepatitis B among homosexual men to no more than 4,568 cases.

Duplicate objective: 19.7

20.3d: Reduce hepatitis B among children of Asian and Pacific Islanders to no more than 1,500 cases.

20.3e*: Reduce hepatitis B among occupationally exposed workers to no more than 623 cases.

Duplicate objective: 10.5

20.3f: Reduce hepatitis B among infants to no more than 1,111 chronic infections.

20.3g: Reduce hepatitis B among Alaska Natives to no more than 1 new chronic infection.

20.3h: Reduce hepatitis B among blacks to no more than 40 cases per 100,000 people.

20.3i: Reduce hepatitis A among Hispanics to no more than 26.9 cases per 100,000 people.

20.3j: Reduce hepatitis A among American Indians and Alaska Natives to no more than 128 cases per 100,000 people.

20.3k: Reduce hepatitis C among Hispanics to no more than 13.7 cases per 100,000 people.

20.4: Reduce tuberculosis to an incidence of no more than 3.5 cases per 100,000 people.

20.4a: Reduce tuberculosis among Asians and Pacific Islanders to an incidence of no more than 15 cases per 100,000.

20.4b: Reduce tuberculosis among blacks to an incidence of no more than 10 cases per 100,000.

20.4c: Reduce tuberculosis among Hispanics to an incidence of no more than 5 cases per 100,000.

20.4d: Reduce tuberculosis among American Indians and Alaska Natives to an incidence of no more than 5 cases per 100,000.

20.5: Reduce by at least 10 percent the incidence of surgical wound infections and nosocomial infections in intensive care patients.

20.6: Reduce selected illness among international travelers as follows:

Typhoid fever: 140 cases
Hepatitis A: 1,119 cases
Malaria: 750 cases

20.7: Reduce bacterial meningitis to no more than 4.7 cases per 100,000 people.

20.7a: Reduce bacterial meningitis among Alaska Natives to no more than 8 cases per 100,000 people.

20.8: Reduce infectious diarrhea by at least 25 percent among children in licensed child care centers and children in programs that provide an Individualized Education Program (IEP) or Individualized Health Plan (IHP).

20.9: Reduce acute middle ear infections among children aged 4 and younger, as measured by days of restricted activity or school absenteeism, to no more than 105 days per 100 children.

20.10: Reduce pneumonia-related days of restricted activity as follows:

15.1 days per 100 people aged 65 and older.
24 days per 100 children aged 4 and younger.

20.11: Increase immunization levels as follows:

Basic immunization series among children under age 2: at least 90 percent.

Basic immunization series among children in licensed child care facilities and kindergarten through post-secondary education institutions: at least 95 percent.

Hepatitis B immunization among high-risk populations, including infants of hepatitis B surface antigen-positive mothers

to at least 90 percent; occupationally exposed workers to at least 90 percent; injecting drug users in drug treatment programs to at least 50 percent; and men who have sex with men to at least 50 percent.

Pneumococcal pneumonia and influenza immunization among institutionalized chronically ill or older people: at least 80 percent.

Pneumococcal pneumonia and influenza immunization among noninstitutionalized, high-risk populations, as defined by the Immunization Practices Advisory Committee: at least 60 percent.

Duplicate objective for occupationally exposed workers: 10.9

20.11a: Increase pneumococcal pneumonia and influenza immunization among blacks aged 65 years and older to 60 percent.

20.11b: Increase pneumococcal pneumonia and influenza immunization among Hispanics aged 65 years and older to 60 percent.

20.12: Reduce postexposure rabies treatments to no more than 9,000 per year.

20.13: Expand immunization laws for schools, preschools, and day care settings to all States for all antigens.

20.14: Increase to at least 90 percent the proportion of primary care providers who provide information and counseling about immunizations and offer immunizations as appropriate for their patients.

20.15: Improve the financing and delivery of immunizations for children and adults so that virtually no American has a financial barrier to receiving recommended immunizations.

20.16: Increase to at least 90 percent the proportion of public health departments that provide adult immunization for influenza, pneumococcal disease, hepatitis B, tetanus, and diphtheria.

20.17: Increase to at least 90 percent the proportion of local health departments that have ongoing programs for actively identifying cases of tuberculosis and latent infection in populations at high risk for tuberculosis.

NOTE: Local health department refers to any local component of the public health system, defined as an administrative and service unit of local or State government concerned with health and carrying some responsibility for the health of a jurisdiction smaller than a State.

20.18: Increase to at least 85 percent the proportion of people found to have tuberculosis infection who completed courses of preventive therapy.

20.19: Increase to at least 85 percent the proportion of tertiary care hospital laboratories and to at least 50 percent the proportion of secondary care hospital and health maintenance organization laboratories possessing technologies for rapid viral diagnosis of influenza.

*Duplicate objective.

Appendix B: Bibliography

General:

- Kovar MG. Data Systems of the National Center for Health Statistics. Vital Health Stat 1(23). 1989.
- National Center for Health Statistics. Health, United States, 1995. Hyattsville, Maryland: Public Health Service. 1996. Appendix I.

National Health and Nutrition Examination Survey (including HHANES):

- McDowell A, et al. Plan and operation of the second National Health and Nutrition Examination Survey, 1976–80. National Center for Health Statistics. Vital Health Stat 1(15). 1981
- Maurer KR. Plan and operation of the Hispanic Health and Nutrition Examination Survey, 1982–84. Vital Health Stat 1(19). 1985.
- Plan and operation of the third National Health and Nutrition Examination Survey, 1988–94. National Center for Health Statistics. Vital Health Stat 1(32). 1994.
- Ezzati TM, et al. Sample design: Third National Health and Nutrition Examination Survey. National Center for Health Statistics. Vital Health Stat 2(113). 1992.

National Survey of Family Growth:

- Waksberg J, Sperry S, Judkins D, Smith V. National Survey of Family Growth, Cycle IV, evaluation of linked design. National Center for Health Statistics. Vital Health Stat 2(117). 1993.
- Judkins DR, Mosher WD, Botman S. National Survey of Family Growth: Design, estimation, and inference. National Center for Health Statistics. Vital Health Stat 2(109). 1991.
- Waksberg J and Northrup DR. Integration of sample design for the National Survey of Family Growth, cycle 4, with the National Health Interview Survey. Vital Health Stat 2(96). 1985.

National Health Interview Survey:

- Massey JT, Moore TF, Parsons VL, Tadros W. Design and estimation for the National Health Interview Survey, 1985–94. National Center for Health Statistics. Vital Health Stat 2(110). 1989.
- Questionnaires from the National Health Interview Survey, 1985–89. National Center for Health Statistics. Vital Health Stat 1(31). 1993.
- Schoenborn CA and Marano M. Current estimates from the National Health Interview Survey, 1987. National Center for Health Statistics. Vital Health Stat 10(166). 1988.
- Adams PF, Hardy AM. Current estimates from the National Health Interview Survey, 1988. National Center for Health Statistics. Vital Health Stat 10(173). 1989.

National Health Interview Survey:—Con.

- Adams PF and Benson V. Current estimates from the National Health Interview Survey, 1989. National Center for Health Statistics. Vital Health Stat 10(176). 1990.
- Adams PF and Benson V. Current estimates from the National Health Interview Survey, 1990. National Center for Health Statistics. Vital Health Stat 10(181). 1991.
- Adams PF and Benson V. Current estimates from the National Health Interview Survey, 1991. National Center for Health Statistics. Vital Health Stat 10(184). 1992.
- Benson V and Marano MA. Current estimates from the National Health Interview Survey, 1992. National Center for Health Statistics. Vital Health Stat 10(189). 1994.
- Benson V and Marano MA. Current estimates from the National Health Interview Survey, 1993. National Center for Health Statistics. Vital Health Stat 10(190). 1994.
- Adams PF and Marano MA. Current estimates from the National Health Interview Survey, 1994. National Center for Health Statistics. Vital Health Stat 10(193). 1995.

National Hospital Discharge Survey:

- Simmons WR and Schnack GA. Development of the design of the NCHS Hospital Discharge Survey. Vital Health Stat 2(39). 1970.
- Haupt BJ and Kozak LJ. Estimates from two survey designs: National Hospital Discharge Survey. National Center for Health Statistics. Vital Health Stat 13(111). 1992.

School Health Policies and Programs Study:

- Errecart MT, Ross JG, Robb W, et al. The School Health Policies and Programs Study (SHPPS): Methodology. J of School Health 8(65):295–301. 1995.

Youth Risk Behavior Survey:

- Kann L, Kolbe LJ, Collins JL (eds.). Measuring the health behavior of adolescents: The Youth Risk Behavior Surveillance System and recent reports on high-risk adolescents. Public Health Reports 108 (Suppl 1):1–67. 1993.

Published issues of *Healthy People 2000 Statistical Notes*

Number	*Title*	*Date of Issue*
1	Health Status Indicators for the Year 2000	Fall 1991
2	Infant Mortality	Winter 1991
3	Health Status Indicators: Definitions and National Data	Spring 1992
4	Issues Related to Monitoring the Year 2000 Objectives	Summer 1993
5	Revisions to *Healthy People 2000* Baselines	July 1993
6	Direct Standardization (Age-Adjusted Death Rates)	March 1995
7	Years of Healthy Life	April 1995
8	Evaluating Public Health Data Systems: A Practical Approach	June 1995
9	Monitoring Air Quality in *Healthy People 2000*	September 1995
10	Health Status Indicators: Differentials by Race and Hispanic Origin	September 1995

DEPARTMENT OF
HEALTH & HUMAN SERVICES

Centers for Disease Control and Prevention
National Center for Health Statistics
6525 Belcrest Road
Hyattsville, Maryland 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

To receive this publication regularly, contact the National Center for Health Statistics by calling 301-436-8500
E-mail: nchsquery@nch10a.em.cdc.gov
Internet: http://www.cdc.gov/nchswww/nchshome.htm

DHHS Publication No. (PHS) 97-1237
7-0144 (2/97)