



Using Census Data in MCH

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Public health policy decisions and needs assessments are predicated on interpretations and conclusions drawn from combining the results from many individuals or a population. The use of current estimates of population characteristics is necessary to make estimates of disease, injury, disability, behaviors of interest to public health, and their distributions. Often, these estimates require population denominators from the census.

This module outlines the history of the census in the United States and its use as a source of data for MCH planning or analysis. Much analysis and reporting of public health data relies on knowledge of the use of census data. This module provides background information required to use census data.

This module will address:

- Description of the census
- History of the census
- Evolution of the U.S. census
- Census in the Year 2000
- The modern census
- Census content and sample design
- Problems and limitations of census estimates
- Census geography
- Dissemination of census products
- Uses of census data for demographic and socioeconomic analysis
- Summary of technical issues for calculating totals and percents using census data

DESCRIPTION OF THE CENSUS

The decennial census provides us basic information on the number of persons and their demographic, socioeconomic, and household characteristics. Since our activities in public health must be predicated on a count of the population to be served, this census data supplies us with the denominators for our morbidity and mortality rates. It also provides us with count data that we may use when applying rates and proportions obtained on various issues from national or state surveys. For example, the state Behavioral Risk Factor Survey identified that 20% of households with children had an adult who smoked cigarettes. If a local community wanted to target households with children as their first cut in an anti-smoking program, they would use census data to obtain the total number of households with children and calculate 20% of them to be the number they would target for the program.

Census data can be used to support MCH planning by:

- identifying estimates for the total number of persons eligible for a particular program (target population) and the subsequent calculation of program coverage (number served divided by the target population estimate);
- identifying risk markers for adverse behaviors or health outcomes, e.g., poverty status, occupation, and so forth;
- developing indices by combining risk factors (e.g., the rate of single-parent households living in poverty combined with the proportion of families living in poverty); and,
- comparing the characteristics of a community to the state or to other communities.

HISTORY OF THE CENSUS

MCH data analysis for planning and programming rely upon knowledge of the size and composition of a population and the census provides us with a valuable source of population-based data. The census provides data on the population, socioeconomic, and housing characteristics of the entire country and affects our lives in three major areas: political power, federal and state program funding distribution, and planning activities.

In the United States, the census of population has been conducted every ten years, beginning in 1790. Originally, this enumeration was the result of a political compromise arising from the conflict between sparsely populated states and heavily populated states. The former wanted equal representation in the national legislature, while the latter believed that their larger populations justified greater power. The compromise was the establishment of our bicameral legislature in which the states are equally represented in the Senate and are represented according to population size in the House of Representatives. Since the House seats are apportioned according to the size of the population, it is necessary for a periodic inventory of the population. This periodic inventory required by the United States Constitution. Article I, Section 2, Paragraph 3 (Modified by the Fourteenth Amendment) calls for the enumeration of the country's population every ten years. The results of this constitutionally required enumeration determine not only the apportionment of House seats, but influence how the boundaries for congressional and state legislative districts are drawn. Additionally, at the county and municipal levels, election districts must be drawn using census statistics to ensure equal representation.

Census data are used by the Federal and state governments to allocate billions of dollars every year to the local governments for a wide variety of public purposes, including the allocation of State MCH Block Grant funds. Since public health initiatives are greatly affected by Federal and state funding, an understanding of how census data are collected, as well as the uses and limitations of the data, is important.

The Evolution of the U.S. Census

While the original census included only three questions: color, free or slave status and the sex of free white persons, the United States census (<http://www.census.gov/>) has evolved to encompass data on other characteristics about the population as well as housing. Census surveys have also been developed to monitor economic activities. There are census surveys of agriculture, wholesale and retail trade, services industries, construction industries, manufacturers, mineral industries, and transportation. Public and private agencies and corporations use census data for such diverse purposes as marketing, analysis of social and economic trends and estimating the magnitude of the target population size for program planning.

The Census Bureau was established in 1902 to oversee the census. Bureau staff generate questions that are reviewed by the Bureau Director and the Office of Management and Budget (OMB). The Congress must be advised of proposed topics to the Census three years prior to the actual enumeration. Two years prior to the enumeration Congress must be provided with the wording of the proposed questions. The Bureau solicits input for questions by conducting local public meetings throughout the United States. Diverse ethnic groups and minority populations are consulted about question content and wording. The Bureau also solicits information on the level of aggregation of various data that should be made available. In addition to defining what information is to be collected, the Bureau also defines what information may not be collected on the country's population. Religious affiliation and Social Security Numbers are two examples of such taboo variables. Though standards exist to maintain the privacy of those being enumerated, data from the census can be and has been misused. Most notably, census data were used during the Civil War to identify the number of free and slave African-Americans prior to General Sherman's March to the Sea campaign and during World War II to identify the location of Japanese-Americans in the United States.

The 1990 Census

Revisions to the 1990 Census of Population and Housing reflect the larger changes in American society. For example, evolving family structure brought many changes to the census description of the relationship of children to adults in the surveyed household. Terms such as stepson, stepdaughter, grandchild, foster child, and unmarried partner were included for the first time in the 1990 Census. While the race category still includes "Black or Negro" and Spanish/Hispanic, "Other" could be written-in in the 1990 Census. American Indian tribes and Pacific Islander groups were delineated for the first time, resulting in a large increase in the percentage of American Indians reported in the 1990 Census. Unlike the 1980 Census, in 1990 the question regarding educational attainment was included on the long form questionnaire (received by 1 of 6 households), rather than on the short form (received by 100 percent of households.) (The distinctions between the two versions of the forms will be described later in the module). The disability status of adult persons in the household was also included for the first time in the 1990 Census.

The census with which most of us are familiar and to which we have referred to directly above, is known as the Decennial Census of Population and Housing. This census includes several data items or variables that are of particular interest and use in a public health setting. These variables include total persons, households, families, age, race, and ethnicity, poverty (as defined as the minimum level of acceptable subsistence income of a family or household), and income to poverty ratio.

Population and housing data are also tracked with surveys between the Decennial Census. The *Current Population Survey* (CPS) (<http://www.bls.census.gov/cps/cpsmain.htm>) helps identify intercensal year growth and migration of populations as well as monitor socioeconomic trends. Estimates obtained from

the CPS include employment, unemployment, earnings, hours of work, and other indicators. They are available by a variety of demographic characteristics including age, sex, race, marital status, and educational attainment. They are also available by occupation, industry, and class of worker. Supplemental questions to produce estimates on a variety of topics including school enrollment, income, previous work experience, health, employee benefits, and work schedules are also often added to the regular CPS questionnaire.

The *Survey on Income and Program Participation* (SIPP) (<http://www.census.gov/hhes/sippdesc.html>) tracks information on persons participating in federal financial entitlement programs, such as Supplemental Social Security (SSI), Medicare, and Medicaid. The sample design for the first SIPP panel in 1984 consisted of about 20,000 households selected to represent the noninstitutional population of the United States. The most recent 1993 panel has a sample size of approximately 20,000 households. Households in this SIPP panel are scheduled to be interviewed at four-month intervals over a period of 3 years.

Census in the Year 2000

The Year 2000 census will be changing. The Census 2000 operational plan redesigns the census process in bold and fundamental ways. Go to the Internet census site to keep abreast of all these changes at the following address: <http://www.census.gov/dmd/www/plan2.html> or review the plan that the Census Bureau disseminated at the time this document was written.

The Modern Census

A modern census has four key elements. It should be:

1. Universal
2. Simultaneous
3. Periodic
4. Individual

For a census to be *universal*, it must include everyone in the population being enumerated. Problems arise when attempting to count the homeless, minority males in poverty, and Native Americans, since these groups may not be living in conventional settings that are more easily enumerated.

There are two methods for enumerating a population: *de facto*, which allocates persons according to their location at the time of enumeration; and *de jure*, which assigns persons according to their usual place of residence. The United States uses a *de jure* enumeration because it provides a better indication of the permanent population and household composition of an area. For example, a professor who lives in Kenosha, Wisconsin may actually teach at a university in Chicago. On the day of a *de facto* census, she would be assigned to Chicago. If a *de jure* census were used, she would be assigned to Kenosha. Census forms should be mailed *simultaneously* to people at their usual place of residence. The return date for the forms should be the same for everyone; however, some forms are returned late and individuals are sometimes interviewed after the official due date.

A census should be *periodic*. Counts should be made at regular intervals. As discussed earlier, the United States Constitution sets the frequency of our census at every ten years. The Census is now conducted as of April 30 of every Decennial census year.

Finally, in a modern census, the individual is counted and described. In the past, women and slaves, for example, were not enumerated as individuals, but as belonging to the white, male head of the household.

CENSUS CONTENT AND SAMPLE DESIGN

When preparing for the Decennial Census of Population and Housing, the Census Bureau compiles and checks an address list of approximately 106 million housing units and approximately 250 million people across the United States. The Census Bureau is also responsible for enumerating people and housing units in Puerto Rico, the Virgin Islands of the United States, Guam, the Commonwealth of the Northern Mariana Islands, American Samoa, and Palau. This entire population receives a short form, while one of every six households also receives a long form. In both cases, one individual in each household completes the information for the entire household. These two forms are described below.

Short Form

The short form is intended for surveying 100% of the population, an estimated 106 million households. This form, completed by all households, includes:

- seven population questions applicable to every individual in the household; and
- seven questions concerning the household's housing conditions.

Data are available on Summary Tape File 1 for all the short form responses at every geographic level known to the census. You may view the tables available or locate tables by subject.

Data collected from this form are contained in Summary Tape File 1 (STF1) and Summary Tape File 2 (STF2). The Summary Tape Files will be discussed in detail later in this module.

Long Form

Completed by approximately 17.7 million households, the long form includes information about place of birth, participation in the labor force, and family income. The long form survey is conducted on a sample of the U.S. population. The sampling rates vary, depending on geographic locations and population size. The purpose of using variable sampling rates is to provide relatively more reliable estimates for small areas and decrease respondent burden in more densely populated areas while maintaining data reliability. Higher proportions of less populous areas receive the long form. For example, locations with less than 2,500 persons sample one in two households, while locations with more than 2,500 persons sample one in six households. Some densely populated areas sample one in eight.

Summary Tape File 3 (STF 3) and Summary Tape File 4 (STF4) contain the data collected from these long forms. You may view the tables available or locate tables by subject.

When working with census data, it is important to remember the distinctions between the short and the long forms. Variations between the two formats include the:

- geographic area summarized;
- topics covered; and
- media format in which the data can be accessed.

When designing the census questionnaire, the Bureau tries to include questions that allow for comparison with previous census data, questions of current interest to lawmakers as well as special interest groups, and questions that people will willingly answer, i.e., questions that do not make people feel their privacy is being invaded. The tables below list the data items that were collected in the 1990 Census.

100-Percent Component (Short Form)

POPULATION	HOUSING
Household relationship Sex Race Age Marital status Hispanic origin	Number of units in structure Number of rooms in units Tenure-owned or rented Value of home or monthly rent Congregate housing (meals included in rent) Vacancy characteristics

Sample Component (Long Form)

POPULATION	HOUSING
<i>Social Characteristics</i>	Year moved into residence Number of bedrooms Plumbing and kitchen facilities Telephone in unit Vehicles available Heating fuel Source of water and method of sewage disposal Year structure built Condominium status Farm residence Shelter costs, including utilities
Education-enrollment and attainment Place of birth, citizenship, and year of entry into U.S. Ancestry Language spoken at home Migration (residence in 1985) Disability Fertility Veteran status	
<i>Economic Characteristics</i>	
Labor force participation Occupation, industry, and class of worker Work experience in 1989 Income in 1989 Year last worked	

CENSUS GEOGRAPHY

Understanding the geographic components of the census is crucial when we are using census data. Since many of our planning and programming decisions are based on political or legal definitions of a region or area, we need to be aware of the geography by which census data are reported. For example, one can estimate population denominators for city-based data (a political area) using the census but in order to examine the city by smaller geographic areas statistical area data must be examined (e.g., block, census tracts, etc.). Political and statistical areas are not subsets of each other. Although a large city may be composed of multiple census tracts, tracts near the city borders would overlap those borders. Special algorithms must be developed when attempting to combine data from political and statistical areas. One area of geography not considered in census geography are postal codes or zip codes. The Census Bureau does report data in STF3 by zip code but does not collect data by this geographic level. In addition, zip code level data are reported at least a couple of years post release of other census data.

Following is a description of the political and the statistical areas as defined by the Census Bureau.

Political areas include:

- The United States
- Individual states, the District of Columbia, Puerto Rico, the Virgin Islands of the United States, Guam, the Commonwealth of the Northern Mariana Islands, American Samoa, and Palau
- Congressional districts
- Counties
- Minor civil divisions (MCDs) i.e., legal subdivisions of counties, called townships in many states
- Incorporated places, e.g., cities, villages, and so forth
- American Indian reservations and associated trust lands
- Alaska Native Regional Corporations (ANRCs)

Statistical areas include:

- *Census regions and divisions*: the 50 states and the District of Columbia have been grouped into four regions: Northeast, North Central, South, and West, each containing two or three divisions, e.g., New England, Middle Atlantic. There are a total of nine divisions.
- *Metropolitan Statistical Areas (MSAs)*, formerly known as Standard Metropolitan Statistical Areas (SMSAs): Areas consisting of one or more counties, including a large population nucleus and nearby communities that have a high degree of interaction. *Primary metropolitan statistical areas (PMSAs)* are MSAs that make up consolidated metropolitan statistical areas (CMSAs).
- *Urbanized Areas (UAs)*: Defined by population density, each includes a central city and the surrounding closely settled urban fringe (suburbs) that together have a population of 50,000 or more with a population density generally exceeding 1,000 per square mile.
- *Urban/Rural*: All persons living in urbanized area and in places of 2,500 or more population outside of UAs constitute the "urban" population; all others constitute the rural population.
- *Census County Divisions*: Statistical subdivisions of a county defined by the Census Bureau in cooperation with state officials in 21 states where minor civil divisions do not exist or are not adequate for producing subcounty statistics.

- *Census Designated Places (CDPs)*: Densely settled population centers without legally defined corporate limits or corporate powers.
- *Census Tracts*: Small, locally defined statistical areas in metropolitan areas and some other counties. They generally have stable boundaries and an average population of 4,000.
- *Block Numbering Areas (BNAs)*: Areas defined, with state assistance, for grouping and numbering blocks and reporting statistics in counties without census tracts.
- *Block Groups*: Groupings of census blocks within census tracts and BNAs. These replace the enumeration districts or EDs for which the Census Bureau provided data for many areas of the country in the 1980 census.
- *Blocks*: The smallest census geographic areas, normally bounded by streets and other prominent physical features. County, MCD, and place limits also serve as block boundaries. Blocks may be as small as a typical city block bounded by four streets or as large as several square miles in rural areas. The 1990 census was the first census in which data were available by block for the entire country.
- *Alaska Native Village Statistical Areas (ANVSAs)*: A 1990 census statistical area that delineates the settled area of each Alaska Native village (ANV). Officials of the Alaska Native Regional Corporations (business and nonprofit corporate entities) outlined the ANVSAs for the Census Bureau for the sole purpose of presenting 1990 census data.
- *Tribal Designated Statistical Areas (TDSAs)*: Geographic areas outlined for 1990 census tabulations purposes by American Indian tribal officials of recognized tribes that do not have a recognized land area.
- *Tribal Jurisdiction Statistical Areas (TJSAs)*: Geographic areas delineated by tribal officials in Oklahoma for the 1990 census tabulation purposes.

DISSEMINATION OF CENSUS PRODUCTS

The Census Bureau disseminates their products (<http://www.census.gov/mp/www/censtore.html>) in a variety of formats, including non-print formats. Traditional formats include printed reports and maps, as well as computer tape. The Bureau also releases a number of products on microfiche and CD-ROM laser disks, as well as through its online service, CENDATA™. Information is also disseminated through Topographically Integrated Geographic Encoding and Referencing (TIGER).

Printed Reports

Census data contained in the printed reports are arranged in tables; population and housing characteristics are presented for specified geographic areas. The 1990 Census printed report series presented data at the small-area level, such as census tracts; only limited subject-matter detail is included. For example, counts of individuals were reported by age groups, less than 5 years, 5 to 9 years, and so forth, rather than by single years.

Computer Tapes

Decennial Census data have been available on computer tapes since the 1960 Census. The Census Bureau provides much more data on computer tape than in its printed reports. For example, all of the tabulated figures appear on the computer tapes. This is not true of the printed reports. Computer tapes provide census statistics in more detail than is available in the printed reports. These tapes are particularly useful if we need to manipulate, aggregate, or plan any extensive processing of the data.

Summary Tape Files (STFs)

Mentioned briefly in our discussion of the long and the short forms, summary tape files are designed to provide statistics with greater subject detail for geographic areas than is feasible in printed reports. The STFs contain the same types of information available in the reports, but there is more information available. There were four STFs produced for the 1990 Census. Each of these four summary tape files contains specific types of data. The figure below highlights the important features of each STF:

Main Features of Summary Tape Files

	STF1	STF2	STF3	STF4
100-Percent Data	X	X		
Sample Data		X	X	
Presents a particular set of data tables for specific types of geographic areas	X	X	X	X
Contains 3 or more file types that differ in the types of geographic detail reported, but contain the same detail.	X	X	X	X
1990 STF comparable to 1980 STFs	X	X	X	X
STFs 1 and 3 will have more geographic levels detailed, but less data detail than STFs 2 and 4.				
STF 5, released in 1980 for the United States, each state, and the District of Columbia, was not issued in 1990. Comparable data provided through the 1990 subject reports and related STFs is discussed below.				

Technical documentation guides contain an abstract describing the type of file, the subject matter, and the geographic coverage of the data contained on each STF. The guides also provide valuable information on how to use the files, how information is segmented and coded, as well as numerous appendices containing information such as code lists, facsimiles of respondent instructions and questionnaire pages, collections and processing procedures, and a description of the accuracy of the data.

Public Use Microdata Samples (PUMs)

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(<http://www.census.gov/ftp/pub/mp/www/rom/msrom6h.html>) are microdata files on computer tape that present a sample of unidentified long-form housing-unit records for large geographic areas. Each housing-unit sample record presents essentially all the census data collected about each person in a sample household, plus the housing unit's characteristics. This is the only method available for tabulating

information on all members within a household. The other census files have information on individuals or households, but there is no way to make informational links between household members.

There are two sets of public use microdata files (PUMs): a five- percent sample and a one- percent sample. The five- percent sample is grouped by counties or county groups that do not cross state boundaries and includes at least 100,000 persons. Codes are included that indicate to the user in what group of counties or area the household is located.

The one percent sample also includes at least 100,000 persons, but is organized by metropolitan area and may cross states boundaries.

The PUMs allows users with special needs to prepare customized tabulations and cross-tabulations of virtually any item on the census questionnaire.

Other Special Computer Tape Files

Other computer tape files include the *Public Law (PL) 94-171 Counts File*. The Public Law Counts File is released before the regular Census files to allow political boundaries to be drawn in each state. This file contains statistics on total population, age, race, Hispanic origin, while the EEO File contains sample tabulations showing detailed occupations and educational attainment by age. This file is cross-tabulated by sex, Hispanic origin, and race. The Migration File contains summary statistics for all intra-state county-to-county migration streams and significant inter-state county-to-county migration streams.

Microfiche

In the 1990 Census, block statistics were available on microfiche. The microfiche presented a subset of the tabulations for blocks found on STF1B. As mentioned previously, 1990 was the first time the entire country was blocked. This served to increase the number of blocks for which the Census Bureau provided data from 2.5 million in 1980 to approximately 7 million in 1990. The microfiche format allows for the storage of the vast quantities of data. The cost and storage of this block data would be prohibitive in a printed report format. STFs 1A and 3A are available on microfiche.

CD-ROM

The CD-ROM format is another technology that allows for the cost- and space-efficient storage of large amounts of data. The 1990 Census data available on CD-ROM included the *Public Law (PL) 94-171* tape file and STFs 1-3. We can expect to see an increasing number of data files to be made available on CD-ROM for the year 2000 Census.

Special Tabulations

The Census Bureau, for a fee, will prepare special tabulations for any specific geographic or subject matter area. Standard reports, tapes, and microfiche should be used whenever possible, since special tabulations are expensive and are only done when the Bureau staff has completed their regular work.

Online Services

The Census Bureau (<http://www.census.gov>) maintains a comprehensive web site where links exist to the following data sites:

CenStats and CenStore are located at: <http://www.census.gov/mp/www/index2.html>
Tiger file mapping service can be found at: <http://tiger.census.gov/>
1990 census data lookup can be accessed: <http://venus.census.gov/cdrom/lookup>

Maps and Geographic Files

Census maps are vital for all users of small-area census data. Additionally, census maps are needed to locate specific geographic areas and show the spatial relationship of the data. Among the maps available for the 1990 Census were:

County Block Maps: details the census blocks and their numbers, other boundaries, and physical features.

County Subdivisions Maps: presents the boundaries of the counties, county subdivisions (MCDs or CCDs), places, American Indian reservations, including off-reservation trust lands, and the Alaska Native areas.

Census Tract/BNA Outline Maps: depicts the census tract/block numbering area (BNA) boundaries and features underlying the boundaries.

Machine-Readable Geographic Files

The Census Bureau developed an automated geographic database, known as TIGER or Topologically Integrated Geographic and Encoding and Referencing. This system allows for the production of various geographic products that support the census data. It also provides coordinate-based digital map information for the entire United States, the Virgin Islands of the United States, and the Pacific territories. The TIGER System allows us to create computer-generated maps at different scales for any geographic area of the country. TIGER System extracts are available in several formats, including TIGER/Line files. TIGER/Line Files is a file with selected geographic and cartographic information containing basic data for the segments of each boundary or feature; including:

- adjacent census geographic area codes;
- latitude and longitude coordinates of segment end points;
- the name and type of feature; the relevant census feature class code identifying the feature segment by category; and,
- address ranges and associated zip codes for both sides of the street segments for areas approximating the urbanized areas.

TIGER/Line files are organized by county and are available on computer tape and CD-ROM.

USES OF CENSUS DATA FOR DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

Demographics

Demographic data from the census can be used to describe the racial and ethnic characteristics of an area. Racial and ethnic data are given for the total population, and then for the population by age categories zero through seventeen. Racial categories are white, black, American Indian, Eskimo, or Aleutian or Pacific Islander, and other races. Remember that racial categories do *not* include Hispanic, since

Hispanics include black, white, and other races. Hispanics are identified as an ethnic group by the U.S. census, and are subdivided into Mexican, Puerto Rican, Cuban, and other Hispanic. Ethnic origin refers to Hispanic origin only, and does not include people of other European, Asian, or African ethnicities, e.g. Irish, Japanese, or Kenyan.

The numbers and percents for the racial categories for any group given in the demographics section (i.e., total population, population ages zero through two, population ages three through five, etc.) should add up to 100 percent. The ethnic or Hispanic origin numbers and percents are *not* related to the racial numbers and percents. Do not add Hispanic numbers or percents to racial numbers or percents.

Census data tells us that the population of minority groups in the United States has been growing over the past decades, especially in the last ten years, due in part to immigration and a higher fertility rates among these groups. Demographers indicate that minority populations will continue to grow over the next two decades. Minority populations are disproportionately disadvantaged in terms of family income, access to health care, access to high-quality education, and employment opportunities. We can use demographic numbers from the census as denominators when calculating percents of people served by particular programs as a percent of total number of people in a certain age or racial group.

The measurement of race is being changed through the Office of Management and Budget (OMB) which released new guidelines to OMB Directive 15 in July 1997. Developed in 1977, the original Directive 15 describes four races (Native American or Alaskan Native; Asian or Pacific Islander; Black; and White) and two ethnic categories (of Hispanic origin and not of Hispanic origin). Although the Directive notes the absence of scientific or anthropological foundations in its formulation, race and ethnic categories are used in federal scientific research and, as such, serve as a basis for interpreting research findings, ranging from biomedical to economic research. However, race and ethnicity categories used by the census have changed over time and rely upon an inconsistent mixture of principles and criteria, including national origin, language, minority status and physical characteristics. Since 1900, 26 different racial terms have been used to identify populations on the US Census.

The concept of race is a social and cultural construction, with no basis in human biology. Race can simply not be tested or proven scientifically, according to the American Anthropological Association (AAA). In addition, many Americans do not understand differences between race, ethnicity and ancestry categories in surveys, and fail to distinguish between them. The new OMB Directive will change the way the Year 2000 census defines race and present new challenges for analysis and trending of data.

Socioeconomic Data

Socioeconomic data available from the census include children living in poverty by age groups, single-householder families living in poverty, children living in households with unemployed parents, number of adults with a high school education, unemployment figures for an area, and the primary language spoken in the home.

Socioeconomic data are important to public health analysis because certain socioeconomic data are strong risk markers, or indicators, for unfavorable health outcomes such as low birth weight, child neglect and abuse, and teenage pregnancy.

To understand the socioeconomic data from the U.S. census, we need to understand how the census defines several key terms-household, householder, family, and related child.

Household—all the persons who occupy a housing unit.

Householder—In most cases, a householder is the person, or one of the persons, in whose name the home is owned, being bought, or rented, or any adult household member fifteen years old or over designated as the householder for purposes of the census.

Family—a householder and one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption. All persons in a household who are related to the householder are regarded as members of his or her family. A household can contain only one family for purposes of the census.

Related child—a son or daughter by birth, a stepchild, or an adopted child. The term does not include foster children.

Socioeconomic Indicators

Examples of socioeconomic risk markers or indicators of unfavorable health outcomes for children, and why they are important to consider in a public health analysis are described below.

Poverty

Although the mean income of families with children has risen over the last thirty years—due to an increase in family income and a decrease in the average number of children per family, more families with children than ever before are economically insecure. Today, one in five children in the United States lives in a family below the federal poverty level. Nationwide, almost 13 million children live in poverty, more than 2 million more than ten years ago. Of these children, almost 5 million live in families with incomes less than half the federal poverty level. Minority children are much more likely to live in a poor family. Children living in a single-parent family, especially if that parent is a mother, are likely to be poor.

Children in poor families in economically disadvantaged neighborhoods have the most health and behavioral problems. These children have lower literacy levels and higher rates of dropping out of high school. They have a greater exposure to violence. Poverty affects access to health care and availability of services and has been linked with higher levels of child neglect and abuse.

Single-householder families

Children growing up in families with one parent are more likely to be poor than children in families with two parents. When the single parent is a mother, the risk factor for poverty increases. Nationwide, about 43 percent of single-mother families live below poverty, compared to only about 7 percent of two-parent families. If the mothers are not working, these children are very likely to be poor. While poverty among two-parent families usually fluctuates with the economy, poverty among single-mother families remains constant; among these families, sustained poverty for seven or more years is common, whereas this is rare for two-parent families. The average income of single-mother families is only about 40 percent of the average income of two-parent families at the same age. The economic status of single-mother families is often exacerbated by the failure of absent fathers to pay child support.

Single-householder families living below poverty with children under age five

This is a combination of two major socioeconomic risk factors.

Children living with one or two parents and all parents are unemployed

When no parents are unemployed in a family with children, the children are at even more risk for the unfavorable outcomes associated with poverty, listed above.

SUMMARY OF TECHNICAL ISSUES FOR CALCULATING TOTALS AND PERCENTS USING CENSUS DATA

To make use of census data, an understanding of file organization is important. This discussion will be limited to the data found on the CR-ROM version of the STFs, discussed earlier in this module. The CD-ROM is packaged with browsing software called "GO" that was developed by the Census Bureau to simplify retrieval of summary tables. Once the CD is in the drive, all the user has to do to start the program is type: GO. You may then select the geographic area of interest and then the data item of interest. The data are stored in the CD-ROM in a database format. When copying the data for use elsewhere, the user is given the options of database field (*.dbf) and ASCII (delimited or fixed). It is important to note that a single data item selected (such as poverty by age) is stored as a separate database table and each group you see displayed is a separate variable in the data table. Therefore, in the case of poverty by age, if you want to create a variable for number and percent of persons under age 18 under poverty you would need to sum each age variable (0-4, 5, 6-13, and so forth) that makes up the total number of persons under 18 years.

Careful attention must be paid to calculating the denominator you will use to obtain your percent variable. Each database table has a universe of values, e.g., persons on whom the data were obtained, households, families, and so forth. For example, if a table describes the universe as being "persons greater than or equal to age 25" then the denominator used for any variable within the table must be the total number of persons greater than or equal to age 25. This variable may be obtained by creating a total for all categories in the table or through totaling the number of persons in the age group using the table for age. The totals between the tables may or may not match. This may be due to suppression or other reasons unknown to this author. In either case, the safest method is to use the total for the table that was the source of the numerator.



