

Population Estimates Used in NCI's SEER*Stat Software

The county population estimates implemented in the NCI SEER*Stat software for the calculation of cancer incidence and mortality rates are available from our web site (<http://seer.cancer.gov/popdata>). They represent a modification of the annual time series of July 1 county population estimates by age, sex, race and Hispanic origin produced by the Population Estimates Program of the U.S. Bureau of the Census with support from the NCI through an interagency agreement.

The population estimates now incorporate bridged single-race estimates for July 1, 2000 and 2001, that are derived from the original multiple race categories in the 2000 Census (as specified in the 1997 Office of Management and Budget standards for the collection of data on race and ethnicity). The bridged single-race estimates and a description of the methodology used to develop them appear on the NCHS web site (<http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>).

Another modification that the NCI has made to the Census Bureau estimates only affects population estimates for the state of Hawaii. The Epidemiology Program of the Hawaii Cancer Research Center has developed their own set of population estimates, based on sample survey data collected by the Hawaii Department of Health. This effort grew out of a concern that the native Hawaiian population has been vastly undercounted in previous censuses. The "Hawaii-adjustment" to the Bureau of Census estimates has the net result of reducing the estimated White population and increasing the Asian and Pacific Islander population for the state. The Bureau of Census estimates for the total population, Black population, and American Indian and Alaska Native populations in Hawaii are unaffected.

An additional modification to the Census Bureau estimates was implemented in order to meet requirements for age-adjustment according to the year 2000 U.S. standard population. The following describes how population estimates for two new age groups (less than one year-olds and one to four year-olds) were created for the 1969-1989 estimates.

1969-1989 NCI SEER*Stat Population Estimates

The July 1, 1969-1989 population estimates were taken from the NCI standard 200 format files (i.e., the same population estimates which have been available through SEER*Stat). These population estimates were already modified according to the Hawaii Cancer Research Center data. The estimates for 1969-74 were modified using new data obtained from the Hawaii Cancer Research Center. The methodology for developing the 1969-1989 Hawaii population estimates was comparable to that described in the next section for the 1990-2000 population estimates.

Single year of age population estimates were obtained from a private vendor (Woods and Poole Economics, Inc., 2001 Regional Database, Copyright January 2001; estimated July 1 population by race, sex and single year of age based on 1990 Census and post-censal Census Bureau estimates). The following steps were followed to create the two new age groups for the SEER*Stat population estimates:

1. The Woods & Poole single year of age populations for zero to four year olds were used by year (1970-1989), state/county, race (White, Black, Other) and sex (male, female). To be consistent with the county codes used by the NCI (Appendix 1), various counties available in the Woods & Poole data needed to be combined or recoded (Appendix 2). There were also several counties, mainly in Virginia but are not combined in the NCI data that are combined in the Woods & Poole data. For these NCI counties, the combined county Woods & Poole data was used for each of the individual NCI counties (Appendix 3).
2. The proportion of less than one year-olds in the zero to four year-old age group was calculated by year, state/county, race (White, Black, Other) and sex from the Woods & Poole data.
3. Using the current 1969-1989 population NCI estimates, estimates for 'Other' race were calculated by subtracting the Black estimates from the Non-White by year, state/county and sex. The Non-White estimates were dropped at this point leaving races White, Black and Other.

4. The proportions from the Woods & Poole data were applied to the zero to four year-old age group by year, state/county, race (White, Black, Other) and sex. The proportions for 1970 were used for 1969. Populations for the one to four year-old age groups were calculated by subtracting the new less than one year-old populations from the zero to four year-old populations.
5. Populations for Non-White were created by summing the estimates for Blacks and Other by years, state/county, age group (<1, 1-4) and sex. The populations for Other race were dropped at this point.
6. Populations for the two new age groups (<1, 1-4) were merged with the 1969-1989 population data. The zero to four year-old age group was dropped.

1990-2001 NCI SEER*Stat Population Estimates

A set of July 1, 2000-01 estimates for <1 year old, 1-4, 5-9, 10-14, ..., 80-84, and 85 and over age populations were obtained by NCI from the Census Bureau through an interagency agreement. The estimates for 2000 were revised since the Census Bureau, in addition to developing estimates for a new year, routinely revises the estimates for prior years back through the Census base year (in this case, year 2000). This file contains populations by year, county, race, Hispanic origin, sex and age. The race groups included in the Census estimates are White, Black, American Indian/Eskimo/Aleut and Asian/Pacific Islander. Population records were created for 19 age groups (<1, 1-4, 5-9, ..., 85+) for White (total), Hispanic White, Non-Hispanic White, Non-White (total), Hispanic Non-White, Non-Hispanic Non-White, Black, American Indian/Eskimo/Aleut and Asian/Pacific Islander. These estimates were used along with the 1990-99 estimates previously obtained from the Census Bureau. The methodology implemented by the Census Bureau to develop these county estimates is comparable to that used to produce national and state 1990-2000 intercensal estimates and is described on the Census Bureau's web site: <http://eire.census.gov/popest/topics/methodology/usintercensal.php>.

The following steps were taken to create the 1990-2001 population records:

1. One record was created by year, county, race, Hispanic origin, and sex with 19 variables containing the age-specific populations. The following racial/ethnic groups were created: Total, Non-Hispanic White, Hispanic White, Black, American Indian/Eskimo/Aleut, Asian/Pacific Islander and Total Hispanic.
2. Census Federal Information Processing Standards (FIPS) county codes were collapsed to match the county list that is used by the NCI (Appendix 1).
3. Adjustments to the Census Bureau's populations for the state of Hawaii were made in collaboration with investigators at the Hawaii Cancer Research Center using population data they provided. The proportion of the White population estimate to the total (all racial/ethnic groups combined) population was calculated from the Hawaii Cancer Research Center's populations for 1990-2001 by year, sex, and age group. The proportion was applied to the total (all racial/ethnic groups combined) population estimate from the Census Bureau to produce the Hawaii-adjusted White population. Additional racial/ethnic populations for Hawaii were developed in the following manner:
 - Hispanic White = Hawaii adjusted White X (Census Hispanic White/Census White)
 - Non-Hispanic White = Hawaii adjusted White – New Hispanic White
 - Hispanic Non-White = (Census Total - Hawaii adjusted White) X (Census Hispanic Non-White/Census Non-White)
 - Non-Hispanic Non-White = Census Total – (Hawaii adjusted White + Hispanic Non-White)
 - Asian/Pacific Islander = Census Total – (Hawaii adjusted White + Census Black + Census American Indian/Eskimo/Aleut)
4. The adjusted Hawaii data were merged with the other county level data.

Appendix 1. Listing of counties combined/recoded in the 1969-2001 NCI population data.

Combined Counties

State	Years	NCI County	FIPS County Code
Alaska	All	900	All Counties
Arizona	1990-93	910	012 La Paz County 027 Yuma County
Colorado	2000-01	910	001 Adams County 013 Boulder 014 Broomfield 059 Jefferson 123 Weld
Hawaii	All	900	All Counties
New Mexico	1969-81	910	006 Cibola County 061 Valencia County
New York	1969-79	910	005 Bronx County 047 Kings County 061 New York County 081 Queens County 085 Richmond County
Virginia	1969-81	910	153 Prince William County 683 Manassas City 685 Manassas Park City
	1969-81	911	095 James City County 199 York County 735 Poquoson City 830 Williamsburg City
	1969-79	913	089 Henry County 690 Martinsville City
	1969-79	914	165 Rockingham County 660 Harrisonburg City
	1969-79	915	177 Spotsylvania County 179 Stafford County 630 Fredericksburg City
	1980+	005	005 Alleghany County 560 Clifton Forge City
	1969-79	916	005 Alleghany County 560 Clifton Forge City 580 Covington City
	1969-79	917	019 Bedford County 515 Bedford City
	1969-79	918	013 Arlington County 059 Fairfax County 510 Alexandria City 600 Fairfax City 610 Falls Church City
	All	083	083 Halifax County 780 South Boston City

Recoded Counties

State	Years	NCI County	FIPS County Code
Florida	1969-89	086	025 Miami Dade County
Missouri	1969-79	186	193 St Genevieve County

Appendix 2. Listing of Woods & Poole counties combined/recoded to match NCI county codes

Combined Counties

State	Woods & Poole	NCI County Code
New York	5+47+61+81+85 (1970-79 Only)	910 Bronx County + Kings County + New York County + Queens County + Richmond County
Virginia	931+958 (1970-81 Only)	911 James City County + York County + Poquoson City + Williamsburg City
	179+951 (1970-79 Only)	915 Spotsylvania County + Stafford County + Fredericksburg City
	919+13+510 (1970-79 Only)	918 Alington County + Fairfax County + Alexandria City + Fairfax City + Falls Church City

Recoded Counties

State	Woods & Poole	NCI County Code
Alaska	000	900 All counties
Arizona	027	910 La Paz County + Yuma County

Appendix 3. Listing of counties that are collapsed in the Woods & Poole population data.

The data for these combined counties were output once for each of the individual NCI county codes.

State	Woods & Poole	NCI County Code
New Mexico	061	006 Cibola County 061 Valencia County
Virginia	179	179 Stafford (1980-89 only) 915 Spotsylvania County + Stafford County + Fredericksburg City (1969-79)
	901	003 Albemarle County 540 Charlottesville City
	903	005 Alleghany County with Clifton Forge City (1980-89 only) 580 Covington City (1980-89 only) 916 Alleghany County with Clifton Forge City + Covington City (1969-79 only)
	907	015 Augusta County 790 Staunton City 820 Waynesboro City
	909	019 Bedford County (1980-89 only) 515 Bedford City (1980-89 only) 917 Bedford County + Bedford City (1969-79 only)
	911	031 Campbell County 680 Lynchburg City
	913	035 Carroll County 640 Galax City
	918	053 Dinwiddie County 570 Colonial Heights City 730 Petersburg City
	919	059 Fairfax County (1980-89 only) 600 Fairfax City (1980-89 only) 610 Falls Church City (1980-89 only) 918 Alington County + Fairfax County + Alexandria City + Fairfax City + Falls Church City (1969-79 only)
	921	069 Frederick County 840 Winchester City
	923	081 Greensville County 595 Emporia City
	929	089 Henry County (1980-89 only) 690 Martinsville City (1980-89 only) 913 Henry County + Martinsville City (1969-79 only)
	931	095 James City County (1982-89 only) 830 Williamsburg City (1982-89 only) 911 James City County + York County + Poquoson City + Williamsburg City (1969-1981)
	933	121 Montgomery County 750 Radford City
	939	143 Pittsylvania County 590 Danville City
	941	149 Prince George County 670 Hopewell City
	942	153 Prince William County (1982-89 only) 683 Manassas City (1982-89 only) 685 Manassas Park City (1982-89 only) 910 Prince William County + Manassas City + Manassas Park City (1970-81 only)
	944	161 Roanoke County 775 Salem City

State	Woods & Poole	NCI County Code
Virginia (continued)	945	163 Rockbridge County 530 Buena Vista City 678 Lexington City
	947	165 Rockingham County (1980-89 only) 660 Harrisonburg City (1980-89 only) 914 Rockingham County + Harrisonburg City (1969-79)
	949	175 Southampton County 620 Franklin City
	951	177 Spotsylvania County (1980-89 only) 630 Fredericksburg City (1980-89 only) 915 Spotsylvania County + Stafford County + Fredericksburg City (1969-79)
	953	191 Washington County 520 Bristol City
	955	195 Wise County 720 Norton City
	958	199 York County (1982-89 only) 735 Poquoson City (1982-89 only) 911 James City County + York County + Poquoson City + Williamsburg City (1970-1981)
Wisconsin	901	078 Menominee County 115 Shawano County