2019 POPULATION FILE FOR USE WITH AHRQ QUALITY INDICATORS™ Version v2020

Prepared for:

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1.0   Overview

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators (QIs)™ include 21 area-level indicators (Table 1). These indicators are intended to measure health care quality across the population in a geographic area rather than for a single facility or provider. The denominators for area-level indicators are the population of the area being examined, subset by age or (for some indicators) sex. The denominators for these indicators must be constructed from an outside source rather than being drawn from a subset of discharges in the user's input file.

The objective of this document is to describe how the population data estimates are derived from Census data for use with the SAS® QI Software Version (SAS QI v2020) and Microsoft Windows® QI Software Version (WinQI v2020). Population figures through 2019 for use with SAS QI v2020 beta are provided in the file 2000-2019_Population_Files_V2020.txt, which is available as a separate download on the AHRQ QI website (https://www.qualityindicators.ahrq.gov/). Population data are built into the installation package for WinQI v2020.

Table 1. AHRQ QI Area-Level Indicators

Prevention Quality Indicators (PQIs)	Pediatric Quality Indicators (PDIs)
PQI 01 Diabetes Short-Term Complications Admission Rate	PDI 14 Asthma Admission Rate
PQI 03 Diabetes Long-Term Complications Admission Rate	PDI 15 Diabetes Short-Term Complications Admission Rate
PQI 05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	PDI 16 Gastroenteritis Admission Rate[a]
PQI 07 Hypertension Admission Rate	PDI 18 Urinary Tract Infection Admission Rate[a]
PQI 08 Heart Failure Admission Rate	PDI 90 Pediatric Quality Overall Composite
PQI 11 Community-Acquired Pneumonia Admission Rate	PDI 91 Pediatric Quality Acute Composite
PQI 12 Urinary Tract Infection Admission Rate	PDI 92 Pediatric Quality Chronic Composite
PQI 14 Uncontrolled Diabetes Admission Rate	
PQI 15 Asthma in Younger Adults Admission Rate	
PQI 16 Lower-Extremity Amputation among Patients with Diabetes Rate	
PQI 90 Prevention Quality Overall Composite	
PQI 91 Prevention Quality Acute Composite	
PQI 92 Prevention Quality Chronic Composite	
PQI 93 Prevention Quality Diabetes Composite	

[a] Colorado and Hawaii data were not included in the denominators used to develop PDI 16 and PDI 18..

2.0   Data and Methodology

Every year, the Census Bureau releases postcensal population estimates1 (as of July 1 of each year) that are generated with the assistance of the Federal State Cooperative Program for Population Estimates (FSCPE) at the Federal Information Processing Standard (FIPS) level using residence, total births, total deaths, and net migration. With each new issue of July 1 estimates, the Census Bureau makes revisions to all years back to the last decennial census. Each decade, after a decennial census, the Census Bureau produces a set of intercensal estimates that provide annual population estimates that are adjusted to smooth the transition from one decennial census to the next. These estimates are used to derive the AHRQ QI Population File to be used with the AHRQ QI software.

2.1   Census Data Files

AHRQ received intercensal and postcensal estimates of county-level population by single-year age group, sex, race, and Hispanic origin covering the years 2000 through 2019 from the Census Bureau (http://www.census.gov/popest/). Single year estimates are only available by special request. Public files with 5 year age groups are available from the Census website. Table 2 presents detailed information and sources for the specific files acquired and used to generate the 2000-2019_Population_Files_V2020.txt file for use within the AHRQ QI software.

Table 2. Census Dataset Descriptions and Sources

Data Name	Years	Base Decennial Year	Type	Source
County Population by Characteristics: 2010-2019 Vintage; featuring single age, sex, race, and Hispanic origin.	2010–2019	2010	Postcensal	Obtained by special request to the Census Bureau.
County Population by Characteristics: 2000-2009 Intercensal; featuring single age, sex, race, and Hispanic origin.	2000–2009	2000	Intercensal	Obtained by special request request to the Census Bureau.

2.1.1 The Impact of County Changes

AHRQ does not make adjustments to the data obtained from the Census Bureau for geographic changes between intercensal and postcensal files. The deletion of any county before 2010 results in that county's exclusion from the file, and the populations (including the associated age, sex, and race stratification) of those counties are retabulated to the appropriate current geographies. Counties that were deleted in 2010 or later are included in the file but are listed with a population of zero, and the

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[1] "Estimates are for the past, while projections are based on assumptions about future demographic trends. Estimates generally use existing data collected from various sources, while projections must assume what demographic trends will be in the future." U.S. Census. Population Projections. https://www.census.gov/glossary/#term_Populationprojections. Accessed June 22, 2017.

populations of those counties are retabulated to the appropriate current geographies for all years starting in 2010. The populations for counties newly created before 2010 are tabulated as if their current geographic boundaries existed starting in 2000. The populations for counties newly created in 2010 or later are tabulated as if their current geographic boundaries existed for all years starting in 2010. Users should review the list of Substantial Changes to Counties and County Equivalent Entities: 1970-Present from the US Census website to see if boundary changes will impact area rate calculation (https://www.census.gov/programs-surveys/geography/technical-documentation/county-changes.html).

Four counties are on the 2000-2009 intercensal tables that are not on the post-2010 census tables:
- 02201: Prince of Wales-Outer Ketchikan Census Area, AK
- 02232: Skagway-Hoonah-Angoon Census Area, AK
- 02280: Wrangell-Petersburg Census Area, AK
- 51560: Clifton Forge (independent) city, VA

Three counties are on the 2000-2009 and post-2010 census tables, but were deleted or experienced a change of name and FIPS code after 2010:
- 02270: Wade Hampton Census Area, AK
- 46113: Shannon County, SD
- 51515: Bedford (independent) city, VA

Six counties were newly created beginning in the 2000-2009 intercensal tables:
- 02105: Hoonah-Angoon Census Area, AK
- 02195: Petersburg Census Area, AK
- 02198: Prince of Wales-Hyder Census Area, AK
- 02230: Skagway Municipality, AK
- 02275: Wrangell City and Borough, AK
- 08014: Broomfield County, CO

Three counties are in the post-2010 tables that are not on the 2000-2009 intercensal tables because they were newly created or experienced a change of name and FIPS code after 2010:
- 02195: Petersburg Borough, AK
- 02158: Kusilvak Census Area, AK
- 46102: Oglala Lakota County, SD

2.1.2 Modifications to Census Estimates for Use in the Population File

Adjustments for AHRQ Race Categories

AHRQ modifies the race category on the census files to include a race classification for Hispanic. The US Census treats race and Hispanic origin as two separate and distinct concepts in accordance with guidelines from the Office of Management and Budget (see the following link for additional information: https://www.census.gov/topics/population/hispanic-origin/about/comparing-race-and-

hispanic-origin.html). The combination of race and Hispanic origin indicator are used to create an Hispanic race classification. Table 3 depicts how the race categories were defined from the census race and Hispanic origin groupings fields. This set of race categorizations captures the entire U.S. population.

Table 3. Race Category Aggregations Based on Census Reporting Categories

Race Category	Description
1	White Alone =1 and Hispanic Origin = 0
2	Black Alone= 1 and Hispanic Origin = 0
3	Hispanic Origin = 1
4	Either Asian Alone OR Native Hawaiian, and Other Pacific Islander Alone = 1 AND Hispanic Origin = 0
5	NonAmerican Indian, and Alaska Native Alone = 1 AND Hispanic Origin = 0
6	Two or More Races = 1 and Hispanic Origin = 0

Creating Pediatric and Adult Age Groups based on single year estimates.

The population file includes age band categories to match the population of interest. The area-level indicators in the Pediatric Quality Indicator (PDI) module focus on the population aged 17 years and under and the other indicator modules use the population aged 18 years and older. For population data from 2000 to 2019, the age group categories are constructed using the Census estimates for single year county sex, race stratifications. The single year stratification is not available to the public. To capture the separation between the pediatric and adult populations, age groups are created for 15 through 17 and 18 through 24-year age spans. The other age groups combine 5 single year age stratifications, ending with the age 80 through 84 group. There is also an age category for all individuals age 85 years and older.

2.1.3 Census Data File Mapping to AHRQ QI Population File

The 2000-2019_Population_Files_V2020.txt file population estimates for 2000 through 2010 are based on intercensal estimates by demographic characteristics that are adjusted to the 2010 Census. The 2000-2019_Population_Files_V2020.txt file population estimates for 2011–2019 are based on postcensal estimates by demographic characteristics that use the 2010 Census as the base.

Public-use files of postcensal population estimates from the Census Bureau are currently available through 2019.

2.2   Version History

The population file released with each version of the software is generated with the most recent data available at the time of software development. As such, this file changes from version to version (including the filename) as the Census Bureau updates and releases data. The differences

between population files for AHRQ QI software release versions can be caused by changes in population estimates themselves, changes in methodology, or both. Note that data for population files included with previous releases of the AHRQ QI software are not updated with each new release. Since the most recent file will be retroactively adjusted based on the most current data and methodology, AHRQ recommends using the most recent file available. Note that beginning with the 2000-2019_Population_Files_V2020.txt file, the most recent version of the file no longer includes years prior to 2000; the previous version included years 1995 through 1999.

3.0   2000-2019_Population_Files_V2020.txt File Specification

The 2000-2019_Population_Files_V2020.txt file is an ASCII-based text file containing 679,320 records with a fixed logical record length of 150 bytes. It is in fixed column format. Table 4 presents the file's specific fields and the code schema used for each field.

The file is structured for use with AHRQ QI programs PQI_AREA_OBSERVED.sas, PQI_AREA_RISKADJ.sas, PDI_AREA_OBSERVED.sas, and PDI_AREA_RISKADJ.sas, as well as the Windows QI (WinQI) software. As such, any modification to this file will affect the operation of these programs.

A given county is identified by the FIPS code for the State in which it is located and by the county's FIPS code. For each county within the United States, the file contains 216 records: a record for each unique combination of sex, 18 age groups, and 6 race groups. Each physical record represents a sex, age group, and race group combination for that county and contains population estimates (rounded to integer values) for that combination for each year from 2000 through 2019.

The file has data for 3,145 counties or "equivalent areas," defined to constitute primary divisions of their States. Equivalent areas include the independent cities of Baltimore, Maryland; St. Louis, Missouri; Carson City, Nevada; and 39 independent cities in Virginia. Because they are independent of any contiguous county, equivalent areas are treated as separate counties with their own population records. Population figures for surrounding counties exclude these cities. Differences in the record count from previous population files are due to changes in county definitions or such independent cities. Definitions for State and county FIPS codes can be found at
https://www.census.gov/geographies/reference-files.html.

Table 4. Data Fields in 2000-2019_Population_Files_V2020.txt

Field	Variable	Column Position	Format	Codes
1	State	1–2	Zero filled numeric	FIPS code
2	County	3–5	Zero filled numeric	FIPS code
3	Sex	7	Numeric	1=male, 2=female
4	Age group	9–10	Numeric	1=0–4 years 2=5–9 years 3=10–14 years 4=15–17 years 5=18–24 years 6=25–29 years 7=30–34 years 8=35–39 years 9=40–44 years 10=45–49 years 11=50–54 years 12=55–59 years 13=60–64 years 14=65–69 years 15=70–74 years 16=75–79 years 17=80–84 years 18=85+ years
5	Race	12	Numeric	1=White 2=Black 3=Hispanic 4=Asian & Pacific Islander 5=American Indian 6=Other
6	2000 population	13-19	Numeric	Integer Totals
7	2001 population	20-26	Numeric	
8	2002 population	27-33	Numeric	
9	2003 population	34-40	Numeric	
10	2004 population	41-47	Numeric	
11	2005 population	48-54	Numeric	
12	2006 population	55-61	Numeric	
13	2007 population	62-68	Numeric	
14	2008 population	69-75	Numeric	
15	2009 population	76-82	Numeric	
16	2010 population	83-89	Numeric	
17	2011 population	90-96	Numeric	
18	2012 population	97-103	Numeric	
19	2013 population	104-110	Numeric	
20	2014 population	111-117	Numeric	
21	2015 population	118-124	Numeric	
22	2016 Population	125-131	Numeric	
23	2017 Population	132-138	Numeric	
24	2018 Population	139-145	Numeric	
25	2019 Population	146-152	Numeric	

Abbreviation: FIPS, Federal Information Processing Standards