User Documentation for the

State and National

Area Health Resources Files (AHRF)

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**AHRF USER DOCUMENTATION**

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# Introduction

The Area Health Resources Files (AHRF) State and National data files contain data from three sources: the 2014-2018 American Community Survey from the U.S. Census Bureau, the May 2019 Occupational Employment Statistics file from the Bureau of Labor Statistics and the 2017-2018 Integrated Postsecondary Education Data System (IPEDS) file from the National Center for Education Statistics, U.S. Department of Education.

Both the American Community Survey (ACS) and the Bureau of Labor Statistics (BLS) provide information on the number of practitioners in each jurisdiction, and these sources arrive at counts using different approaches, and therefore, provide slightly different values. The ACS surveys a representative number of people in each state and based on the responses, estimates the number of health sector personnel in each of the Standard Occupational Codes, or SOC. The BLS surveys employers and asks the number of jobs that are filled by SOC.

The ACS PUMS provides a broad range of demographic information regarding the make-up of the workforce – this level of detail is not available in BLS data. The BLS data provides counts of jobs filled, and provides wage information not available in ACS. Therefore, these sources look at the labor force from different perspectives that result in differences. The National Center for Health Workforce Analysis (NCHWA) provides both sets of data for use based upon the user’s particular interest.

# **American Community Survey (ACS**)

American Community Survey Public Use Microdata Sample (ACS) data were downloaded from the U.S. Census Bureau.[[1]](#footnote-1) The 2014-2018 ACS data file is approximately a 5 percent sample of the U.S. population by combining the 1 percent samples in the 2014, 2015, 2016, 2017, and 2018 ACS. The ACS data are collected throughout each calendar year and represent the aggregate characteristics over a 5-year period. There are approximately 15.5 million records in the 5-year 2014-2018 ACS data file.

Please note that earlier releases of the State and National AHRF report health professions data from the 3-year average ACS. Effective November 2015, creation of 3-year ACS estimates was discontinued due to budget constraints. Therefore the 2015-2016 and subsequent releases of the State and National AHRF reports health professions data from the 5-year ACS estimates.

The 5-year ACS file was used, rather than the most recent single-year ACS file, in order to have sufficient sample sizes. Although the 5-year ACS has over 15 million records, the health professions included on the AHRF encompass approximately 970,000 records. While many of the health care professions included on the AHRF have substantial sample sizes, a number of professions have relatively small sample sizes. Sample size is particularly important when reporting on the demographics of the professions and when reporting on the workforce by state.

The health professions included on the AHRF were selected based on the following criteria: (1) the profession is among the top 50 having the largest number of jobs in the health sector as identified by the BLS Standard Occupation Classification (SOC) code for the profession and/or (2) the profession is among the fastest growing health professions as forecast by BLS. These determinations were made based on data from the BLS 2015 Occupational Employment Statistics files. [[2]](#footnote-2)

The race/ethnicity categories reported are White (Non-Hispanic), Black/African American (Non-Hispanic), Hispanic, Asian/Native Hawaiian/Pacific Islander (Non-Hispanic), American Indian/Alaska Native (Non-Hispanic), and Multiple/Other Race (Non-Hispanic).[[3]](#footnote-3)

Age groups reported are: less than 35 years old, 35-55 years old, and more than 55 years old.

Workforce settings are reported for each profession, as applicable. The number of settings reported varies by profession.

Data are suppressed for any value where the percent relative standard error (PRSE) is greater than 30%. In addition, work settings for a given profession for which there were fewer than 10 states reported and for which the national total for that setting in that profession represented less than 3% of the total for that profession are not included on the file. If a setting-profession combination had 10 or more states reported or if it had 9 or fewer states but the national total represented 3% or more of the national total for the profession across all settings, the setting data are reported.

For each profession, the workforce is defined as individuals employed in the profession, and those individuals whose last job was in the profession and who are still in the workforce seeking employment (e.g., individuals unemployed because they were laid off). The definition of workforce was used to include individuals who may have been affected by the recession that began in 2008. The 2014-2018 ACS file included a variable that distinguishes between nonworking individuals in the workforce from those no longer in the workforce. State workforce estimates are based on the reported location for place of work; when place of work is not reported, state of residence is used.

The U.S. population estimates of the age groups, the race/ethnicity and the sex distributions were derived from 2014-2018 ACS for the population 16 years of age or older to represent the working age population. The population estimates from the 2014-2018 ACS, in particular, represent fundamentally the average annual population distributions for the 5-year period 2014 through 2018—a property consistent with the estimates for each profession based upon the 2014-2018 ACS.

Starting with 2014-2018 edition of the ACS PUMS data, new occupation and industry codes were used for creation of variables. Census Bureau occupation codes are a condensed list of codes based on the Standard Occupational Classification (SOC). The SOC is updated periodically to reflect changes in the nature of jobs, changes in terminology, growth and decline of occupations, and the refinement of category composition. In 2018, the SOC was updated and census occupation codes transitioned to the 2018 SOC.

The following professions are included on the AHRF as analyzed from the 2014-2018 ACS PUMS. The associated SOC codes are also included in the table.

|  |  |
| --- | --- |
| **Profession** | **SOC Code** |
| Physicians | 29-1210 Physicians  29-1240 Surgeons |
| Physician Assistants | 29-1071 |
| Registered Nurses | 29-1141 |
| Licensed Practical and Licensed Vocational Nurses | 29-2061 |
| Dentists, Total | 29-1020 |
| Dental Hygienists | 29-1292 |
| Dental Assistants | 31-9091 |
| Pharmacists | 29-1051 |
| Veterinarians | 29-1131 |
| Chiropractors | 29-1011 |
| Optometrists | 29-1041 |
| Opticians, Dispensing | 29-2081 |
| Psychologists | 19-3033 Clinical and counseling psychologists  19-3034 School psychologists  19-303X Other psychologists |
| Counselors | 21-1011 Substance abuse and behavioral disorder counselors  21-1012 Educational, guidance, and career counselors and advisors  21-1013 Marriage and family therapists  21-1014 Mental health counselors  21-1015 Rehabilitation counselors  21-1019 Counselors, all other  where NAICS Industry Code is Medical Setting and Individual and Family Services: 6211,6212,62131,62132, 6213zm,6214,6216,621m, 6222, 622m, 6231,623m,6241 |
| **Profession** | **SOC Code** |
| Social Workers | 21-1021 Child, family, and school social workers  21-1022 Healthcare social workers  21-1023 Mental health and substance abuse social workers  21-1029 Social workers, all other  where NAICS Industry Code is Medical Setting and Individual and Family Services: 6211,6212,62131,62132, 6213zm,6214,6216,621m, 6222, 622m, 6231,623m,6241 |
| Physical Therapists | 29-1123 |
| Physical Therapist Assistants and Aides | 31-2020 |
| Occupational Therapists | 29-1122 |
| Respiratory Therapists | 29-1126 |
| Speech-Language Pathologists | 29-1127 |
| Massage Therapists | 31-9011 |
| Dietitians and Nutritionists | 29-1031 |
| Medical and Health Services Managers | 11-9111 |
| Medical Secretaries | 43-6011 Executive secretaries and executive administrative assistants  43-6012 Legal secretaries and administrative assistants  43-6013 Medical secretaries and administrative assistants  43-6014 Secretaries and administrative assistants, except legal, medical, and executive  where NAICS Industry Code is Medical Setting: 6211, 6212, 62131, 62132, 6213zm, 6214, 6216,621m, 6222, 622m, 6231, 623m |
| Clinical Laboratory Technologists and Technicians | 29-2010 |
| Diagnostic Related Technologists and Technicians | 29-2031 Cardiovascular technologists and technicians  29-2032 Diagnostic medical sonographers  29-2034 Radiologic technologists and technicians  29-2035 Magnetic resonance imaging technologists  29-203X Nuclear medicine technologists and medical dosimetrists |
| Emergency Medical Technicians and Paramedics | 29-2042 Emergency medical technicians  29-2043 Paramedics |
| Health Practitioner Support Technologists and Technicians | 29-2052 Pharmacy technicians  29-2053 Psychiatric technicians  29-2055 Surgical technologists  29-2056 Veterinary technologists and technicians  29-205X Dietetic technicians and ophthalmic medical technicians |
| Medical Records Specialists | 29-2072 |
|  |  |
| Medical Assistants and Other Healthcare Support Professionals | 31-9092 Medical assistants  31-9094 Medical transcriptionists  31-9095 Pharmacy aides  31-9096 Veterinary assistants and laboratory animal caretakers  31-9097 Phlebotomists  31-909X Other healthcare support workers |
| Personal Care Aides | 31-1122 |
| Nursing, Psychiatric, and Home Health Aides | 31-1121 Home health aides  31-1131 Nursing assistants  31-113X Orderlies and psychiatric aides |

# Bureau of Labor Statistics (BLS)

The Bureau of Labor Statistics provides many estimates and projections of wages and employment as well as detailed information about different professions. Health occupations data included on the AHRF are from the BLS May 2019 Occupational Employment Statistics (OES) file[[4]](#footnote-4) which was released on March 31, 2020.

The OES collects wage and employment data from all US employers on a three-year cycle (on a rotating panel of roughly 200,000 each six months). The OES does not collect data from self-employed.

With the May 2019 estimates, the OES program began implementing the 2018 Standard

Occupational Classification (SOC) system. Each set of OES estimates is calculated from six panels of survey data collected over three years. Because the May 2019 estimates are based on a combination of survey data collected using the 2010 SOC and survey data collected using the 2018 SOC, these estimates use a hybrid of the two classification systems that contains some combinations of occupations that are not found in either the 2010 or the 2018 SOC. These combinations may include occupations from more than one 2018 SOC minor group or broad occupation. Therefore, OES did not publish data for some 2018 SOC minor groups and broad occupations in the May 2019 estimates. The May 2021estimates, to be published in Spring 2022, will be the first OES estimates based entirely on survey data collected using the 2018 SOC.

In addition, the OES program has replaced some 2018 SOC detailed occupations with SOC broad occupations or OES-specific aggregations. These include Home Health Aides and Personal Care Aides, for which OES will publish only the 2018 SOC broad occupation 31-1120 Home Health and Personal Care Aides. These were previously reported separately as Personal Care Aides (2010 SOC 39-9021) and Home Health Aides (2010 SOC 31-1011). Additionally, Respiratory Therapy Technicians (2010 SOC 29-2054) and Medical Records and Health Information Technicians (2010 SOC 29-2071) are not on the OES file starting with the May 2019 edition and are no longer carried.

For any state having one or more specialties not reported, the BLS total physicians data is suppressed.

As a final note, BLS has computed the relative standard error (RSE) of the employment estimates, and has provided the percent RSE for each employment value. If the PSRE of any employment estimate exceeds 30.0 percent, the value has been suppressed.

The following occupations are included on the AHRF as reported by BLS. The associated 2018 SOC codes are also included in the table.

|  |  |
| --- | --- |
| **Profession** | **SOC Code** |
| Physicians | Sum of SOC codes 29-1211, 29-1215, 29-1216, 29-1218, |
|  | 29-1221, 29-1223, 29-1228, 29-1248 |
| Physician Assistants | 29-1071 |
| Registered Nurses | 29-1141 |
| Licensed Practical and Licensed Vocational Nurses | 29-2061 |
| **Profession** | **SOC Code** |
| Dentists, General | 29-1021 |
| Dental Hygienists | 29-1292 |
| Dental Assistants | 31-9091 |
| Pharmacists | 29-1051 |
| Veterinarians | 29-1131 |
| Chiropractors | 29-1011 |
| Optometrists | 29-1041 |
| Opticians, Dispensing | 29-2081 |
| Clinical, Counseling, and School Psychologists | 19-3031 |
| Substance Abuse, Behavioral Disorder, and Mental Health Counselors | 21-1018 |
| Rehabilitation Counselors | 21-1015 |
| Healthcare Social Workers | 21-1022 |
| Mental Health and Substance Abuse Social Workers | 21-1023 |
| Physical Therapists | 29-1123 |
| Physical Therapist Assistants | 31-2021 |
| Physical Therapist Aides | 31-2022 |
| Occupational Therapists | 29-1122 |
| Respiratory Therapists | 29-1126 |
| Speech-Language Pathologists | 29-1127 |
| Massage Therapists | 31-9011 |
| Dietitians and Nutritionists | 29-1031 |
| Medical and Health Services Managers | 11-9111 |
| Medical Secretaries and Administrative Assistants | 43-6013 |
| Clinical Laboratory Technologists and Technicians | 29-2010 |
| Cardiovascular Technologists and Technicians | 29-2031 |
| Nuclear Medicine Technologists | 29-2033 |
| Diagnostic Medical Sonographers | 29-2032 |
| Radiologic Technologists and Technicians | 29-2034 |
| Emergency Medical Technicians and Paramedics | 29-2040 |
| Dietetic Technicians | 29-2051 |
| Pharmacy Technicians | 29-2052 |
| Psychiatric Technicians | 29-2053 |
| Surgical Technologists | 29-2055 |
| Medical Assistants | 31-9092 |
| Pharmacy Aides | 31-9095 |
| Home Health and Personal Care Aides | 31-1120 |
| Nursing Assistants | 31-1131 |
| Psychiatric Aides | 31-1133 |

**Integrated Postsecondary Education Data System (IPEDS)**

Data from the Integrated Postsecondary Education Data System (IPEDS) on individuals completing educational programs in the 2017-2018 year were used. IPEDS is maintained by the National Center for Education Statistics, U.S. Department of Education ([http://nces.ed.gov/ipeds/](about:blank)). IPEDS collects information from colleges, universities, and technical and vocational institutions that participate in federal student financial aid programs.

Each educational institution reports the number of students completing each curriculum program. Information includes number of males and females and number by race/ethnicity. The award level of the program is also noted. The information for 2018 in IPEDS was reported to discern the diversity of recent graduates. The type of program is coded according to Classification of Instructional Program (CIP) coding scheme. CIP codes were matched to SOC numbers to select the instructional programs analyzed for each health profession. The list of CIP codes associated with each health profession for which IPEDS data are reported is provided below.

Total completed degrees are reported as well as by sex and race/ethnicity. Specified degrees denotes those degrees awarded at the IPEDS degree award level considered relevant for a particular profession as noted below.

For most professions, IPEDS data are reported at the associate degree or above level. However, for certain professions, a certification program involving coursework of less than 1 year or more than 1 but less than 2 years is a major point of entry into these professions. The demographics of graduates in these certification programs are reported as these award levels pertain to particular professions.

The professions included on the AHRF and the associated SOC codes and CIP codes are identified in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Profession** | **SOC Code** | **IPEDS CIP Codes** | **IPEDS Degree Levels** |
| Physicians | 29-1060 | 51.1201 Medicine | doctoral |
|  |  | 51.1901 Osteopathic Medicine/Osteopathy |  |
| Physician Assistants | 29-1071 | 51.0912 Physician Assistant | associate's, bachelor's, master's |
| Registered Nurses | 29-1141 | 51.3801 Registered Nursing/Registered Nurse  51.3802 Nursing Administration  51.3803 Adult Health Nurse/Nursing  51.3805 Family Practice Nurse/Nursing  51.3806 Maternal/Child Health and Neonatal Nurse/Nursing  51.3808 Nursing Science  51.3809 Pediatric Nurse/Nursing  51.3810 Psychiatric/Mental Health Nurse/Nursing  51.3811 Public Health/Community Nurse/Nursing  51.3812 Perioperative/Operating Room and Surgical Nurse/Nursing  51.3814 Critical Care Nursing  51.3815 Occupational and Environmental Health Nursing  51.3816 Emergency Room/Trauma Nursing  51.3818 Nursing Practice  51.3819 Palliative Care Nursing  51.3820 Clinical Nurse Leader  51.3821 Geriatric Nurse/Nursing | associate's, bachelor's |

|  |  |  |  |
| --- | --- | --- | --- |
| **Profession** | **SOC Code** | **IPEDS CIP Codes** | **IPEDS Degree Levels** |
| Registered Nurses (cont’d) | 29-1141 | 51.3821 Geriatric Nurse/Nursing  51.3822 Women’s Health Nurse/Nursing  51.3899 Registered Nursing, Nursing Administration, Nursing Research and Clinical Nursing, Other | associate's, bachelor's |
| Licensed Practical and Licensed Vocational Nurses | 29-2061 | 51.3901 Licensed Practical/Vocational Nurse Training | more than one less than two years, associate's |
| Dentists, Total for ACS  Dentists, General for BLS | 29-1020  29-1021 | 51.0401 Dentistry | doctoral |
| Dental Hygienists | 29-2021 | 51.0602 Dental Hygiene/Hygienist | associate's, bachelor's |
| Pharmacists | 29-1051 | 51.2001 Pharmacy | doctoral |
| Veterinarians | 29-1131 | 51.2401 Veterinary Medicine | doctoral |
| Chiropractors | 29-1011 | 51.0101 Chiropractic | doctoral |
| Optometrists | 29-1041 | 51.1701 Optometry | doctoral |
| Psychologists | 19-3030 | 42.0101 Psychology, General  42.2703 Developmental and Child Psychology  42.2801 Clinical Psychology  42.2803 Counseling Psychology  42.2805 School Psychology  42.2807 Clinical Child Psychology  42.2809 Geropsychology  42.2810 Health/Medical Psychology  42.2814 Applied Behavior Analysis | master's, doctoral |
| Counselors | 21-1010 where NAICS Industry Code is Medical Setting and Individual and Family Services: 6211,6212,62131,62132,  6213zm,6214,6216,621m,622,  6231,623m,6241 | 51.1501 Substance Abuse/Addiction Counseling  51.1505 Marriage and Family Therapy/Counseling  51.1506 Clinical Pastoral Counseling/Patient Counseling  51.1507 Psychoanalysis and Psychotherapy  51.1508 Mental Health Counseling/Counselor  51.2310 Vocational Rehabilitation Counseling/Counselor | bachelor's, master's |
|  |
|  |
|  |
|  |
| Social Workers | 21-1020 where NAICS Industry Code is Medical Setting and Individual and Family Services: 6211,6212,62131,62132,  6213zm,6214,6216,621m,622,  6231,623m,6241 | 44.0701 Social Work  44.0702 Youth Services/Administration  44.0799 Social Work, Other  51.1503 Clinical/Medical Social Work | bachelor's, master's |
| Physical Therapists | 29-1123 | 51.2308 Physical Therapy/Therapist | master's, doctoral |
| Physical Therapist Assistants | 31-2021 | 51.0806 Physical Therapy Technician/Assistant | associate's |
| Occupational Therapists | 29-1122 | 51.2306 Occupational Therapy/Therapist | bachelor's, master's |
| Respiratory Therapists | 29-1126 | 51.0908 Respiratory Care Therapy/Therapists | associate's, bachelor's |
| Speech-Language Pathologists | 29-1127 | 51.0201 Communication Sciences and Disorders, General  51.0203 Speech-Language Pathology/Pathologists  51.0204 Audiology/Audiologists and Speech-Language Pathology/Pathologists  51.0299 Communication Disorders Sciences & Services, Other | bachelor's, master's |
| Dietitians and Nutritionists | 29-1031 | 51.3101 Dietetics/Dietitian (RD)  51.3102 [Clinical Nutrition/Nutritionist](about:blank)  51.3199 Dietetics & Clinical Nutrition Services, Other | bachelor's |
| Medical and Health Services Managers | 11-9111 | 51.0701 Health/Health Care Administration/Management  51.0702 Hospital and Health Care Facilities Administration/Management  51.0704 Health Unit Manager/Ward Supervisor  51.0705 Medical Office Management/Administration  51.0718 Long Term Care Administration/Management  51.2211 Health Services Administration | bachelor's, master's |
| **Profession** | **SOC Code** | **IPEDS CIP Codes** | **IPEDS Degree Levels** |
| Clinical Laboratory Technologists and Technicians | 29-2010 | 51.1002 Cytotechnology/Cytotechnologist  51.1005 Clinical Laboratory Science/Medical Technology/Technologist  51.1007 Histologic Technology/Histotechnologist  51.1010 Cytogenetics/Genetics/Clinical Genetics Technology/Technologist  51.0802 Clinical/Medical Laboratory Assistant  51.1001 Blood Bank Technology Specialist  51.1003 Hematology Technology/Technician  51.1004 Clinical/Medical Laboratory Technician  51.1008 Histologic Technician  51.1099 Clinical/Medical Laboratory Science & Allied Professions, Other | associate's, bachelor's |
| Diagnostic Related Technologists and Technicians | 29-2030 | 51.0901 Cardiovascular Technology/Technologist  51.0902 Electrocardiograph Technology/Technician  51.0906 Perfusion Technology/Perfusionist  51.0915 Cardiopulmonary Technology/Technologist  51.0905 Nuclear Medical Technology/Technologist  51.0910 Diagnostic Medical Sonography/Sonographer and Ultrasound Technician  51.0907 Medical Radiologic Technology/Science - Radiation Therapist  51.0911 Radiologic Technology/Science - Radiographer  51.0919 Mammography Technician/Technology  51.0920 Magnetic Resonance Imaging (MRI) Technology/Technician | associate's, bachelor's |
| Health Practitioner Support Technologists and Technicians | 29-2050 | 19.0501 Foods, Nutrition, and Wellness Studies, General  30.1901 Nutrition Sciences  51.3103 Dietetic Technician  51.3104 Dietitian Assistant  51.0805 Pharmacy Technician/Assistant  51.1502 Psychiatric/Mental Health Services Technician  51.0812 Respiratory Therapy Technician/Assistant  51.0811 Pathology/Pathologist Assistant  51.0909 Surgical Technology/Technologist  51.0808 Veterinary/Animal Health Technology/Technician/Veterinary Assistant | associate's, bachelor's, master's |
| Medical Records and Health Information Technicians | 29-2071 | 51.0706 Health Information/Medical Records Administration/Administrator  51.0707 Health Information/Medical Records Technology/Technician | more than one less than two years, associate's |

1. U.S. Census Bureau at [http://www2.census.gov/programs-surveys/acs/data/pums/2018/5-Year/](about:blank) . See U.S. Census Bureau. A Compass for Understanding and Using American Community Survey Data: What PUMS Data Users Need to Know. Washington, DC: U.S. Government Printing Office

   ([https://www.census.gov/programs-surveys/acs/guidance/handbooks.html](about:blank)/). [↑](#footnote-ref-1)
2. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Employment Statistics [[www.bls.gov/oes/](about:blank)] [↑](#footnote-ref-2)
3. This category scheme for analysis of race/ethnicity is commonly used to capture Hispanic as an ethnicity apart from race among Non-Hispanics. [↑](#footnote-ref-3)
4. [http://www.bls.gov/oes](about:blank) [↑](#footnote-ref-4)