THE U.S. HEALTH WORKFORCE CHARTBOOK

PART II: CLINICIANS AND HEALTH ADMINISTRATION

September 2018

U.S. Department of Health and Human Services

Health Resources and Services Administration

Bureau of Health Workforce

National Center for Health Workforce Analysis

Contents

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GENERAL LIST OF ACRONYMS

Acronym	Definition
AAPA	American Academy of Physician Assistants
ACNM	American College of Nurse-Midwives
ACS	American Community Survey
APRN	Advanced Practice Registered Nurse
BHW	Bureau of Health Workforce
BLS	Bureau of Labor Statistics
BSN	Bachelor of Science in Nursing
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare & Medicaid Services
CRNA	Certified Registered Nurse Anesthetist
EMT	Emergency Medical Technician
HHS	U.S. Department of Health and Human Services
HRSA	Health Resources and Services Administration
IPEDS	Integrated Postsecondary Education Data System
LPN	Licensed Practical and Licensed Vocational Nurse
NAICS	North American Industry Classification System
NCHWA	National Center for Health Workforce Analysis
NCLEX-PN®	National Counsel Licensure Examination for Practical Nurses
NP	Nurse Practitioner
NPI	National Provider Identification
OT	Occupational therapy
PA	Physician Assistant
PA-C	Certified Physician Assistant
PUMS	Public Use Microdata Sample
RN	Registered Nurse
RSE	Relative standard error
SOC	Standard Occupational Classification

Introduction

The Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (HHS), provides national leadership in the development, distribution, and retention of a diverse, culturally competent health workforce that can adapt to the population's changing health care needs and provide the highest-quality care for all. The agency administers a wide range of training grants, scholarships, loans, and loan repayment programs that strengthen the health care workforce and respond to the evolving needs of the health care system.

The National Center for Health Workforce Analysis (the National Center) informs public and private sector decision-making on the U.S. health workforce by expanding and improving health workforce data and its dissemination to the public, and by improving and updating projections of supply and demand for health workers.

For more information about the National Center, please visit our website at https://bhw.hrsa.gov/national-center-health-workforce-analysis.

The U.S. Health Workforce Chartbook provides extensive data on 34 health occupations and is part of the Health Resources and Services Administration's (HRSA's) effort to assist states, policymakers, local workforce planners, researchers, and the public in understanding the U.S. health workforce. The Chartbook may also be used as a baseline to track changes in the health workforce. While this Chartbook includes extensive data on supply, including comparative data by state, it does not include data on demand and, as such, does not address the adequacy of the supply.

The purpose of this Chartbook is to provide an update to the HRSA 2013 Chartbook. The five-year 2011 to 2015 American Community Survey (ACS) Public Use Microdata Sample (PUMS) file was analyzed to provide the estimated number of individuals nation-wide within selected health occupations, along with information pertaining to workforce settings (industry), and the demographic makeup of the occupation (i.e., sex, age, race, and ethnicity).[1] The 2011 to 2015 ACS data file included more than 15 million individuals and these individuals represent approximately 10 percent of the nation's workforce.[2] The 34 health occupations included in this Chartbook are classified based on the U.S. government's Standard Occupational Classification (SOC) system. The occupations also represent those with the largest current employment and those that are expected to grow substantially in the future.

The vast majority of workers are employed in what the U.S. Office of Management and Budget defines as the "health sector," which includes health settings such as hospitals, clinics, physician's offices, and nursing homes. The health sector also includes many workers in occupations that are not considered health occupations. For example, workers such as accountants or food service workers employed in hospitals are working *in* the health sector, even

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[1] HRSA Analysis of the U.S. Census Bureau, American Community Survey (ACS) Public Microdata Sample (PUMS), 2011-2015.
[2] HRSA Analysis of the U.S. Bureau of Labor Statistics (BLS), Employment Projections, 2014-2015. Note: The "workforce" is defined as individuals employed in the occupation and individuals whose last job was in the occupation and who are still seeking employment.

though they are not working in a health occupation. Individuals in health occupations may also work outside the health sector in settings such as local governments, schools, or insurance companies. The information provided in this Chartbook includes individuals in health occupations that are both within and outside the health sector.

For most occupations, the Chartbook relies on the U.S. Census Bureau's ACS to estimate the total number of individuals in each occupation, their geographic distribution, the settings in which they work, and their demographic characteristics. The ACS, which uses self-reported data, is the most comprehensive source available for the broad range of occupations included in this report.[3] This report also draws from the U.S. Department of Education's Integrated Postsecondary Education System (IPEDS) to include information on the number of graduates from educational programs leading to entry into specific occupations. No graduate data are presented for occupations in which formal educational requirements are completed in institutions not reporting to IPEDS or vary substantially by state.

Some health occupations are not included or fully represented in the Chartbook because of data limitations. Only occupations that have 2010 Standard Occupational Classification (SOC) codes are included in this Chartbook. The report also does not include other health occupations because of the small size of the occupation, such as epidemiologists and other public health-oriented disciplines like laboratory workers (laboratorians) and environmental health professionals. In addition, some occupations in the Chartbook are limited by ACS occupational groupings because of the methods by which the ACS collects and reports SOC data. For example, although the SOC has two separate groupings for "medical and clinical laboratory technologists" and "medical and clinical laboratory technicians," the ACS only reports on "medical and clinical laboratory technologists and technicians" as a single occupational grouping and does not report the two occupations separately. Finally, some health occupations in this Chartbook are not comparable to those reported in the 2013 Chartbook because the SOC codes changed. More detailed information is available in the *U.S. Health Workforce Chartbook: Technical Documentation* which can be found at https://bhw.hrsa.gov/health-workforce-analysis/research.

The Chartbook is divided into four main parts for ease of reporting. Part I comprises clinicians. Part II presents additional clinician categories and occupations concerned with health care administration duties. Part III discusses health-related technologists and technicians as well as aides and assistants. Part IV describes behavioral and allied health occupations.

Data Sources

Data for this Chartbook come primarily from two federal agencies: the U.S. Census Bureau and the U.S. Department of Education.

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[3] Note: Self-reported data have limitations. Some individuals may report the occupation for which they are trained or licensed even when they are not currently working the majority of their time in the occupation. For example, a physician who is spending a majority of his/her time as an administrator may self-report as either a physician or an administrator. The ACS does not collect data on licensure or professional certification. See the Technical documentation for additional details on ACS reporting limitations.

The U.S. Census Bureau's American Community Survey (ACS): The ACS, a household survey, provides detailed self-reported data including demographic information (e.g., age, race, and sex data) on individuals working in the health occupations and is the major source of data for this report.

The U.S. Department of Education's Integrated Postsecondary Education System (IPEDS): IPEDS data are used to measure the educational pipeline into the health occupations. IPEDS provides enrollment and graduation data on an annual basis for all institutions that receive or apply for federal funds. The number of graduates, by degree type, is presented for occupations for which there is a specific educational pathway into the occupation. No data are reported for those occupations without a distinct educational pathway.

Descriptions of the educational and training requirements for the various occupations have been obtained from the BLS, ***Occupational Outlook Handbook***, 2015 Edition.

Details on the data sources, definitions and analysis, and other information provided in the Chartbook are available in the *U.S. Health Workforce Chartbook: Technical Documentation.* Also, more detailed information on the work settings used in this report can be found on the U.S. Census Bureau website at www.census.gov/eos/www/naics.

The following table lists each of the selected occupations in Part II of *The U.S. Health Workforce Chartbook* along with the associated total workforce estimates from the ACS.

Part II: Clinicians and Health Administration

|	Occupation	Total Workforce[4]
1.0	**Chiropractors**	59,525
2.0	**Vision Health**	
2.1	Optometrist	38,233
2.2	Opticians, Dispensing	63,415
3.0	**Health Administration**	
3.1	Medical and Health Services Managers	696,024
3.2	Medical Secretaries	794,765
4.0	**Veterinarians**	80,136

[4] Total Workforce from HRSA analysis of the ACS PUMS, 2011-2015. The ACS data are based on self-reported occupation.

1.0 Chiropractors

- An estimated 59,525 individuals in the U.S. workforce reported their occupation as Chiropractor.[5]
- To become a Chiropractor, an individual must obtain a Doctor of Chiropractic degree, licensure, and meet certain additional requirements.[6]

FIGURE 1: CHIROPRACTORS PER 100,000 WORKING-AGE POPULATION, BY STATE
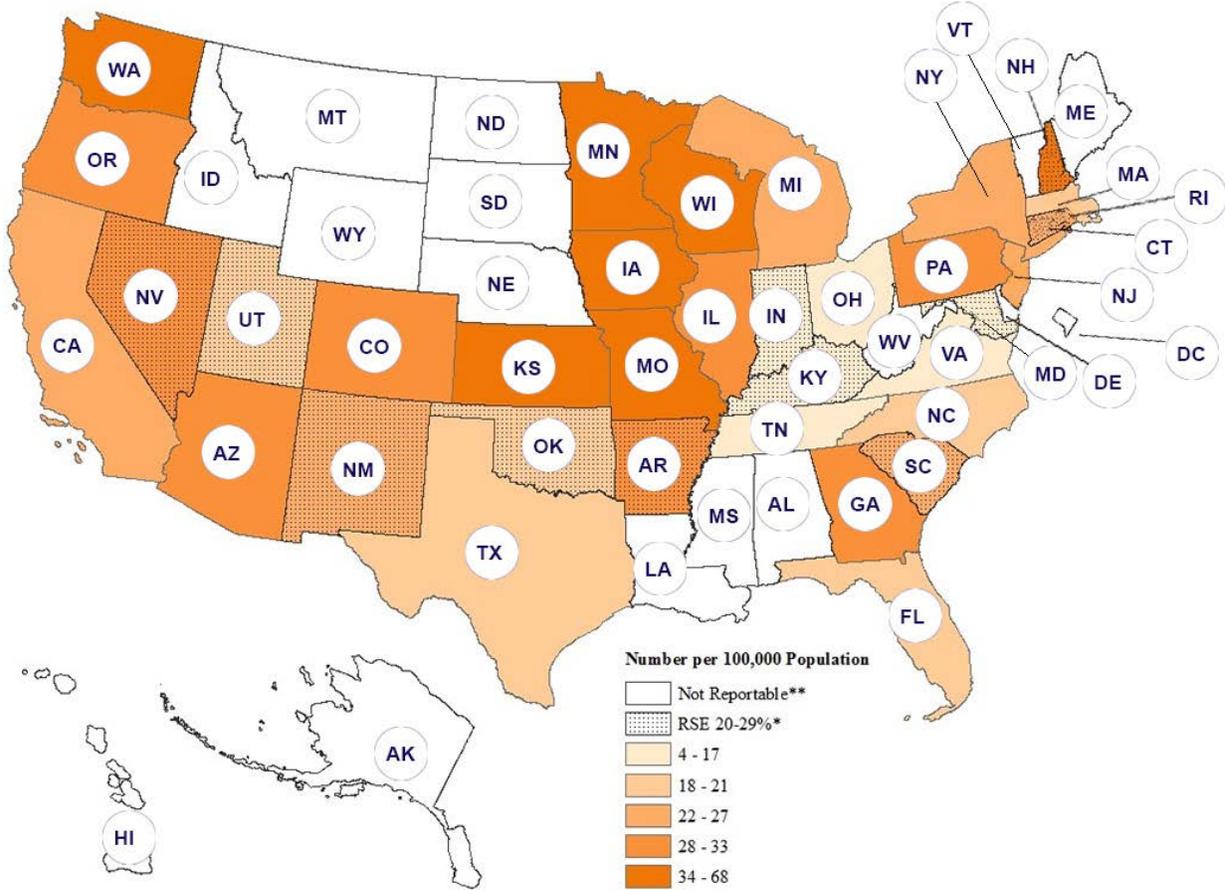
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

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[5] Total workforce from HRSA analysis of the ACS PUMS, 2011-2015.
[6] BLS, *Occupational Outlook Handbook*, 2015 Edition.

FIGURE 2: NUMBER OF CHIROPRACTORS, BY STATE
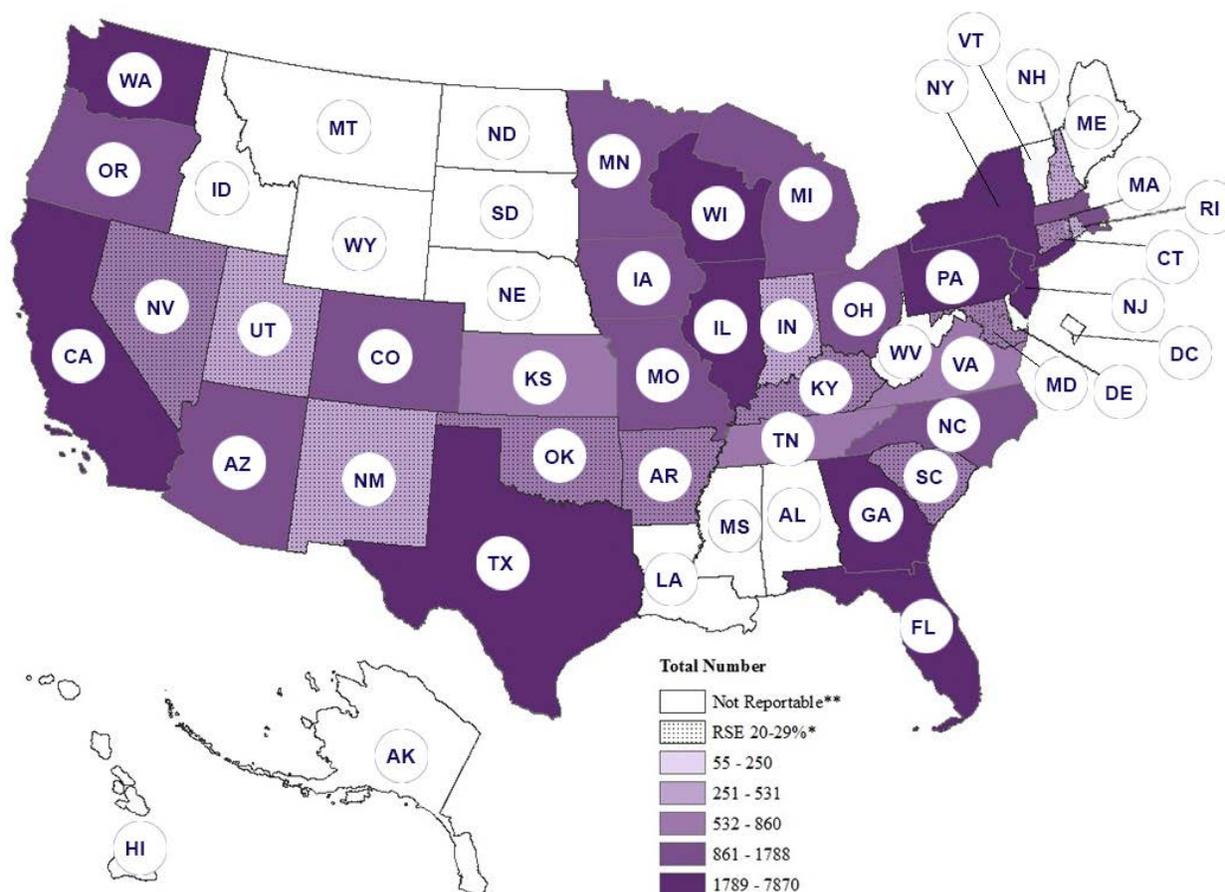
Total Number
- Not Reportable**
- RSE 20-29%*
- 55 - 250
- 251 - 531
- 532 - 860
- 861 - 1788
- 1789 - 7870

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

FIGURE 3: DISTRIBUTION OF CHIROPRACTORS, BY WORK SETTING
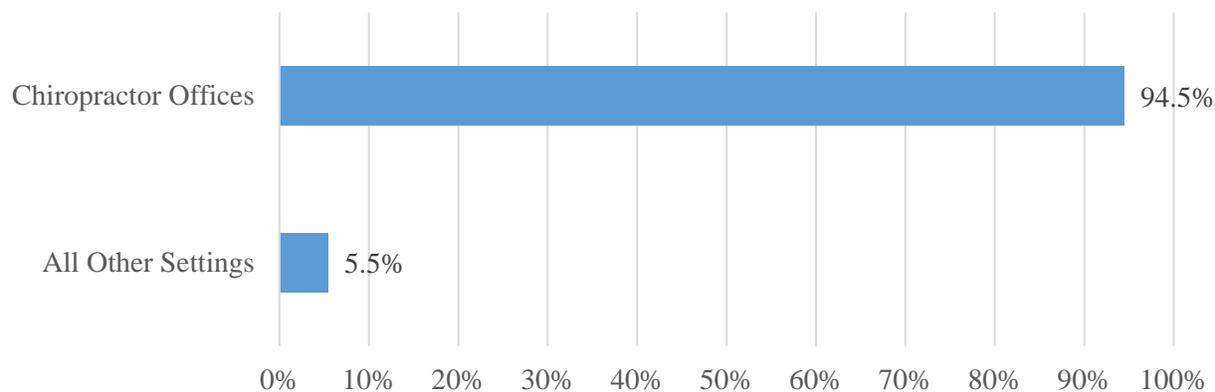
Chiropractor Offices — 94.5%

All Other Settings — 5.5%

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.

FIGURE 4: DISTRIBUTION OF CHIROPRACTORS, BY SEX AND AGE

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: The "Health Care Workforce" in this figure refers to the health occupations in this report.
Note: Percentages may not total 100, because of rounding.
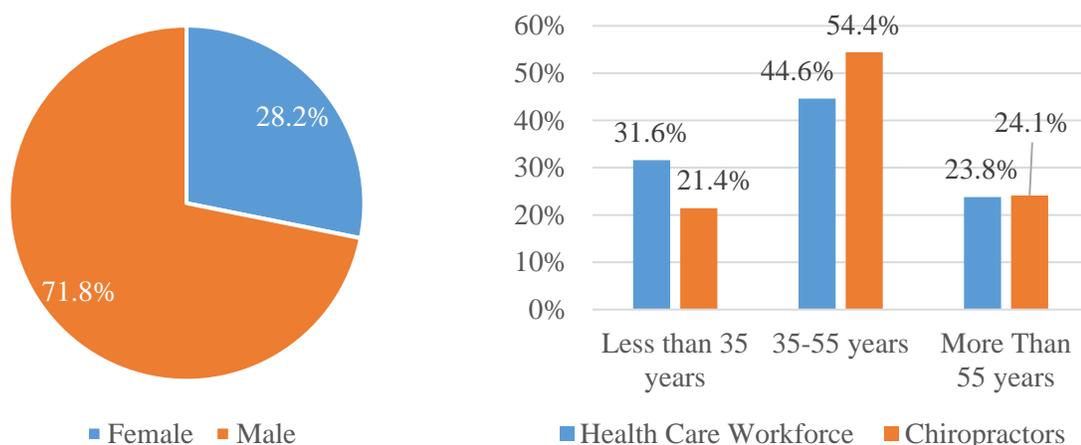
FIGURE 5: DISTRIBUTION OF CHIROPRACTORS, BY RACE/ETHNICITY, RELATIVE TO THE WORKING-AGE POPULATION
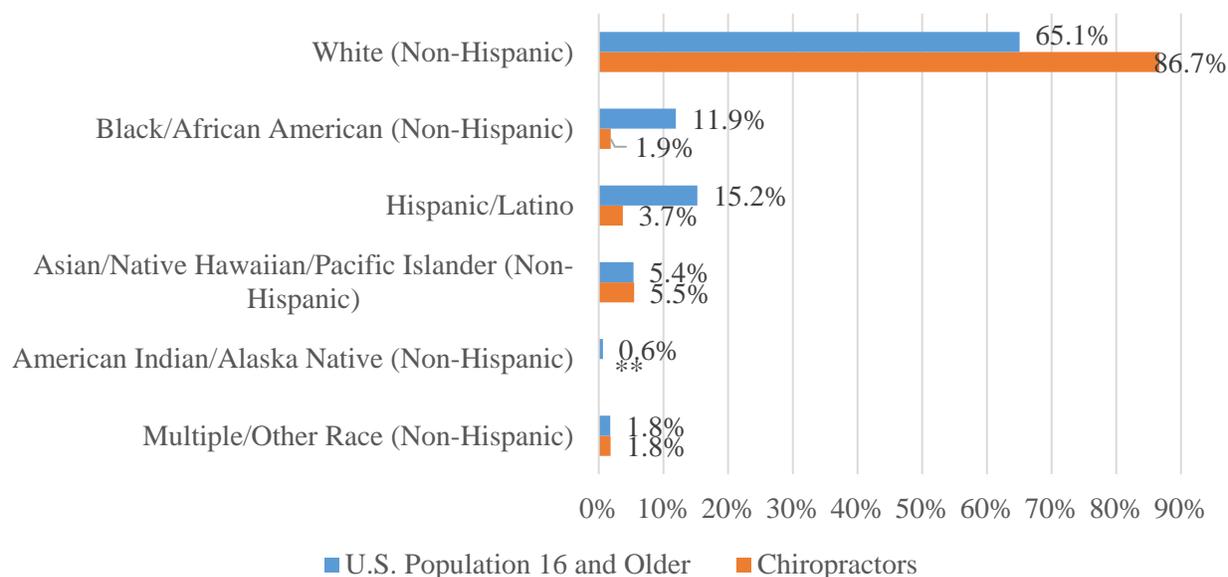
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.
**RSE ≥ 30%; estimate does not meet standards of reliability.

Graduates

Total number of chiropractic school graduates at the doctoral level in the 2014 to 2015 academic year was 2,544.[7]

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[7] HRSA analysis of the National Center for Education Statistics IPEDS, 2014-2015.

2.0 Vision Health

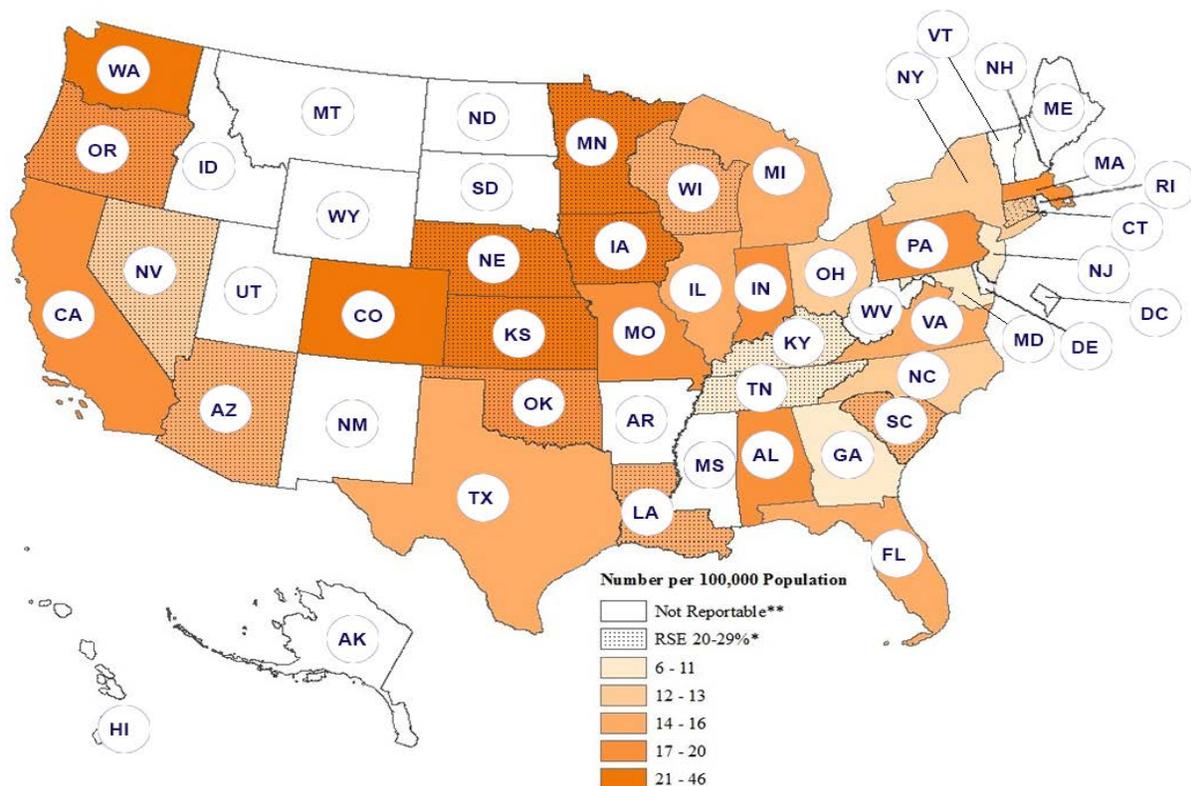Vision health occupations described in this section include:

> 2.1 Optometrists; and
> 2.2 Opticians, Dispensing.

2.1 Optometrists

- An estimated 38,233 individuals in the U.S. workforce reported their occupation as Optometrist.[8]
- To become an Optometrist, an individual must obtain a Doctor of Optometry, licensure, and meet certain additional requirements.[9]

FIGURE 6: OPTOMETRISTS PER 100,000 WORKING-AGE POPULATION, BY STATE

Number per 100,000 Population

- Not Reportable**
- RSE 20-29%*
- 6 - 11
- 12 - 13
- 14 - 16
- 17 - 20
- 21 - 46

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

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[8] Total workforce from HRSA analysis of the ACS PUMS, 2011-2015.
[9] BLS, *Occupational Outlook Handbook*, 2015 Edition.

Total Number

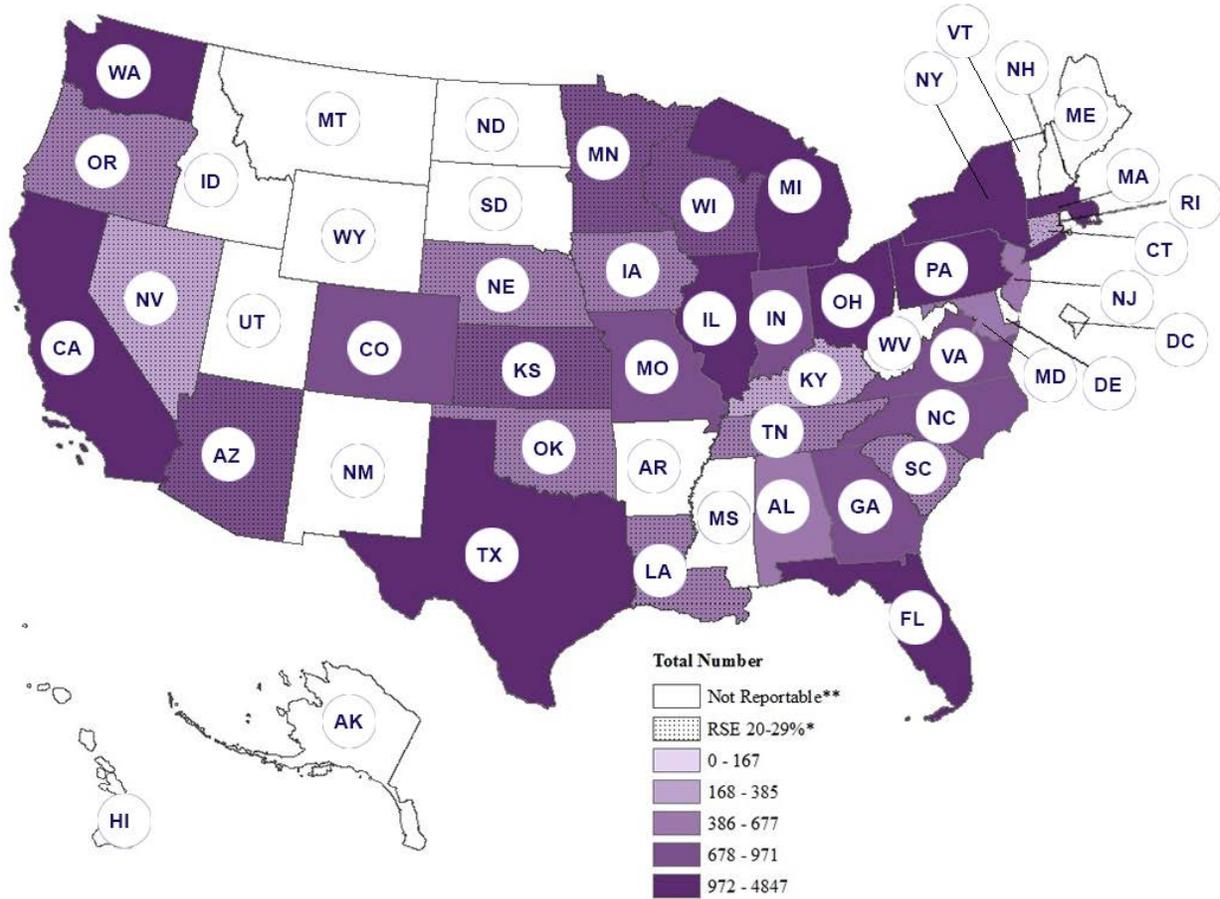|	
	Not Reportable**
	RSE 20-29%*
	0 - 167
	168 - 385
	386 - 677
	678 - 971
	972 - 4847

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

FIGURE 8: DISTRIBUTION OF OPTOMETRISTS, BY WORK SETTING
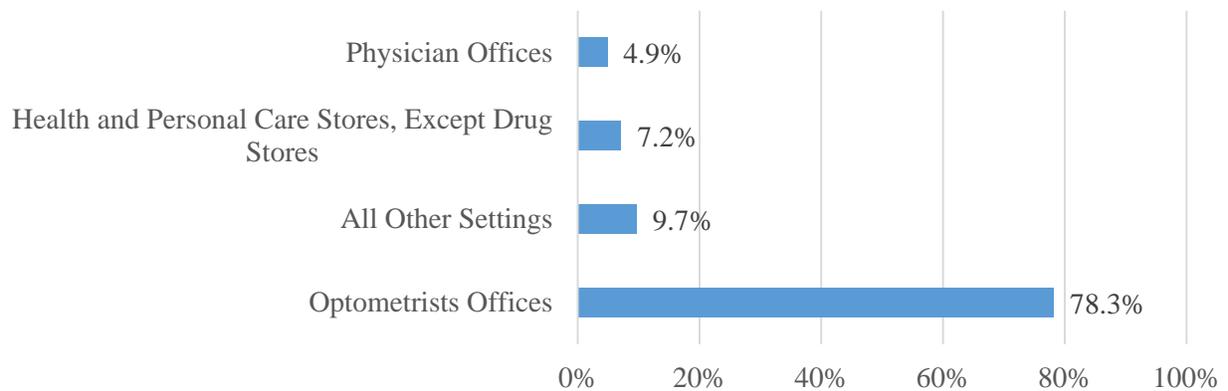
Physician Offices — 4.9%
Health and Personal Care Stores, Except Drug Stores — 7.2%
All Other Settings — 9.7%
Optometrists Offices — 78.3%

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.
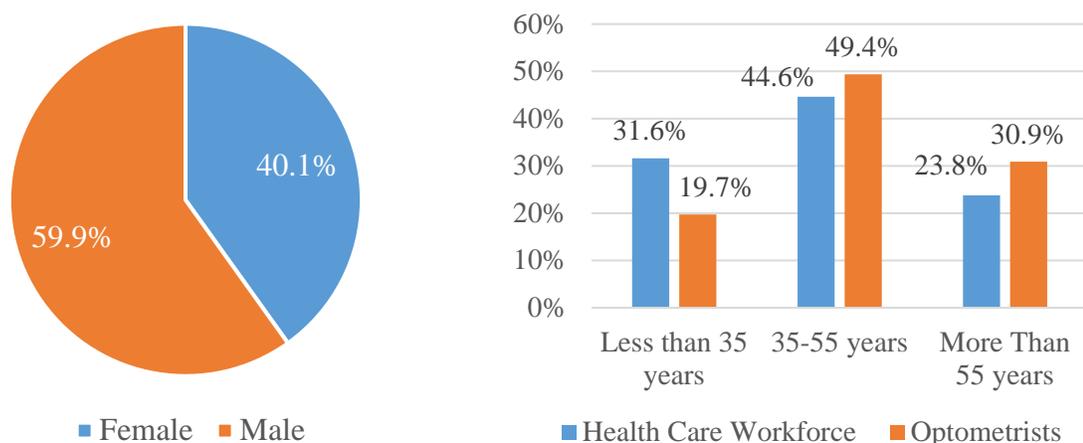
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: The "Health Care Workforce" in this figure refers to the health occupations in this report.
Note: Percentages may not total 100, because of rounding.

FIGURE 10: DISTRIBUTION OF OPTOMETRISTS, BY RACE/ETHNICITY, RELATIVE TO THE WORKING-AGE POPULATION
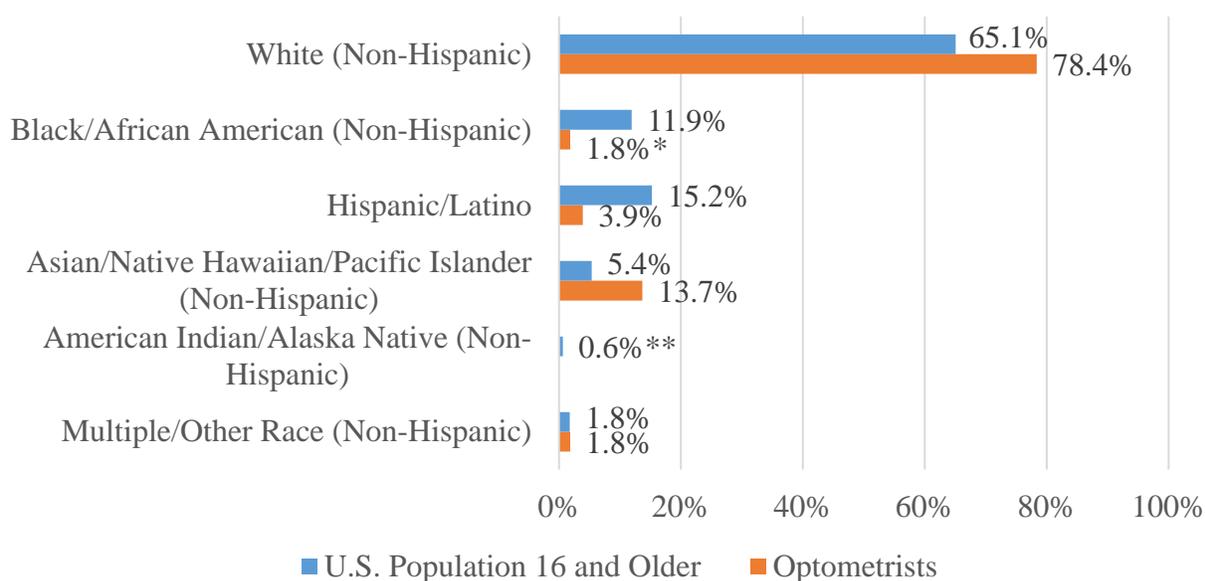
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.
*Note: Estimates with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**RSE ≥ 30%; estimate does not meet standards of reliability.

Graduates

The total number of Optometry graduates at the doctoral level in the 2014 to 2015 academic year was 1,511.[10]

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[10] HRSA analysis of the National Center for Education Statistics IPEDS, 2014-2015.

2.2 Opticians, Dispensing

- An estimated 63,415 individuals in the U.S. workforce reported their occupation as Dispensing Optician.[11]
- To become an Optician, an individual typically must have a high school diploma and complete on-the-job training. Some states require licensure.[12]

Number per 100,00 Population

- Not Reportable**
- RSE 20-29%*
- 8 - 20
- 21 - 23
- 24 - 26
- 27 - 31
- 32 - 89
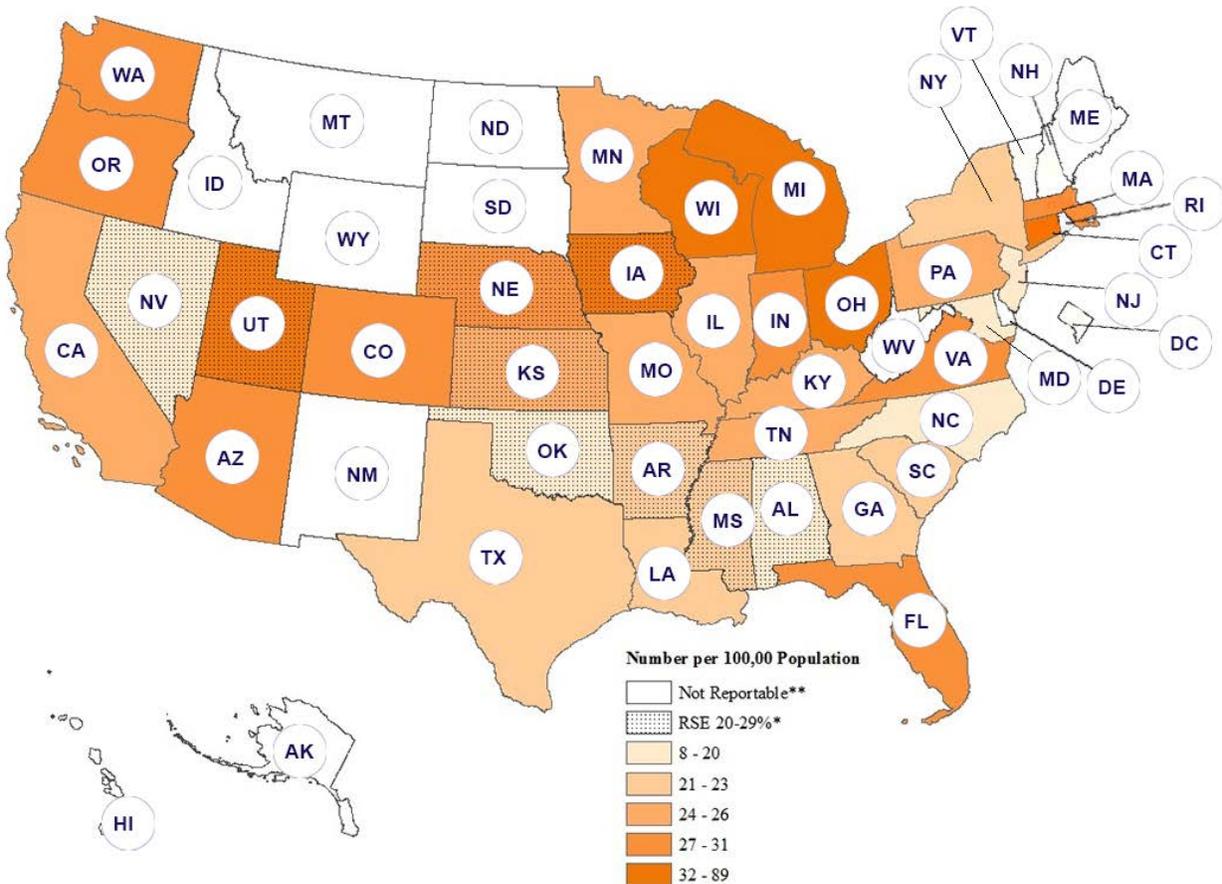
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

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[11] Total workforce from HRSA analysis of the ACS PUMS, 2011-2015.
[12] BLS, Occupational Outlook Handbook. 2015.

FIGURE 12: NUMBER OF DISPENSING OPTICIANS, BY STATE

Total Number

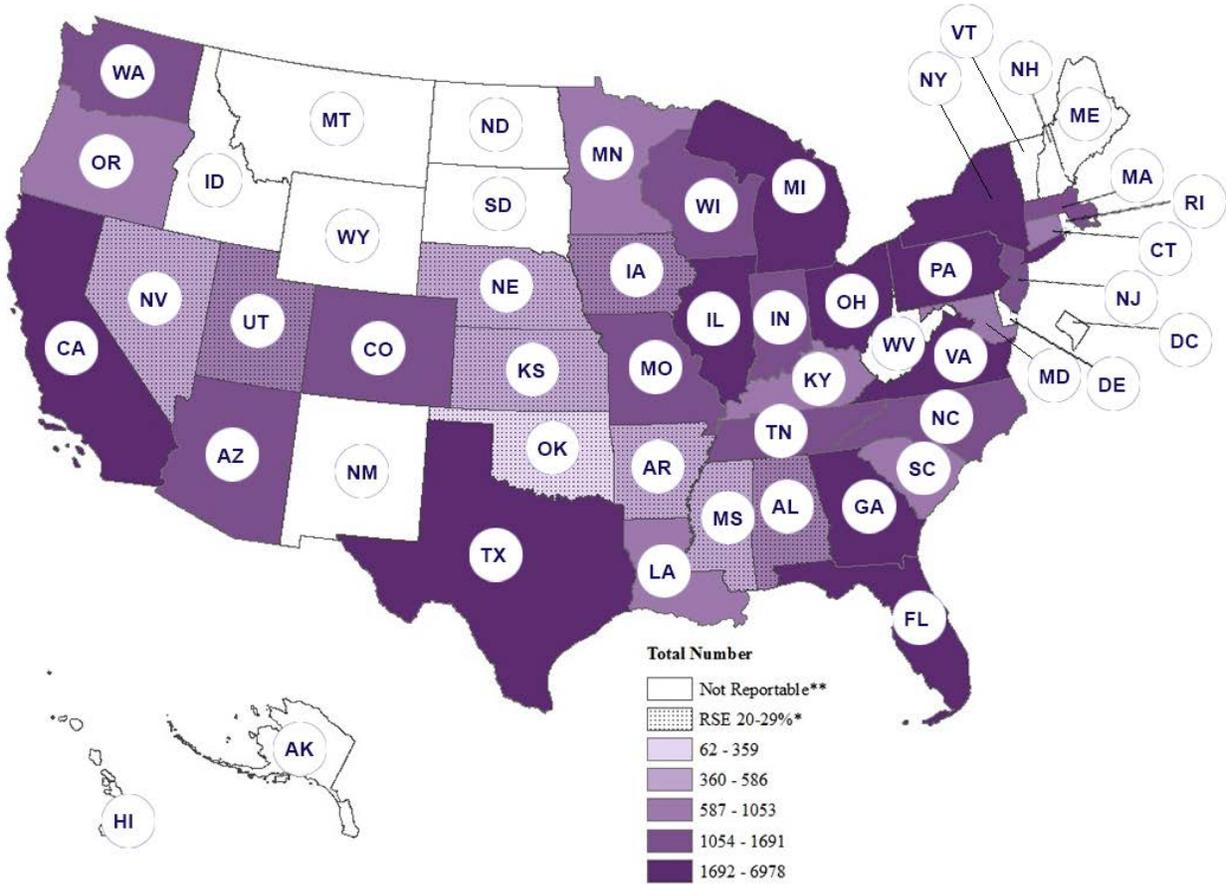|	
	Not Reportable**
	RSE 20-29%*
	62 - 359
	360 - 586
	587 - 1053
	1054 - 1691
	1692 - 6978

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

FIGURE 13: DISTRIBUTION OF DISPENSING OPTICIANS, BY WORK SETTING
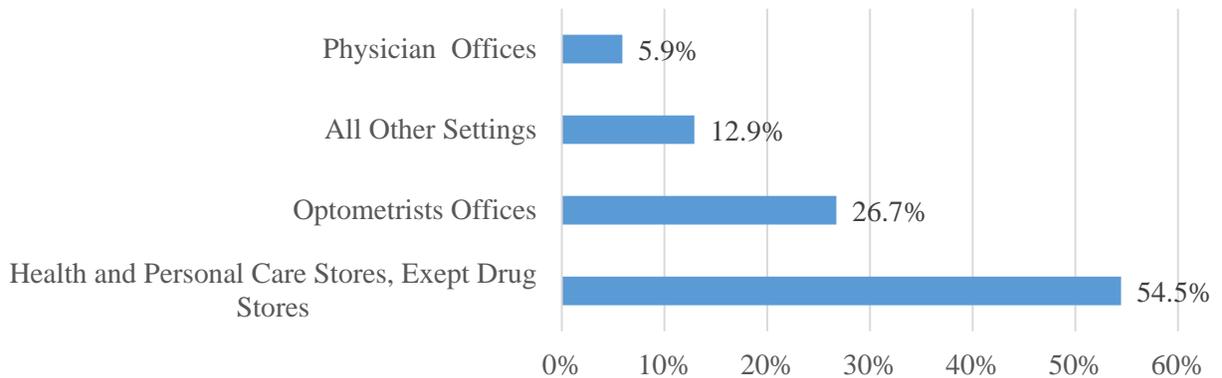
Physician Offices — 5.9%
All Other Settings — 12.9%
Optometrists Offices — 26.7%
Health and Personal Care Stores, Exept Drug Stores — 54.5%

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.
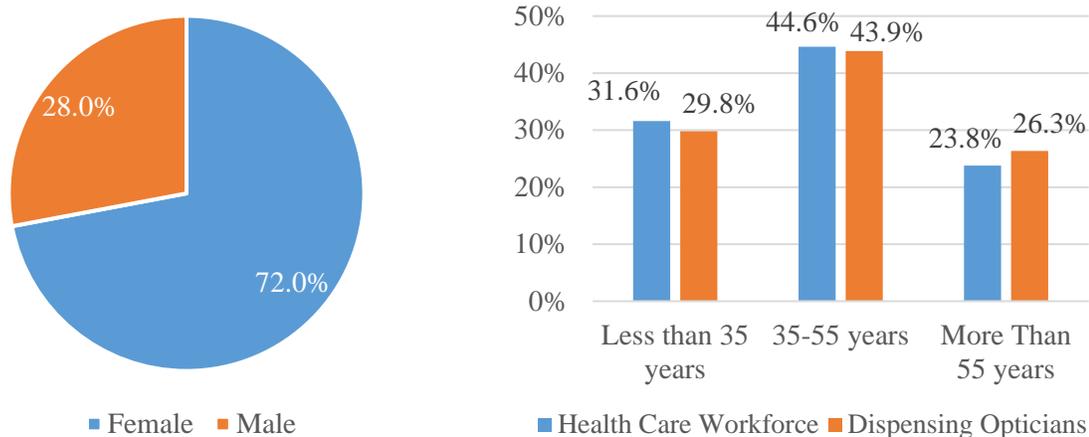
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: The "Health Care Workforce" in this figure refers to the health occupations in this report.
Note: Percentages may not total 100, because of rounding.

FIGURE 15: DISTRIBUTION OF DISPENSING OPTICIANS, BY RACE/ETHNICITY, RELATIVE TO THE WORKING-AGE POPULATION
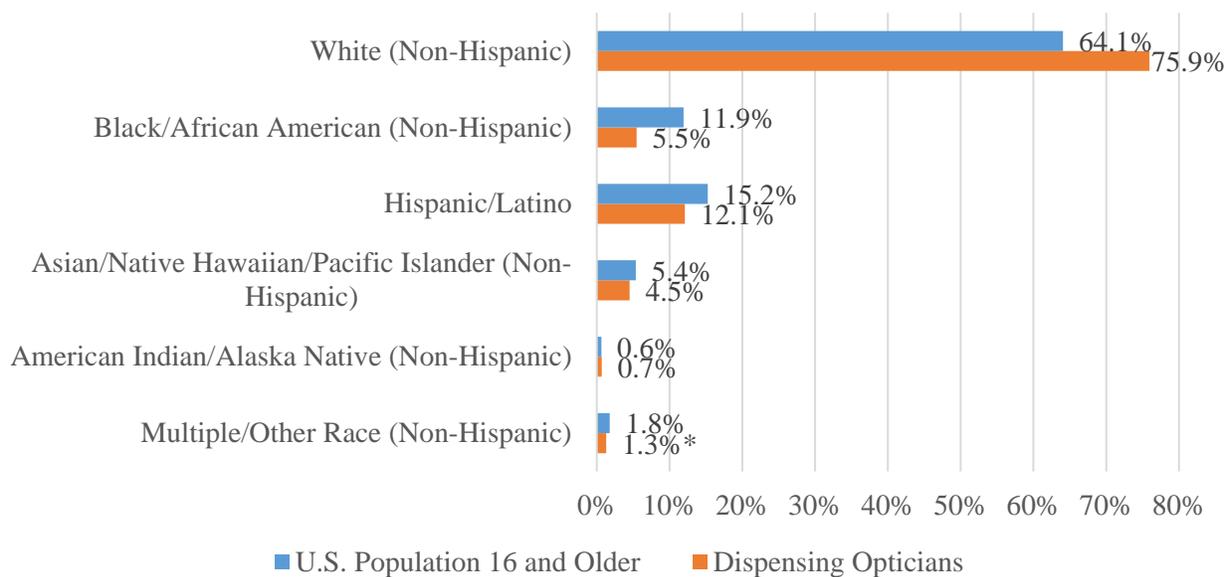
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.
*Note: Estimates with an RSE = 20% - 29% should be considered with caution because of large sampling error.
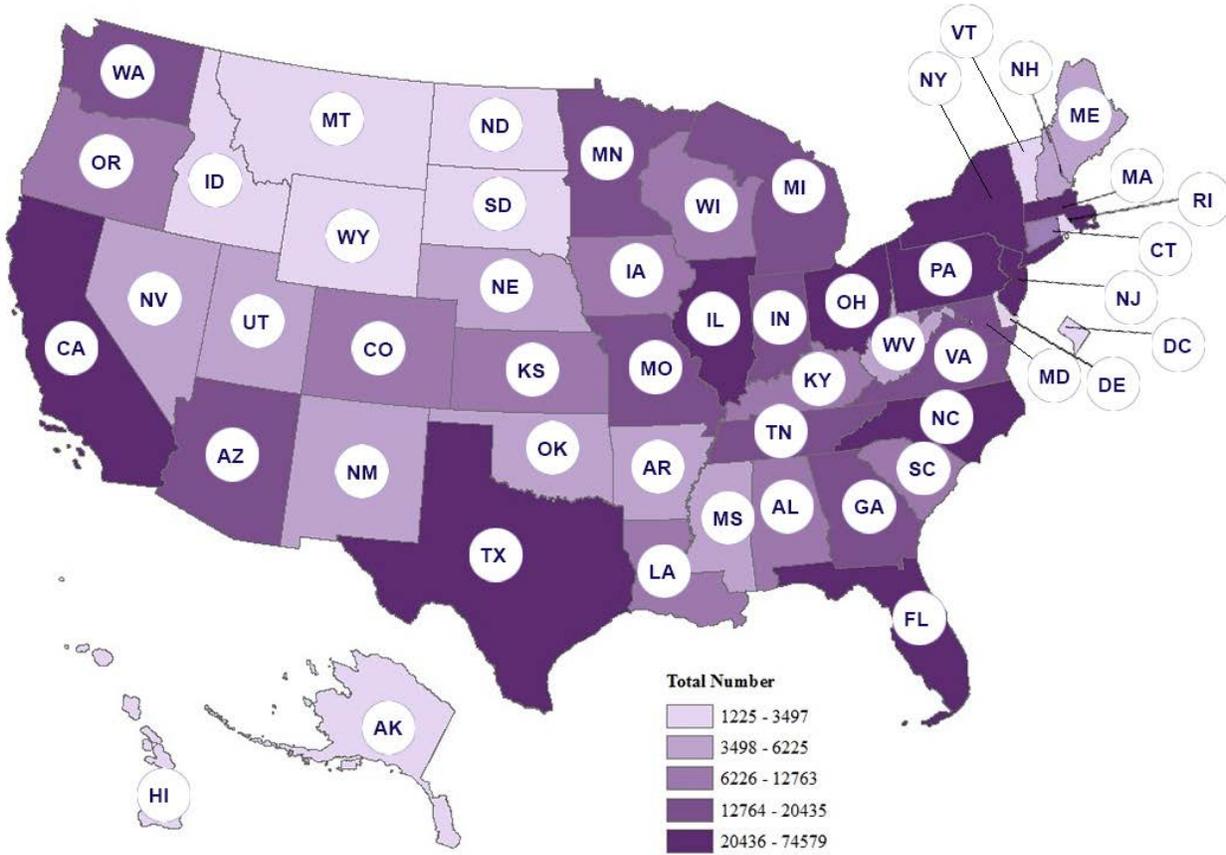
Graduates

No graduate data are presented for occupations in which formal educational requirements are completed in institutions not reporting to IPEDS or vary substantially by state.

3.0 Health Administration

Health Administration occupations described in this section include:
    3.1 Medical and Health Services Managers; and
    3.2 Medical Secretaries.

3.1 Medical and Health Services Managers

- An estimated 696,024 individuals in the U.S. workforce reported their occupation as Medical and Health Services Manager.[13]
- To become a Medical or Health Services Manager, an individual must obtain a Bachelor's or Master's degree.[14]

FIGURE 16: MEDICAL AND HEALTH SERVICES MANAGERS PER 100,000 WORKING-AGE POPULATION, BY STATE

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.

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[13] Total workforce from HRSA analysis of the ACS PUMS, 2011-2015.
[14] BLS, Occupational Outlook Handbook. 2015.

Total Number
- 1225 - 3497
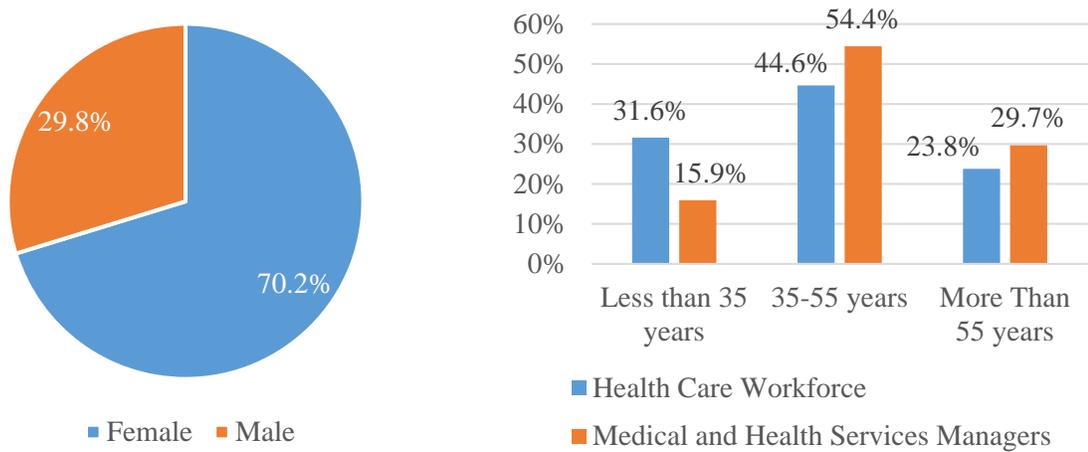- 3498 - 6225
- 6226 - 12763
- 12764 - 20435
- 20436 - 74579

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.

FIGURE 18: DISTRIBUTION OF MEDICAL AND HEALTH SERVICES MANAGERS, BY WORK SETTING
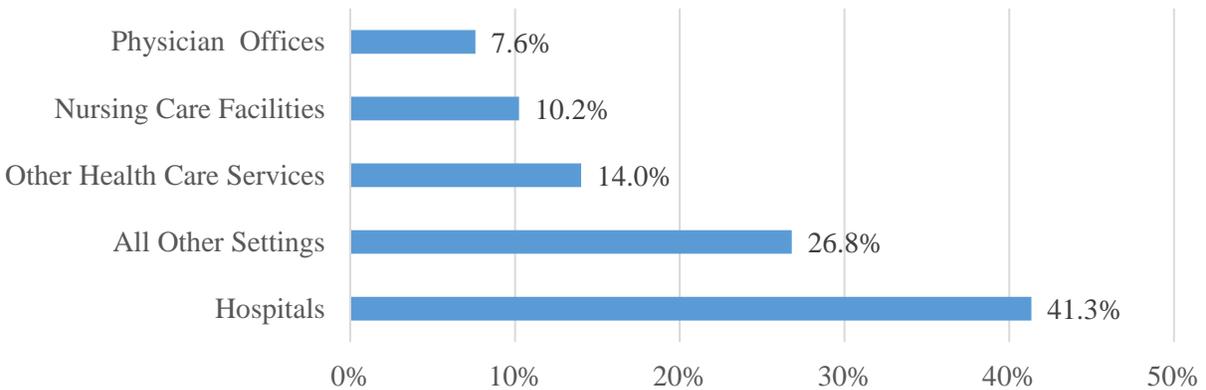
- Physician Offices: 7.6%
- Nursing Care Facilities: 10.2%
- Other Health Care Services: 14.0%
- All Other Settings: 26.8%
- Hospitals: 41.3%

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: The "Health Care Workforce" in this figure refers to the health occupations in this report.
Note: Percentages may not total 100, because of rounding.

FIGURE 20: DISTRIBUTION OF MEDICAL AND HEALTH SERVICES MANAGERS, BY RACE/ETHNICITY, RELATIVE TO THE WORKING-AGE POPULATION
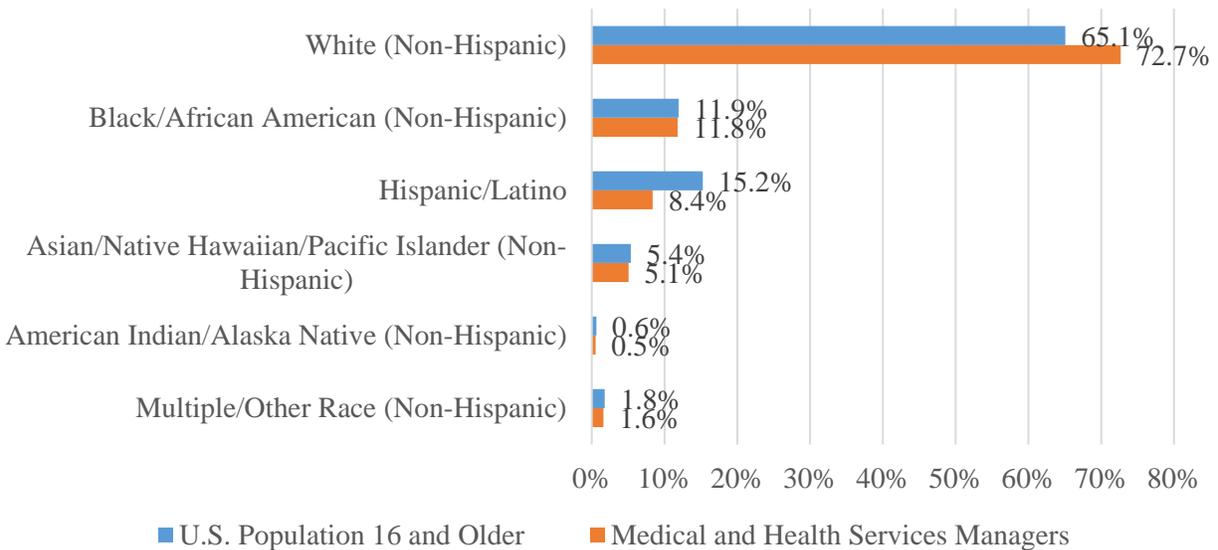
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.

Graduates

The total number of graduates for Medical and Health Services Mangers in the 2014 to 2015 academic year was 34,052.[15]

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[15] HRSA analysis of the National Center for Education Statistics IPEDS, 2014-2015.

3.2 Medical Secretaries

- An estimated 794,765 individuals In the U.S. workforce reported their occupation as Medical Secretary.[16]
- To become a Medical Secretary an individual must obtain a high school diploma or equivalent.[17]

Number per 100,000 Population

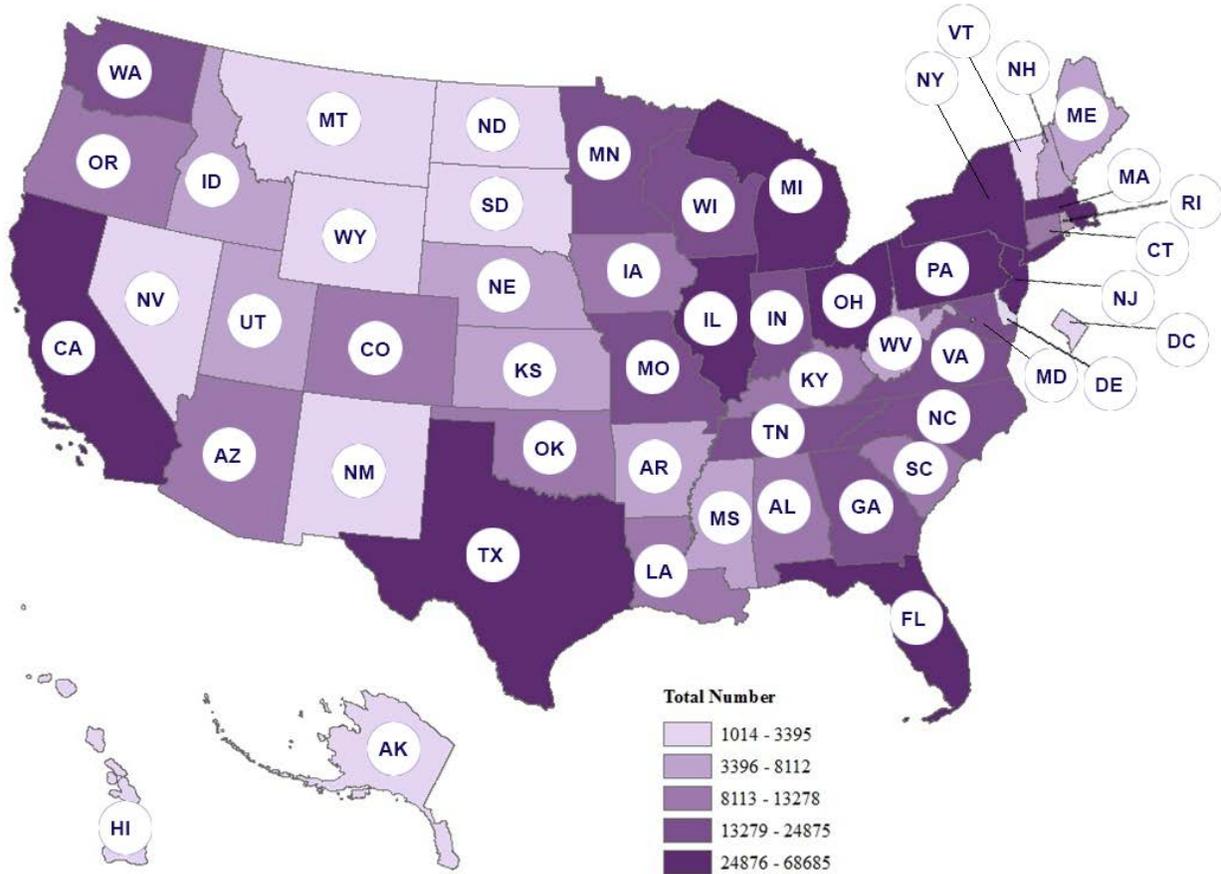|	
	154 - 276
	277 - 312
	313 - 337
	338 - 366
	367 - 587
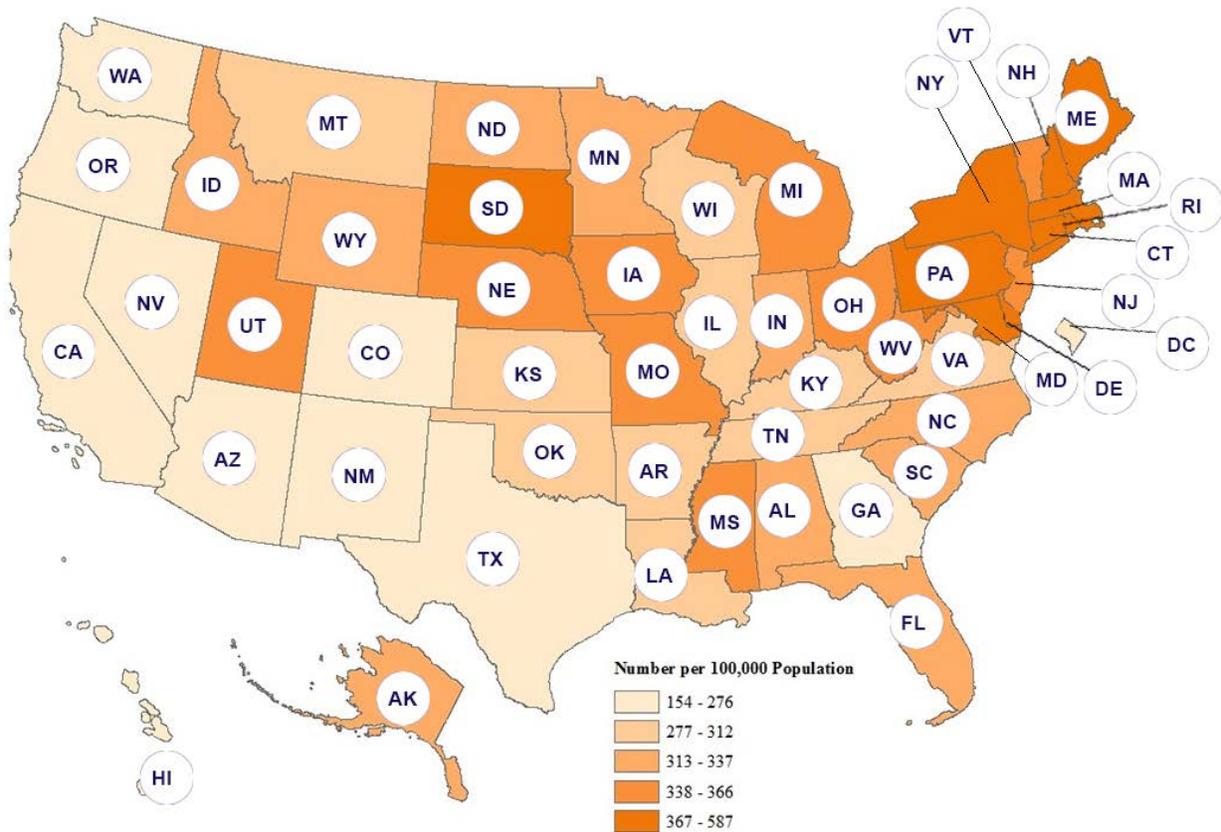
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.

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[16] Total workforce from HRSA analysis of the ACS PUMS, 2011-2015.
[17] BLS, Occupational Outlook Handbook. 2015.

Total Number
- 1014 – 3395
- 3396 – 8112
- 8113 – 13278
- 13279 – 24875
- 24876 – 68685

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.

FIGURE 23: DISTRIBUTION OF MEDICAL SECRETARIES, BY WORK SETTING
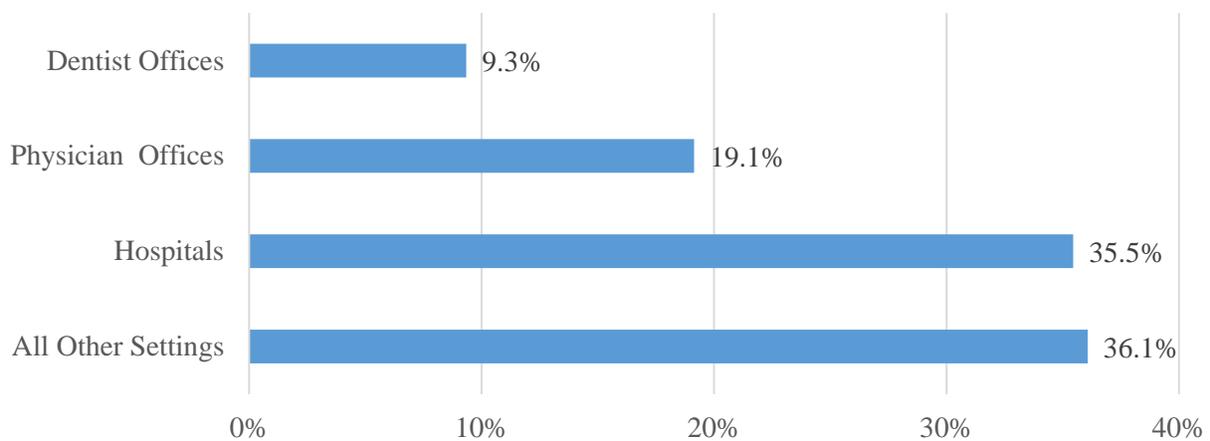
- Dentist Offices — 9.3%
- Physician Offices — 19.1%
- Hospitals — 35.5%
- All Other Settings — 36.1%

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.

FIGURE 24: DISTRIBUTION OF MEDICAL SECRETARIES, BY SEX AND AGE
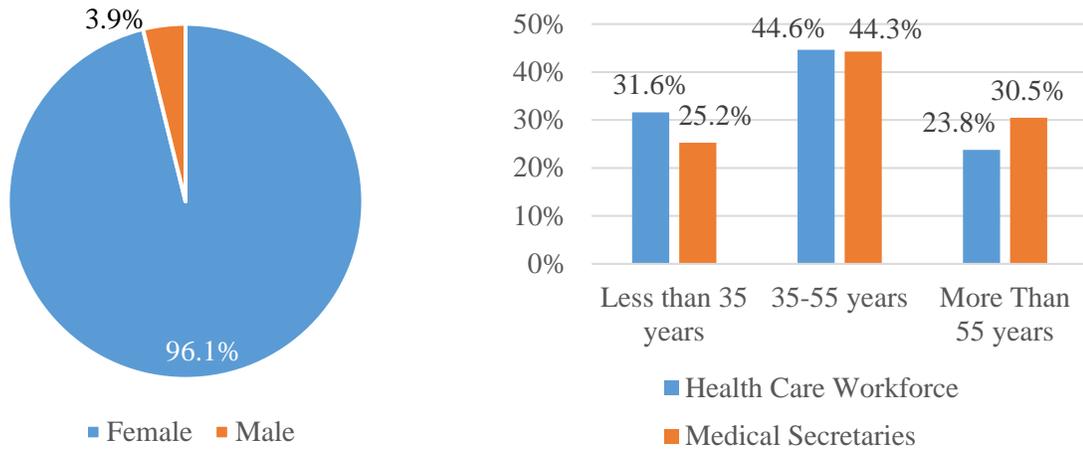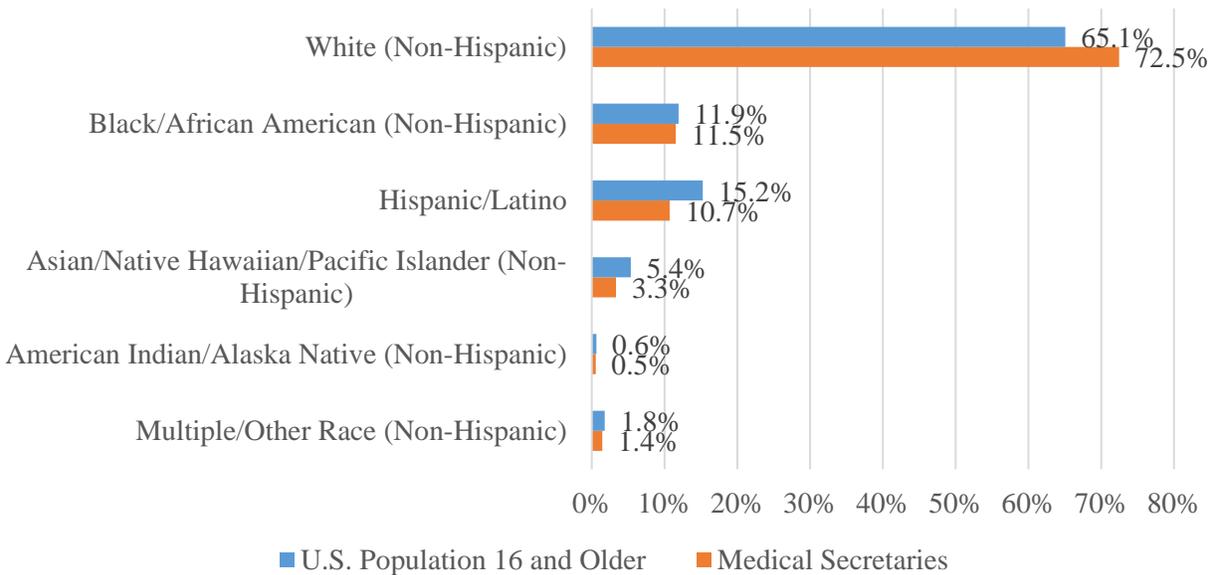
3.9%

96.1%

■ Female ■ Male

50%
44.6% 44.3%
31.6%
25.2%
30.5%
23.8%

Less than 35 years · 35-55 years · More Than 55 years

■ Health Care Workforce
■ Medical Secretaries

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: The "Health Care Workforce" in this figure refers to the health occupations in this report.
Note: Percentages may not total 100, because of rounding.

FIGURE 25: DISTRIBUTION OF MEDICAL SECRETARIES, BY RACE/ETHNICITY, RELATIVE TO THE WORKING-AGE POPULATION

White (Non-Hispanic) — 65.1% / 72.5%

Black/African American (Non-Hispanic) — 11.9% / 11.5%

Hispanic/Latino — 15.2% / 10.7%

Asian/Native Hawaiian/Pacific Islander (Non-Hispanic) — 5.4% / 3.3%

American Indian/Alaska Native (Non-Hispanic) — 0.6% / 0.5%

Multiple/Other Race (Non-Hispanic) — 1.8% / 1.4%

0% 10% 20% 30% 40% 50% 60% 70% 80%

■ U.S. Population 16 and Older ■ Medical Secretaries

ource: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.

Graduates

No graduate data are presented for occupations in which formal educational requirements are completed in institutions not reporting to IPEDS or vary substantially by state.
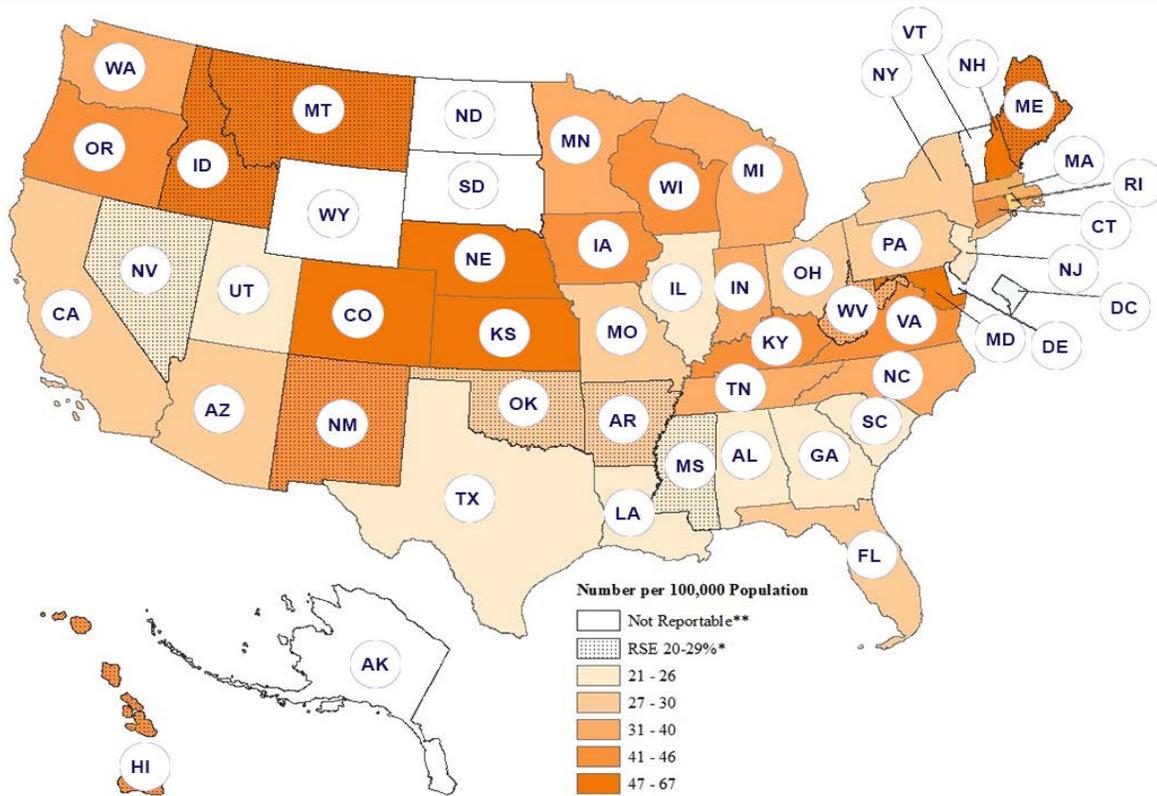
4.0 Veterinarians

- An estimated 80,136 individuals in the U.S. workforce reported their occupation as Veterinarian.[18]
- To become a Veterinarian, an individual must obtain a Doctor of Veterinary Medicine, licensure, and meet certain additional requirements

Background

In addition to providing care for animals, Veterinarians contribute to the improvement of human public health by advancing biomedical and comparative medical research, preventing and addressing infectious diseases that are transmitted from animals to humans, and helping to manage 21st century public health challenges.[19]

FIGURE 26: VETERINARIANS PER 100,000 WORKING-AGE POPULATION, BY STATE

Number per 100,000 Population

- Not Reportable**
- RSE 20-29%*
- 21 - 26
- 27 - 30
- 31 - 40
- 41 - 46
- 47 - 67
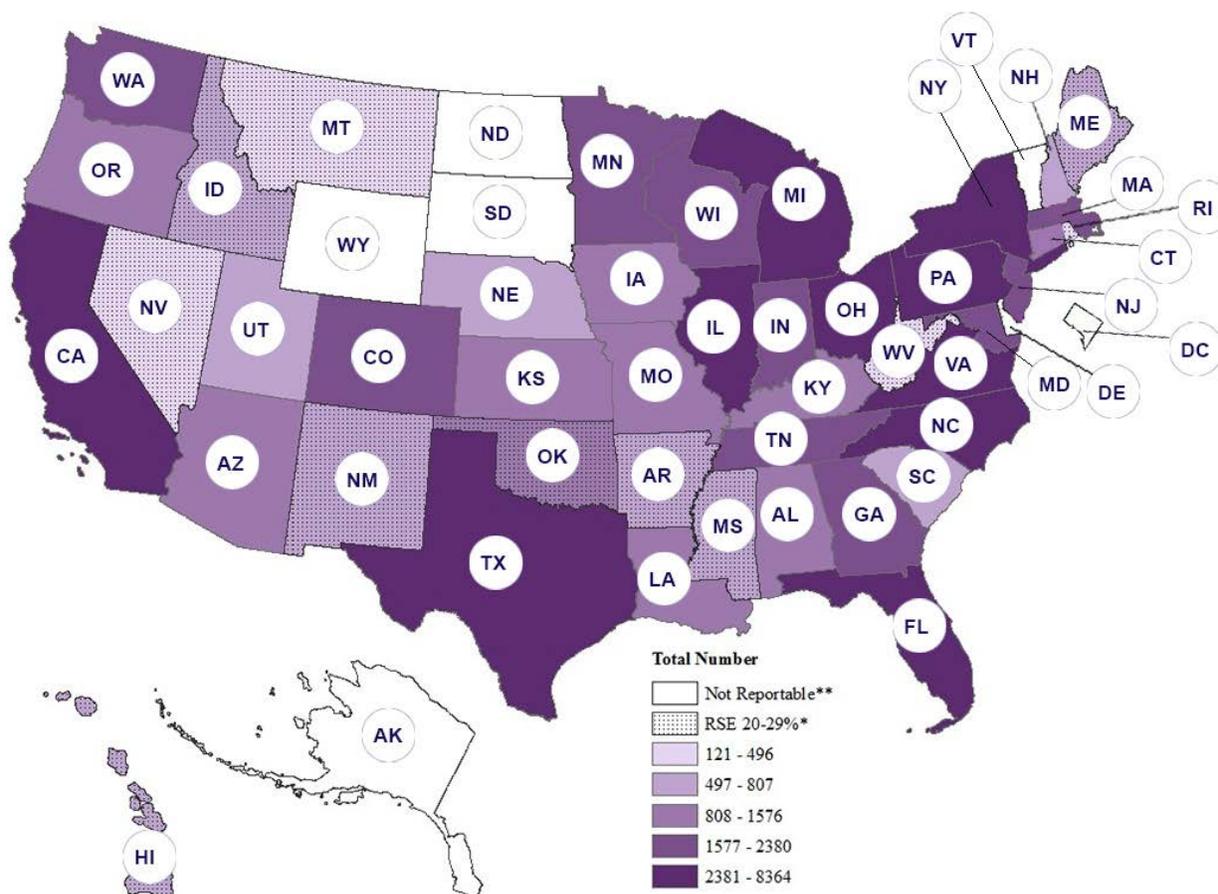
Data Source: HRSA analysis of the ACS PUMS, 2011-2015.

*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.

**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

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[18] Total workforce from HRSA analysis of the ACS PUMS, 2011-2015.

[19] Centers for Disease Control and Prevention. (2006) Veterinary medicine and public health at CDC. Morbidity and Mortality Weekly Report, 55(Suppl. 2). 7-9.

Total Number

- Not Reportable**
- RSE 20-29%*
- 121 - 496
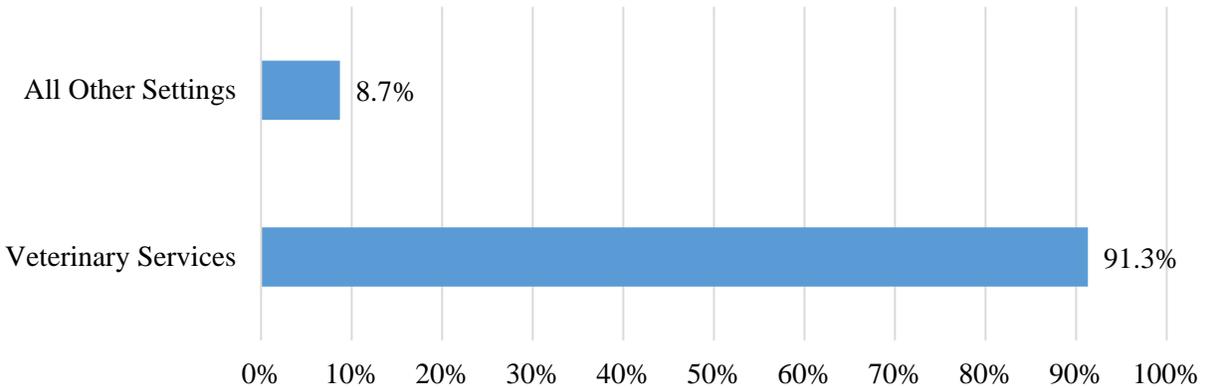- 497 - 807
- 808 - 1576
- 1577 - 2380
- 2381 - 8364

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
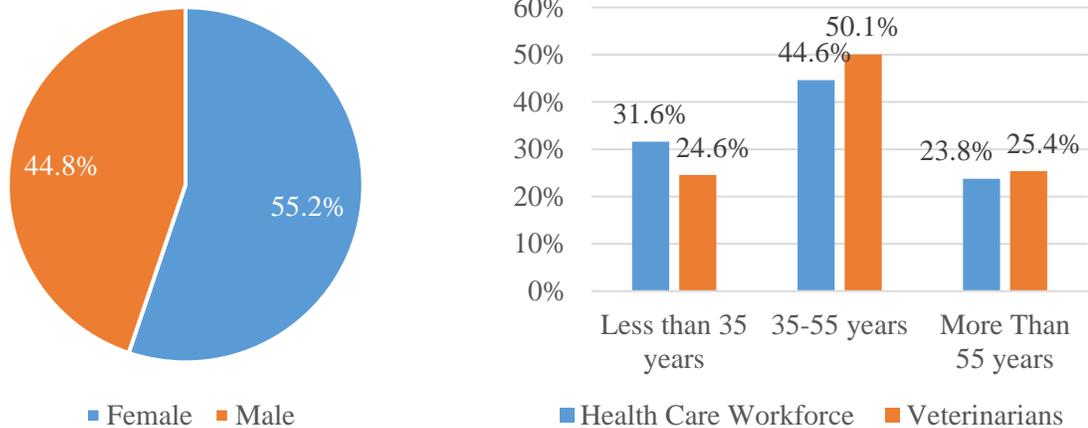*Note: Estimates in states with an RSE = 20% - 29% should be considered with caution because of large sampling error.
**Data are not reported at the state level, because the RSE ≥ 30%; estimate does not meet standards of reliability.

FIGURE 28: DISTRIBUTION OF VETERINARIANS, BY WORK SETTING

All Other Settings — 8.7%
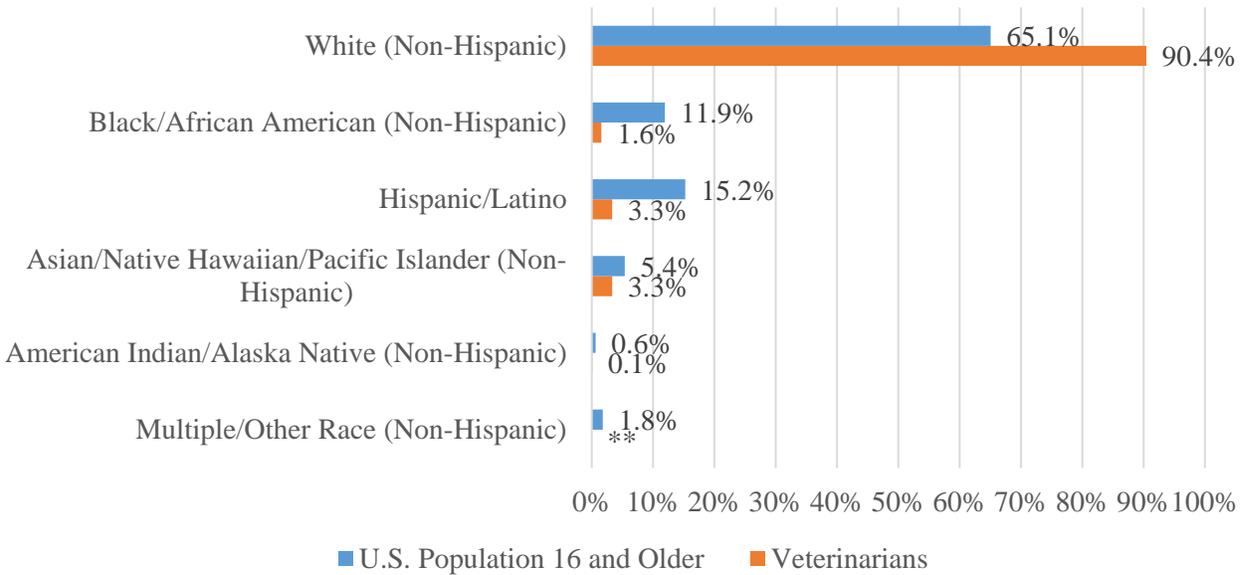
Veterinary Services — 91.3%

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.

FIGURE 29: DISTRIBUTION OF VETERINARIANS S, BY SEX AND AGE

44.8%
55.2%

■ Female ■ Male

Less than 35 years: Health Care Workforce 31.6%, Veterinarians 24.6%
35-55 years: Health Care Workforce 44.6%, Veterinarians 50.1%
More Than 55 years: Health Care Workforce 23.8%, Veterinarians 25.4%

■ Health Care Workforce ■ Veterinarians

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: The "Health Care Workforce" in this figure refers to the health occupations in this report.
Note: Percentages may not total 100, because of rounding.

Data Source: HRSA analysis of the ACS PUMS, 2011-2015.
Note: Percentages may not total 100, because of rounding.
**RSE ≥ 30%; estimate does not meet standards of reliability.

Graduates

The total number of veterinary school graduates in the 2014 to 2015 academic year was 2,815.[20]

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[20] HRSA analysis of the National Center for Education Statistics IPEDS, 2014-2015.