

# Characteristics of the U.S. Nursing Workforce with Patient Care Responsibilities: Resources for Epidemic and Pandemic Response

2018 National Sample Survey of Registered Nurses



**U.S. Department of Health and Human Services  
Health Resources and Services Administration  
Bureau of Health Workforce  
National Center for Health Workforce Analysis**



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## Executive Summary

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This report examines the composition of the United States nursing workforce, with a particular focus on nurses with direct patient care responsibilities, in order to provide data on nurses who may be best positioned to meet the nation's immediate needs during a response to an infectious disease outbreak. Analyzing nursing workforce data through the lenses of nursing licensure, specialties, level of care, and geographic locations may inform ways to strengthen strategic efforts for the mobilization of healthcare workers during any epidemic or pandemic in the United States.

Estimates in this report are based on the 2018 National Sample Survey of Registered Nurses (NSSRN), the leading source of data on the nursing workforce. The NSSRN is a nationally representative sample survey of registered nurses (RNs) that is designed to examine various workforce characteristics, such as demographics, education and training, and employment. The granularity of the geographic distribution data for RNs and Advanced Practice Registered Nurses (APRNs) with patient care responsibilities described herein was limited to US Census Divisions, due to the small sample sizes for some states and that smaller levels of geographic analysis may result in unreliable estimates, especially for APRNs.

As key background for this report, RNs usually have a bachelor's degree in nursing, a 2-year associate's degree in nursing, or a diploma from an approved nursing program. They must also pass a national exam, the National Council Licensure Examination - RN (NCLEX-RN), before they are licensed to practice. RNs may choose to obtain advanced clinical education and training to become APRNs, a category of nurses that includes Nurse Practitioners (NPs), Clinical Nurse Specialists (CNSs), Certified Registered Nurse Anesthetists (CRNAs) and Certified Nurse Midwives (CNMs). In this report, data presented for RNs solely refers to those nurses without advanced practice training. When reviewing the geographically-based findings in this report, it is important to consider how different state licensure and scope of practice laws for APRNs can affect the clinical services that these practitioners can deliver and how independently they are able to practice.

## Key Findings

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- As of December 31, 2017, there were an estimated total of 3,957,661 actively licensed registered nurses (RNs) in the United States. Of those, 439,527 nurses (11.5%) were trained for and obtained an Advanced Practice Registered Nurse (APRN) license.
- Approximately 82.7 percent or 3.3 million of nurses were employed in the nursing field. Among them, 83.4 percent or 2.7 million were involved in patient care.
- The most common work setting for nurses with patient care responsibilities across the inpatient-subacute-outpatient spectrum was non-critical inpatient care for RNs (over 710,000, or 29.6%) and ambulatory care for APRNs (over 127,000, or 38.6%)
- The two most common categories of clinical specialty for RNs and APRNs with patient care responsibilities were general medical-surgical care; and ambulatory and primary care. On the other hand, less than one percent of RNs and APRNs worked in pulmonary/respiratory or infectious/communicable disease specialties, both of which are relevant and needed for addressing infectious disease pandemics.
- The highest number of RNs and APRNs with patient care responsibilities per-capita nationally were in the West North Central Division (958 RNs per 100,000 population) and the New England and East South Central Divisions (157 and 153 APRNs per 100,000 population). [Appendix B](#) lists the US Census Divisions.

## Introduction

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The novel Coronavirus disease 2019 (COVID-19) pandemic has impacted nearly all Americans since the first reported case in the United States. As the number of those infected with COVID-19 continue to rise globally, saving lives and alleviating the stress on the U.S. healthcare system have been top priorities for government officials and healthcare administrators alike. Nurses, the nation's largest healthcare profession, are uniquely positioned to lead and support strategies for epidemic and pandemic responses.

As key background for this report, RNs usually have a bachelor's degree in nursing, a 2-year associate's degree in nursing, or a diploma from an approved nursing program. They must also pass a national exam, the NCLEXRN, before they are licensed to practice. RNs typically provide a wide array of direct care services, such as administering treatments, coordinating care, preventing disease, educating patients, and supporting health promotion for individuals, families, and communities. RNs may choose to obtain advanced clinical education and training to become Advanced Practice Nurses – who usually have a master's degree, although some complete doctoral-level training – and often focus in a clinical specialty area. APRNs as described in this report refer to Nurse Practitioners (NPs), Clinical Nurse Specialists (CNSs), Certified Registered Nurse Anesthetists (CRNAs) and Certified Nurse Midwives (CNMs). In this report, data presented for RNs solely refers to those nurses without advanced practice training. When reviewing the geographically-based findings in this report, it is important to consider how different state licensure and scope of practice laws for APRNs can affect the clinical services that these practitioners can deliver and how independently they are able to practice.

Those in nursing professions have a wide array of responsibilities that impact every part of the health care delivery system. While most nurses have patient care responsibilities, many nurses also hold positions such as supervisors, researchers, analysts, consultants, coordinators, or administrators – all of which have impacts beyond the direct delivery of clinical services but still affecting patient care experiences in important ways. During an epidemic or pandemic, any nurse, with or without patient care responsibilities, can be called upon to assist. For example, a public health nurse or an infectious disease nurse may utilize their critical expertise to help resolve important challenges that arise beyond direct patient care. Noting the significant roles of all nurses, examining the composition of the U.S. nursing workforce for those nurses with direct patient care responsibilities offers an important glimpse into which nurses are best positioned to meet immediate clinical needs during an infectious disease outbreak. These nurses may be at the frontline of the health care delivery during an outbreak and their expertise is vital for treating ailing patients.

This report highlights data on nurses who were employed in the nursing field as of December, 2017. The data in this report focuses on nursing professionals who are directly involved in patient care. More information on the characteristics of the broader nursing workforce, including specialties not highlighted in this report, can be found in the 2018 NSSRN Brief Summary of Results report.<sup>1</sup>

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<sup>1</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. 2019. [Brief Summary Results from the 2018 National Sample Survey of Registered Nurses](#), Rockville, Maryland.

## Findings

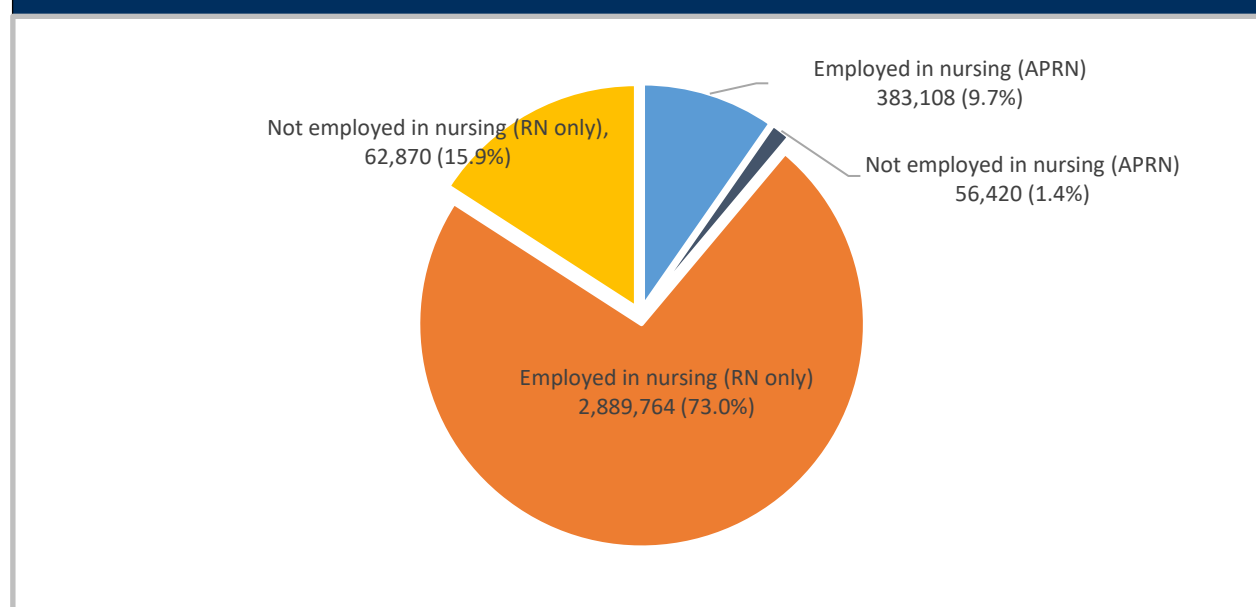
### The Nursing Workforce

As of December 31, 2017, there were an estimated total of 3,957,661 actively licensed registered nurses (RNs) in the United States. Of those, 439,527 nurses (11.5%) were trained for and obtained an Advanced Practice Registered Nurse (APRN) license. These licenses include those for Nurse Practitioners (NPs), Clinical Nurse Specialists (CNSs), Certified Registered Nurse Anesthetists (CRNAs), and Certified Nurse Midwives (CNMs). NPs accounted for 68.7 percent of all APRN licenses, followed by CNSs (19.6%), CRNAs (9.3%), and CNMs (2.4%).<sup>2,3</sup> In this report, data for RNs solely refers to those without advanced practice training.

- **Approximately 82.7 percent or 3.3 million of nurses were employed in the nursing field. Among them, 83.4 percent or 2.7 million were involved in patient care**

Among all nurses surveyed, 82.7 percent were employed in the nursing field. Of those employed in the nursing field, 2,889,764 were RNs and 383,108 were APRNs (Figure 1). Nurses responding to the survey were also asked whether their primary nursing positions involved patient care. For RNs without advanced practice training, 83.0 percent were involved in patient care. The proportion of APRNs reporting positions with patient care was similar (86.3%) (Figure 2). For both RNs and APRNs with patient care responsibilities, approximately 50 percent were aged 45 and younger (50.7% and 46.4%, respectively) (Figure 2).

Figure 1: RNs and APRNs working in the nursing field\*



\*RN Only represents all registered nurses without advanced practice training

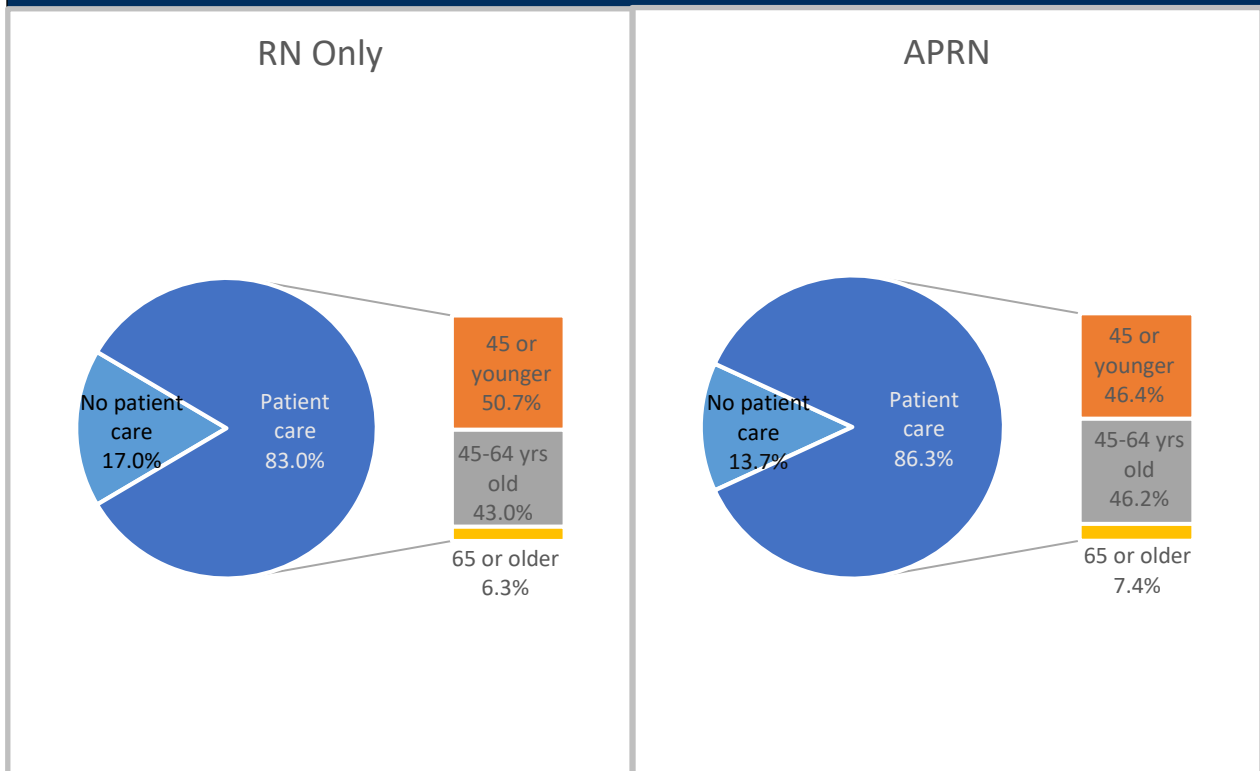
<sup>2</sup> A RN may have more than one APRN licenses.

<sup>3</sup> A full distribution of RNs (including APRNs) by state is presented in in Table 1 of the *Brief Summary Results from the 2018 National Sample Survey of Registered Nurses* report, available at

<https://bhw.hrsa.gov/sites/default/files/bhw/health-workforce-analysis/nssrn-summary-report.pdf>



Figure 2: Proportion of RNs and APRNs with patient care responsibilities, with an overlay of age group\*



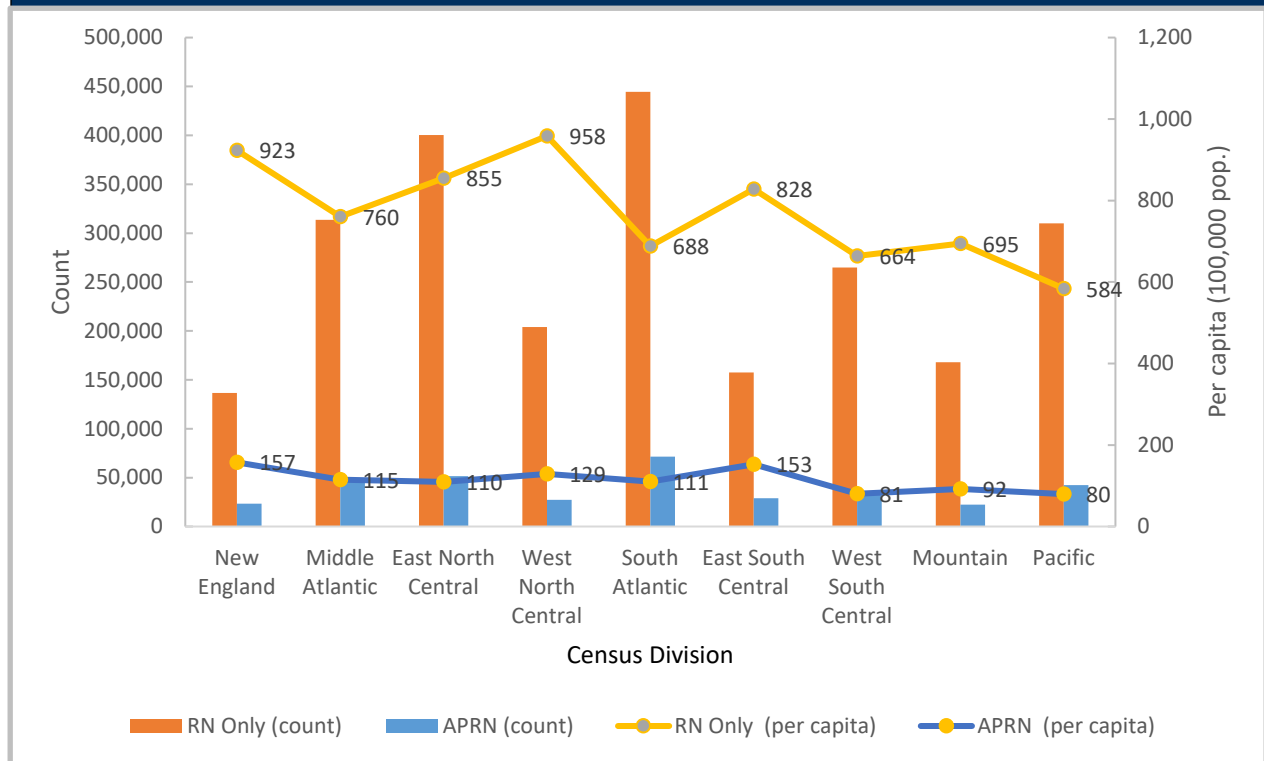
\*RN Only represents all registered nurses without advanced practice training

- **The numbers of RNs and APRNs per capita were highest for West North Central (958 RNs per 100,000 population) and New England and East South Central (157 and 153 APRNs per 100,000 population) Divisions**

Figure 3 shows numbers of RNs and APRNs with patient care responsibility by US Census Division (both in total counts and per capita). The per-capita presence of nurses in a given Census Division may be a more important index to consider than total counts, since Divisions vary in size and population, and therefore counts alone may speak less to regional nurse availability from a health care access perspective. However, nurse mobility between states and regions during an epidemic/pandemic make counts worthy to report on as well. [Appendix B](#) lists the US Census Divisions and the states included in each.

The top 4 regions with the highest counts of RNs and APRNs were the South Atlantic, East North Central, Middle Atlantic, and Pacific divisions. However, when considering the population size in each division, the number of RNs per capita were highest among West North Central (958 RNs per 100,000 population) and New England (928 nurses per 100,000 population) divisions and lowest in the West South Central (664 nurses per 100,000 population) and Pacific divisions (584 nurses per 100,000 population) (Figure 4). The number of APRNs per capita was also highest in the New England (157 APRNs per 100,000 population) and East South Central (153 nurses per 100,000 population) divisions. The Pacific, West South Central and Mountain divisions had the lowest APRNs per capita with the rates of 80, 81, and 92 APRNs per 100,000 population, respectively.

Figure 3: Counts and per-capita concentrations of RNs and APRNs with patient care responsibilities by US Census division\*



\*RN Only represents registered nurses without advanced practice training

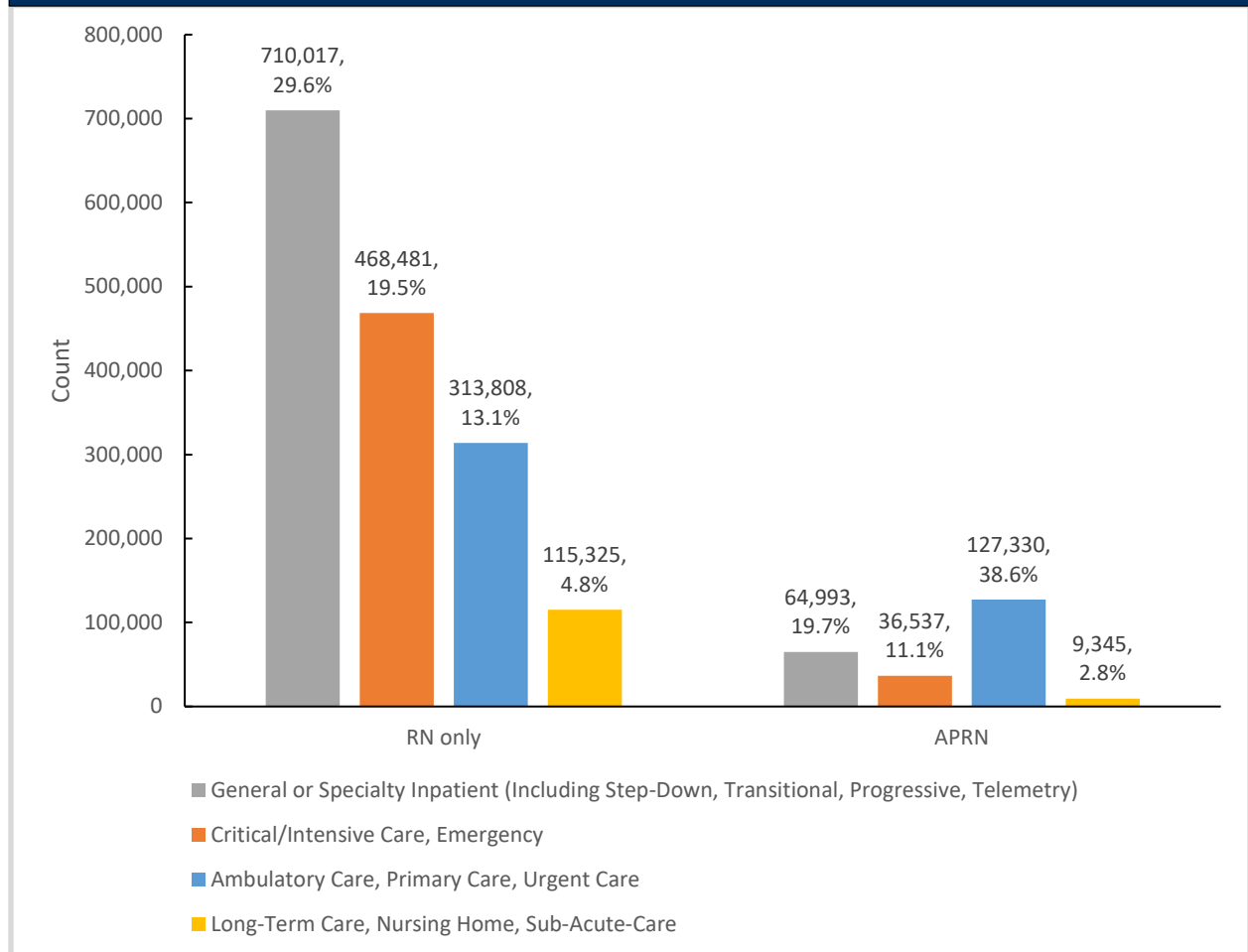
### Nursing Workforce by Levels of Care and Type of Work

- **The most common work setting for nurses with patient care responsibilities across the inpatient-subacute-outpatient spectrum was non-critical inpatient care for RNs (over 710,000, or 29.6%) and ambulatory care for APRNs (over 127,000, or 38.6%)**

Understanding where nurses work provides valuable information for epidemic or pandemic responses regarding the mobilization and capacity of healthcare workers. Figure 4 shows RNs and APRNs with patient care responsibilities by select levels/sites of care and types of work they perform for consideration during a response to an epidemic or pandemic outbreak, such as COVID-19. The largest proportion of RNs with patient care responsibilities were working in general or specialty inpatient care (29.6%), followed by critical/intensive and emergency care, ambulatory care (including primary and urgent care), and long-term/nursing home care. APRNs have a distinct clinical role compared to RNs – as they likely would during an epidemic and pandemic response – due to their advanced scope and skills for diagnosing and treating illnesses, which is reflected in their different distribution across work site types. Ambulatory settings (including primary and urgent care) were the most common sites where approximately 127,330 APRNs

worked (38.6%), followed by inpatient care, critical/intensive/emergency care, and long-term care/nursing home/sub-acute care types of work.

**Figure 4: Number of RNs and APRNs with patient care responsibilities by selected level/sites of care and type of work\*†**



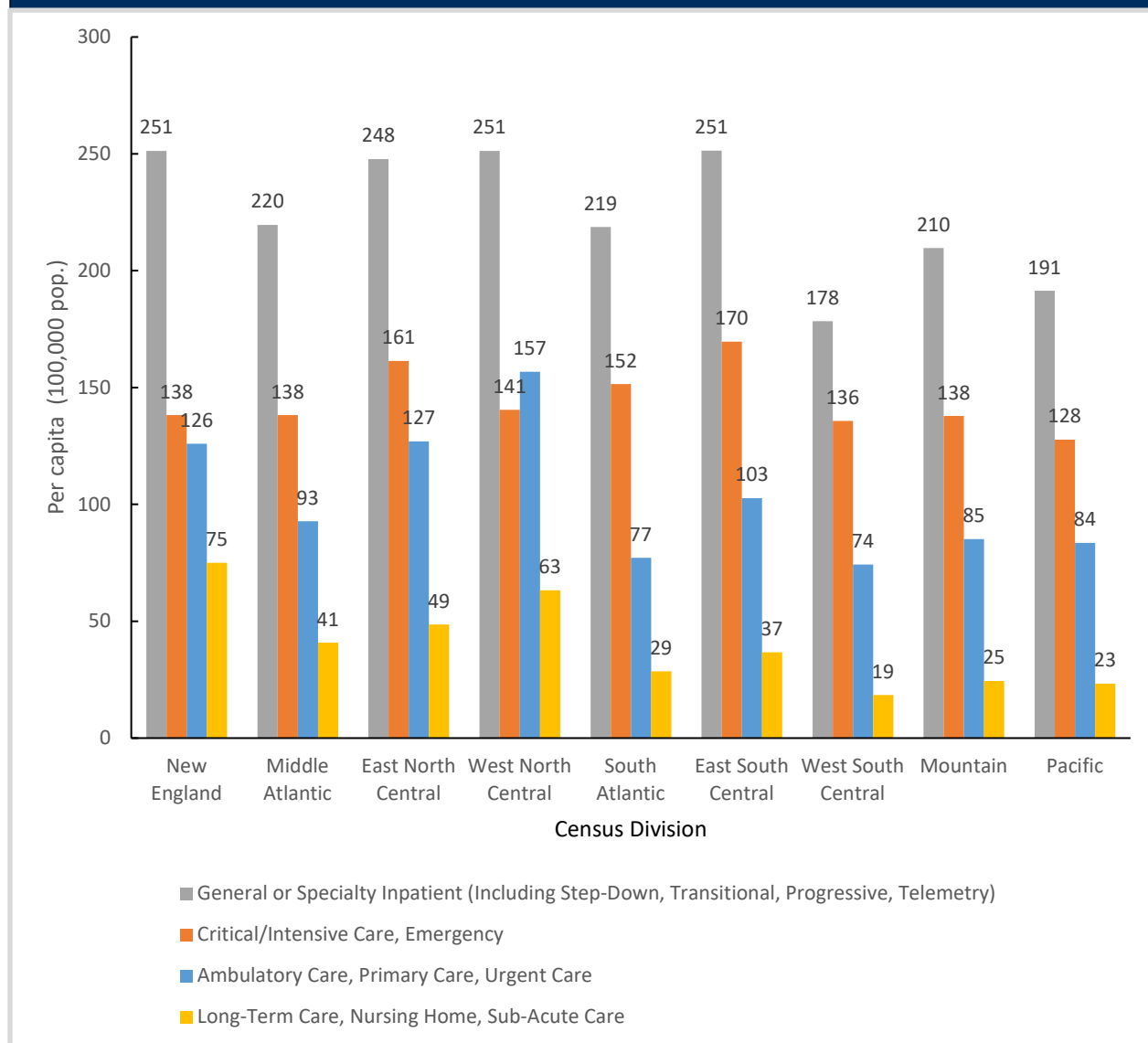
\*This figure does not include all levels of care or types of work available as options on the NSSRN, and focuses on the main inpatient, outpatient, and subacute sites relevant for pandemic/epidemic response. As such, the percentages listed are relative to only the levels/types of work presented. Not included here are the following levels/types of work: Ancillary care, care coordination, education, healthcare management/administration, informatics, public health/community health, rehabilitation, research, school nurse, other

†RN Only in this figure represents registered nurses without advanced practice training

Figures 5 and 6 show the number of RNs and APRNs per capita (100,000 population) by levels of care/type of work for each Census Division. Within the field of critical/intensive and emergency care work, the East South Central (171 RNs per 100,000 population) and East North Central divisions (160 RNs per 100,000 population) had the highest concentrations of per-capita RNs, whereas the Pacific division had the lowest per-capita density in this specialty area (128 RNs per 100,000 population) (Figure 5).

Figure 6 demonstrates that the highest density of APRNs per capita within the field of critical/intensive and emergency care work is in the East South Central (19 APRNs per 100,000 population), East North Central (15 APRNs per 100,000 population), and West North Central (15 APRNs per 100,000 population) divisions. For other inpatient care settings, a range of 13 to 28 APRNs per 100,000 population was observed across Census Divisions.

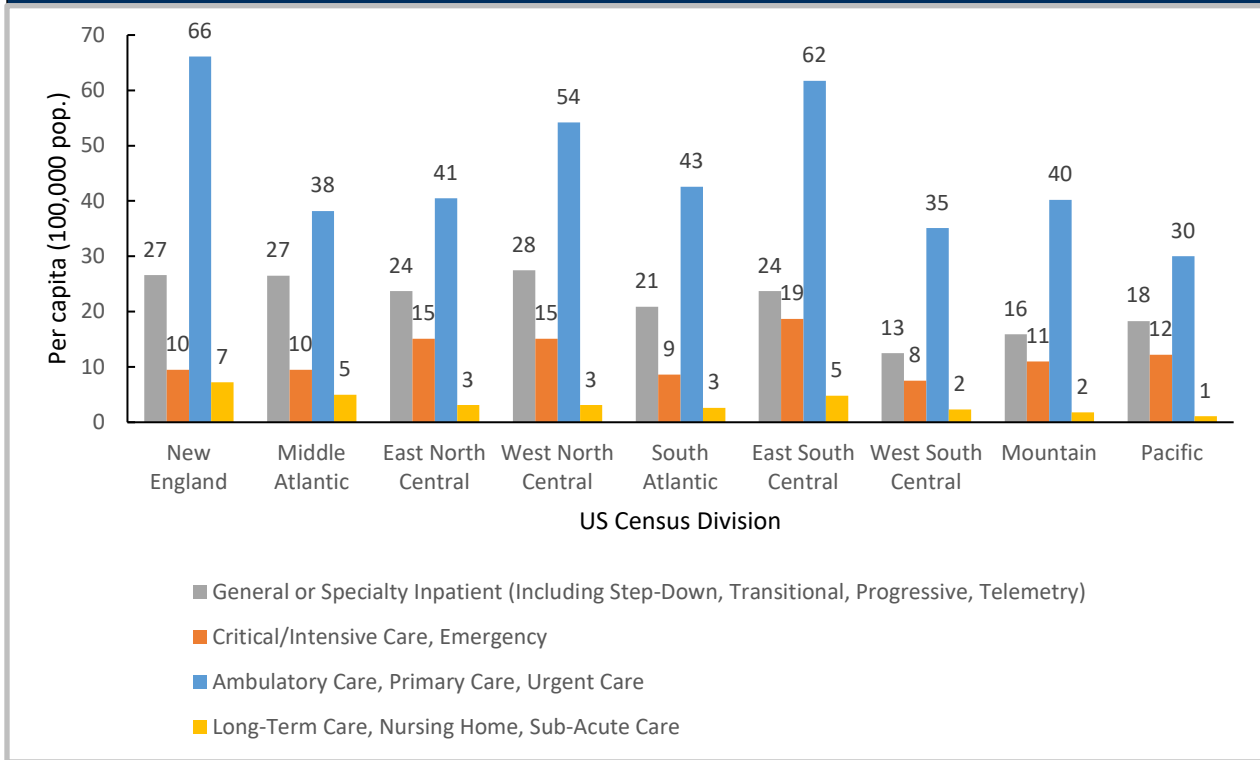
Figure 5: Number of RNs (per capita) with patient care responsibilities by selected level of care and type of work\*†



\*This figure does not include all levels of care or types of work available as options on the NSSRN. Not included: Ancillary care, care coordination, education, healthcare management/administration, informatics, public health/community health, rehabilitation, research, school nurse, other

†RNs in this figure represents registered nurses without advanced practice training

Figure 6: Number of APRNs (per capita) with patient care responsibilities by selected level/sites of care and type of work\*



\*This figure does not include all levels of care or types of work available as options on the NSSRN. Not included: Ancillary care, care coordination, education, healthcare management/administration, informatics, public health/community health, rehabilitation, research, school nurse, other

## Nursing Workforce by Clinical Specialties

- **The two most common categories of clinical specialty for RNs and APRNs with patient care responsibilities were general medical-surgical care; and ambulatory and primary care. On the other hand, less than one percent of RNs and APRNs worked in pulmonary/respiratory or infectious/communicable disease specialties, both of which are relevant and needed for addressing infectious disease pandemics**

Nurses were asked in the NSSRN in what clinical specialties they spent most their patient care time. Table 1 shows all clinical specialties that were included in the 2018 NSSRN survey. Approximately 480,291 RNs (20.0%) reported spending most of their clinical time performing general medical-surgical care, followed next by ambulatory/primary care (14.5%) and chronic care (10.5%). RNs working in other specialty areas that are relevant for addressing epidemics/pandemics like COVID-19 were in emergency care (8.1%), critical care (7.4%), psychiatric/mental health (3.8%), pulmonary/respiratory care (0.9%), and in infectious/communicable diseases (0.6%). For APRNs, the most common specialties were ambulatory/primary care (28.8%), general medical surgical care (17.6%), and chronic care (6%). There

were only 0.5 percent and 0.9 percent of all APRNs who reported spending most of their patient care time in pulmonary/respiratory and infectious/communicable disease, respectively.

*Table 1: Number and percentage of RNs and APRNs with patient care responsibilities by specialties†*

Clinical specialty	RN only		APRN	
	Count	Percent	Count	Percent
General Medical Surgical	480,291	20.0	58,095	17.6
Ambulatory/Primary Care	347,370	14.5	95,029	28.8
Chronic Care	251,769	10.5	19,649	6.0
Emergency Or Trauma Care	193,409	8.1	16,154	4.9
Critical Care	176,755	7.4	18,255	5.5
Home Health/Hospice	149,192	6.2	9,108	2.8
Psychiatric Or Mental Health (Substance Abuse And Counseling)	91,963	3.8	18,312	5.5
Oncology	89,267	3.7	12,521	3.8
Labor And Delivery	88,237	3.7	6,001	1.8
Orthopedics	70,189	2.9	4,894	1.5
Cardiac Or Cardiovascular Care	66,124	2.8	7,503	2.3
Obstetrics	65,130	2.7	11,461	3.5
Renal/Dialysis	47,842	2.0	3,429	1.0
Gastrointestinal	44,332	1.9	4,875	1.5
Neurological	34,464	1.4	5,723	1.7
Gynecology	22,424	0.9	9,665	2.9
Pulmonary/Respiratory	21,280	0.9	3,076	0.9
Radiology (Diagnostic Or Therapeutic)	20,282	0.9	1,064	0.3
Infectious/Communicable Disease	14,834	0.6	1,654	0.5
Neonatology	12,397	0.5	2,211	0.7
School Health Services	12,275	0.5	*	*
Occupational Health	11,391	0.5	3,082	0.9
Gerontology	11,139	0.5	1,709	0.5
Other Specialty	77,188	3.2	16,484	5.0
<b>Total</b>	<b>2,399,544</b>	<b>100</b>	<b>330,509</b>	<b>100</b>

\*Data was suppressed due to small sample size

†RN Only in this table represents registered nurses without advanced practice training

## Conclusion

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Data from the 2018 NSSRN provides a unique opportunity to examine the characteristics of licensed nurses who work directly with patients in the United States. These data may provide critical epidemic or pandemic strategy-building information for government officials, healthcare administrators, researchers, and other stakeholders involved in emergency preparedness.

The granularity of the geographic distribution of RNs and APRNs with patient care responsibilities was limited to US Census Divisions due to small sample sizes for particular states that may result in unreliable estimates, especially for APRNs. For level of care/type of work and clinical specialty, nurses were asked to select only one response that they spend most of the time with. Therefore, the actual number of nurses who have the experience or ability to work at each level of care or clinical specialty may be underestimated. In addition, some of the knowledge and skillsets required to work at certain levels of care or clinical specialties might also be transferrable to other settings or specialties.

Future pandemics may spread through different modes of transmission, patients may exhibit different symptoms, and different treatments options may become available, all resulting in different demands of the nursing workforce. Understanding levels of care, type of work, specialty, and location of the nursing workforce is critical for responding to infectious disease outbreaks.

Despite these limitations, this report highlights the nursing workforce, focusing on nurses with direct patient care responsibilities, and may be a resource in supporting the response to potential epidemics or pandemics.

## Appendices

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### Appendix A: About the NSSRN

The National Sample Survey of Registered Nurses (NSSRN) is the longest running survey of registered nurses in US. Since the 1970s, NSSRN has served as the cornerstone of nursing workforce data. The NSSRN was previously fielded in 1977, 1980, 1984, 1988, 1992, 1996, 2000, 2004, and 2008. In collaboration with the US Census Bureau, the National Center for Health Workforce Analysis administered the 10<sup>th</sup> NSSRN data collection in 2018. The 2018 NSSRN used a sample of 102,690 RNs who were randomly selected from over 4.6 million licensure records provided by the National Council of the State Boards of Nursing and individual state boards. Of this sample, a total of 50,273 eligible RNs completed this survey.

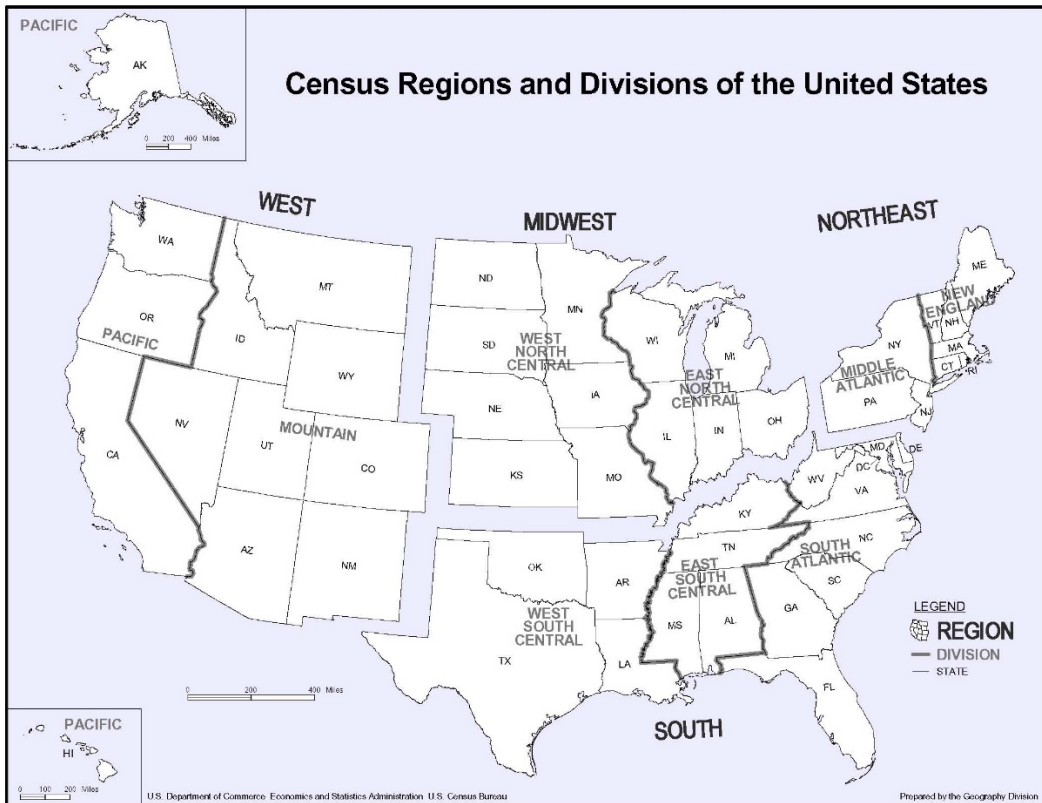
The 2018 NSSRN is the first release following the redesign and merging of the previous NSSRN and the National Sample Survey of Nurse Practitioners (NSSNP). The latest survey, conducted with registered nurses (RNs) who held an active RN license as of December 31, 2017, utilized a sampling frame built from a list of registered nurses compiled from the National Council of State Board of Nursing (NCSBN) and from individual state Boards of Nursing (BONs). Sampling was done independently within each of the 50 states and the District of Columbia. There were two sampling strata per state: The first group is RNs holding an NP license to represent NPs and the second group is for all other RNs. To ensure the sample estimates are representative of the target populations of NPs and RNs in one or more states in the U.S., weights incorporated the differential probabilities of selection, and an adjustment for duplication in the sample, and nonresponse.

Information on the NSSRN and its data are available on the National Center for Health Workforce Website: <https://bhw.hrsa.gov/health-workforce-analysis/data/national-sample-survey-registered-nurses>



## Appendix B: US Census Divisions

### US Census Regions and Divisions of the United States<sup>4</sup>



#### Region 1: Northeast

Division 1: **New England** (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont)

Division 2: **Mid-Atlantic** (New Jersey, New York, and Pennsylvania)

#### Region 2: Midwest

Division 3: **East North Central** (Illinois, Indiana, Michigan, Ohio, and Wisconsin)

Division 4: **West North Central** (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota)

#### Region 3: South

Division 5: **South Atlantic** (Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, District of Columbia, and West Virginia)

Division 6: **East South Central** (Alabama, Kentucky, Mississippi, and Tennessee)

Division 7: **West South Central** (Arkansas, Louisiana, Oklahoma, and Texas)

#### Region 4: West

Division 8: **Mountain** (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming)

Division 9: **Pacific** (Alaska, California, Hawaii, Oregon, and Washington)

<sup>4</sup> US Census Regions and Divisions of the United States. US Census Bureau, US Department of Commerce.

[https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us\\_regdiv.pdf](https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf)