

# 2019 **MISSOURI NURSING** WORKFORCE REPORT



# 2019 Missouri Nursing Workforce Report

By the University of Missouri Center for Health Policy<sup>1</sup>, Office of Rural Health<sup>2</sup>, Office of Social and Economic Data Analysis<sup>3</sup>, and Missouri State Board of Nursing<sup>4</sup>

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# Executive Summary

The following report describes the nursing workforce in Missouri, based on data provided by Missouri Division of Professional Registration Board of Nursing and Nursys®<sup>1</sup>.

- The Professional Registry includes all nurses licensed in Missouri as of July 2019 (n=130,993).
- Nursys® includes more comprehensive data on nurses who enrolled in the Nursys® system between March 2015 and July 2019 (n=123,279).
- Nursys® data were matched with Professional Registry data to create the Merged dataset used throughout this document (n=111,276).

More information on data in Professional Registration, Nursys® and Merged datasets is available in the Summary of Methods section of this report.

Pursuant to section 324.001.14(4), RSMo, all licensee/registrant data or records provided by the State Board of Nursing shall be deemed the property of the State Board of Nursing. Accordingly, this report and all data contained herein is the property of the State Board of Nursing and shall not be used without the express written permission of the State Board of Nursing.

## Highlights from the Data

- The most common license type<sup>2</sup> among Missouri nurses is Registered Nurses (RN) with 84.1%, followed by Licensed Practical Nurses (LPN) with 10.2% and Advanced Practice Registered Nurses (APRN) with 5.7%.
  - The State of Missouri has a rate of 75 nurses employed per 10,000 residents, including 56 RNs, 15 LPNs and 4 APRNs per 10,000 residents.
- Both the number and the rate of nurses in rural areas are low compared to metropolitan and micropolitan counties.
  - Most of Missouri's nurses work in metropolitan counties, including 68.7% of LPNs, 86.5% of RNs and 84.7% of APRNs.
  - The rate of nurses per 10,000 residents working in rural Missouri counties is just 60.3, compared to 88.4 in micropolitan counties and 92.3 in metropolitan counties.
- Nurses are relatively well-distributed across the age spectrum. While just 2.6% of all nurses are aged 18-24 and 11.0% are 65 and older, 22.4% are 25-34, 22.1% are 35-44, 20.0% are 45-54 and 21.9% are 55-64.

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<sup>1</sup> Nursys® is a Registered Trademark of the National Council of State Boards of Nursing.

<sup>2</sup> Only Licensed Practical Nurses and Registered Nurses are licensed. An Advanced Practice Registered Nurse (APRN) holds a RN license and then is recognized as an APRN. For purposes of this report, license type is defined as the actual license for LPNs and RNs and recognition for APRNs.

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- Of concern are the relatively high rates of nurses nearing retirement (aged 55-64) in some employment settings and counties in the state. See the maps on page 18 for more information.
- Nursing continues to be a female-dominated profession: 94.3% of LPNs, 91.3% of RNs and 87.4% of APRNs are women.
- In terms of race and ethnicity, the data indicate that Missouri's nursing workforce is not as diverse as the general population.
  - The majority of Missouri nurses in all license types are White Alone, including 82.4% of LPNs, 89.1% of RNs and 88.7% of APRNs.
  - According to the most recent estimates from the US Census, 11.8% of Missourians are Black or African American Alone.
    - Blacks or African Americans are underrepresented among RNs and APRNs, which have 5.7% and 5.9% reporting their race as Black or African American Alone.
    - LPNs have a slightly higher Black or African American population than the general Missouri population at 12.7%.
  - A small percent of Missouri nurses is Hispanic or Latinx, including 1.9% LPNs, 2.0% RNs and 1.7% APRNs, while 4.3% of Missourians are Hispanic or Latinx, according to the US Census.
- Many nurses hold multiple degrees, both in nursing and other fields. In terms of highest level of nursing education:
  - Most LPNs have an Associate's Degree (81.9%),
  - Over half of RNs have a Baccalaureate Degree (51.2%), and
  - Most APRNs have a Master's degree (82.4%).
    - Sixty-eight APRNs, or 1.1%, have a Doctorate Degree in nursing.
- The vast majority of nurses licensed in Missouri are actively employed full-time in nursing or a position that requires a nursing license, including:
  - 80.2% or 7,846 LPNs,
  - 80.4% or 65,528 RNs, and
  - 82.1% or 5,025 APRNs.
- There are very few RNs and APRNs who report that they are unemployed and looking for work as a nurse (3.3% of RNs and 2.2% APRNs), indicating that there is a limited supply of RNs and APRNs within the state available to meet the current need.
  - A higher percentage of LPNs, 7.7%, report being unemployed and looking for work as a nurse.
- While most nurses in all license types work in one nursing position, including 87.0% LPNs, 90.2% RNs and 81.2% APRNs, a sizeable number of nurses have more than one position, including 13.0% of LPNs, 9.8% of RNs and 18.8% of APRNs.
- A sizeable portion of nurses in all license types work more than the typical 36-40 hours per week considered full-time for most nurses, including 21.0% of LPNs, 16.7% of RNs and 25.2% of APRNs.

- With the exception of Advanced Practice Registered Nurse, the majority of nurses in each position description are RNs.
- RNs comprise the largest group of nurses in all employment settings, whether they be inpatient, outpatient, institutional or administrative.
- Employment settings vary by license type:
  - LPNs are most often working in nursing homes, extended care or assisted living facilities, where over one-third of LPNs (34.7% or 3,122) are employed.
  - Over half of RNs (58.6% or 46,039) work in hospitals.
  - APRNs most often work in hospitals, including 41.6% or 2,476.
    - Another important employment setting for APRNs is ambulatory care, including physician's offices or primary care facilities, with 21.1% or 1,256.
- Employment specialties also vary by license type. The most common specialties include geriatrics or gerontology for LPNs, acute or critical care for RNs and primary care or adult and family health for APRNs.

# Summary of Methods

This report is the result of extensive collaboration between the Missouri Division of Professional Registration Board of Nursing and the Center for Health Policy (CHP), Office of Rural Health, and Office of Social and Economic Data Analysis (OSED) at the University of Missouri-Columbia.

The data in the report are from two sources: Missouri Division of Professional Registration Board of Nursing Registry and Nursys®.

The Professional Registry (PR) includes all nurses licensed in Missouri in 2019. The Missouri Board of Nursing provided a raw file with 146,785 entries to the University of Missouri team, including 15,792 duplicate entries. Duplicates typically occur when nurses advance to a new license type. For example, a nurse may have an original entry as a registered nurse, and another entry for advanced practice after completing additional training. The duplicate entry with the highest license type is retained, and the remaining duplicate entries are removed from the dataset, resulting in 130,993 unique nurses in the PR dataset.

The Nursys® dataset is a repository of license and disciplinary data maintained by the not-for-profit National Council of State Boards of Nursing (NCSBN). The Missouri State Board of Nursing is a member of NCSBN. Nursys.com and the Nursys® e-Notify service are maintained by NCSBN with the participation of boards of nursing in order to support the mission and work of individual boards of nursing. Pursuant to the Nursys® e-Notify terms of use, the National Council of State Boards of Nursing (NCSBN) does not sell information. Workforce related information provided in the repository is used for the purposes of nursing workforce research.

Nursys® collects a wide variety of information from nurses enrolled in the system, beyond what is collected by the Professional Registry. These data elements include education and employment location, setting, and status. Nursys® data in this report include nurses licensed in Missouri who enrolled in the Nursys® system between March 2015 and July 2019 (n=123,279).

During the 2019 license renewal period for registered nurses (RNs), enrollment in the Nursys® e-Notify service was required for the first time. The result is 94.1% of nurses licensed in Missouri being included in the Nursys® dataset.

For the purposes of this report, nurses in the Professional Registry are matched with those enrolled in Nursys® e-Notify through a three step process:

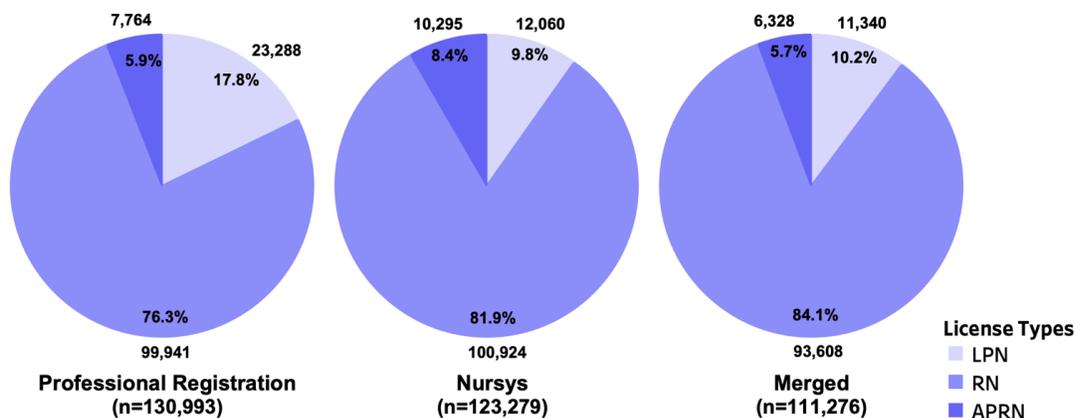
1. PR and Nursys® datasets were linked on license number, license type, first name, gender, birth year, resulting in 108,782 matched entries.
2. Unmatched entries were linked a second time using license number, license type and birth year, resulting in an additional 2,493 matched entries.
3. The remaining unmatched entries were linked a third time on license number and license type, resulting in 1 more matched entry.

The charts below compare PR, Nursys® and Merged datasets on license type, age and gender to determine whether the Merged dataset is representative of PR.

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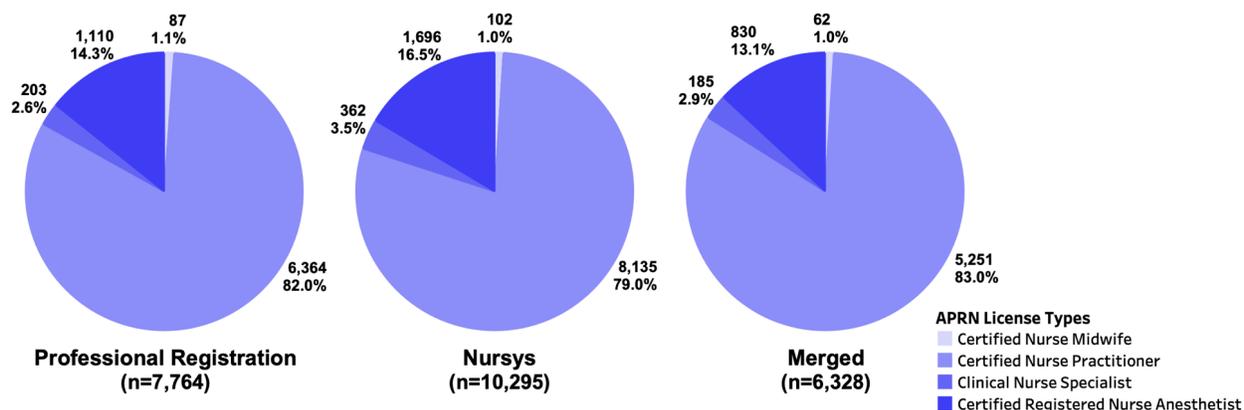
**4** | Pursuant to section 324.001.14(4), RSMo, all licensee/registrant data or records provided by the State Board of Nursing shall be deemed the property of the State Board of Nursing. Accordingly, this report and all data contained herein is the property of the State Board of Nursing and shall not be used without the express written permission of the State Board of Nursing.

## Number of Nurses by License Type



The chart above shows the proportion of LPNs, RNs and APRNs in the Professional Registration, Nursys® and Merged datasets. The proportion of RNs in the Nursys® population (81.9% compared to 76.3% in PR) is higher because RNs were required to enroll in Nursys® beginning in 2019. Licensed Practical Nurses (LPNs) are required to enroll beginning in 2020, and it is anticipated that the proportion of LPNs, RNs and APRNs will be nearly identical in PR, Nursys® and Merged datasets for the 2020 Missouri Nursing Workforce Report.

## APRN License Types for Nurses in Missouri, 2019



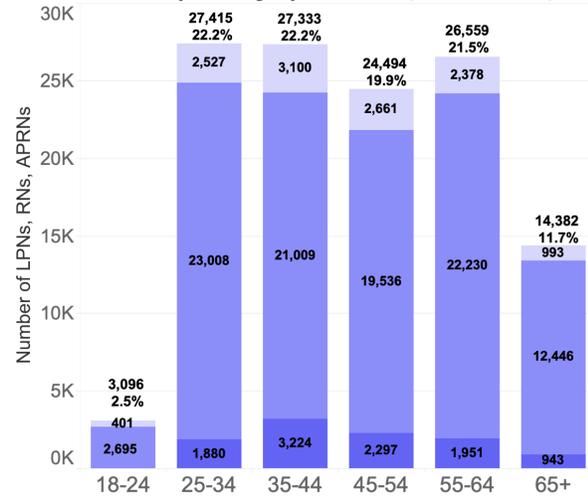
APRNs have four license types<sup>3</sup>: Certified Nurse Midwife (CNM), Certified Nurse Practitioner (CNP), Clinical Nurse Specialist (CNS) and Certified Registered Nurse Anesthetist (CRNA). The most common APRN license type in Missouri is Certified Nurse Practitioner, with 82% of APRNs in Professional Registration, 79.0% in Nursys®, and 83.0% in the Merged dataset.

In all three datasets, over three-quarters of Missouri nurses are RNs, and APRNs are distributed similarly across CNM, CNP, CNS and CRNA. This demonstrates that the merged dataset is a representative sample of Missouri nurses in terms of license types.

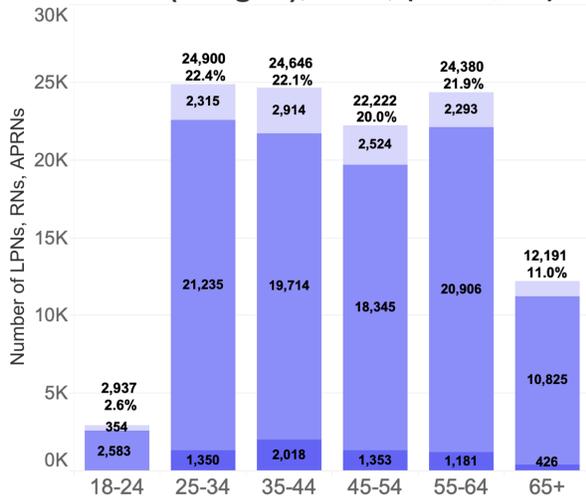
<sup>3</sup> APRN Consensus Work Group & National Council of State Boards of Nursing APRN Advisory Committee. (2008). *Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education*. National Council of State Boards.

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**Distribution of Ages for LPNs, RNs, APRNs in Missouri (Professional Registration), 2019, (n=130,993)**      **Distribution of Ages for LPNs, RNs, APRNs in Missouri (Nursys), 2019, (n=123,279)**



**Distribution of Ages for LPNs, RNs, APRNs in Missouri (Merged), 2019, (n=111,276)**

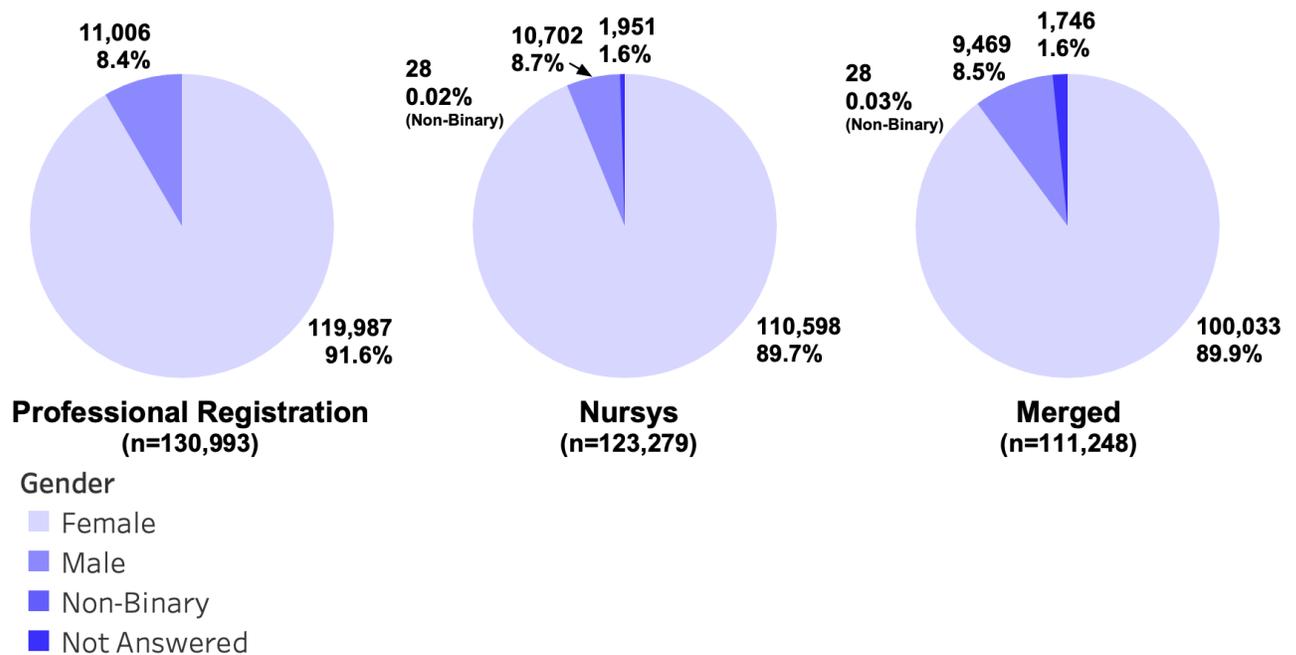


**License Types**  
 ■ LPN  
 ■ RN  
 ■ APRN

The age distribution for the Professional Registration, Nursys® and Merged datasets are nearly identical, with the exception of the 18-24 age cohort. This is likely due to LPNs comprising the largest license type in this age group. LPNs were not required to answer Nursys® questions during their renewal period in 2018 while RNs were required to answer in 2019. Since Nursys® questions will be required for the 2020 LPN renewal period, we anticipate that the age groups will be equivalent in all three datasets for the *2020 Missouri Nursing Workforce Report*.

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## Gender of LPNs, RNs, APRNs in Missouri, 2019



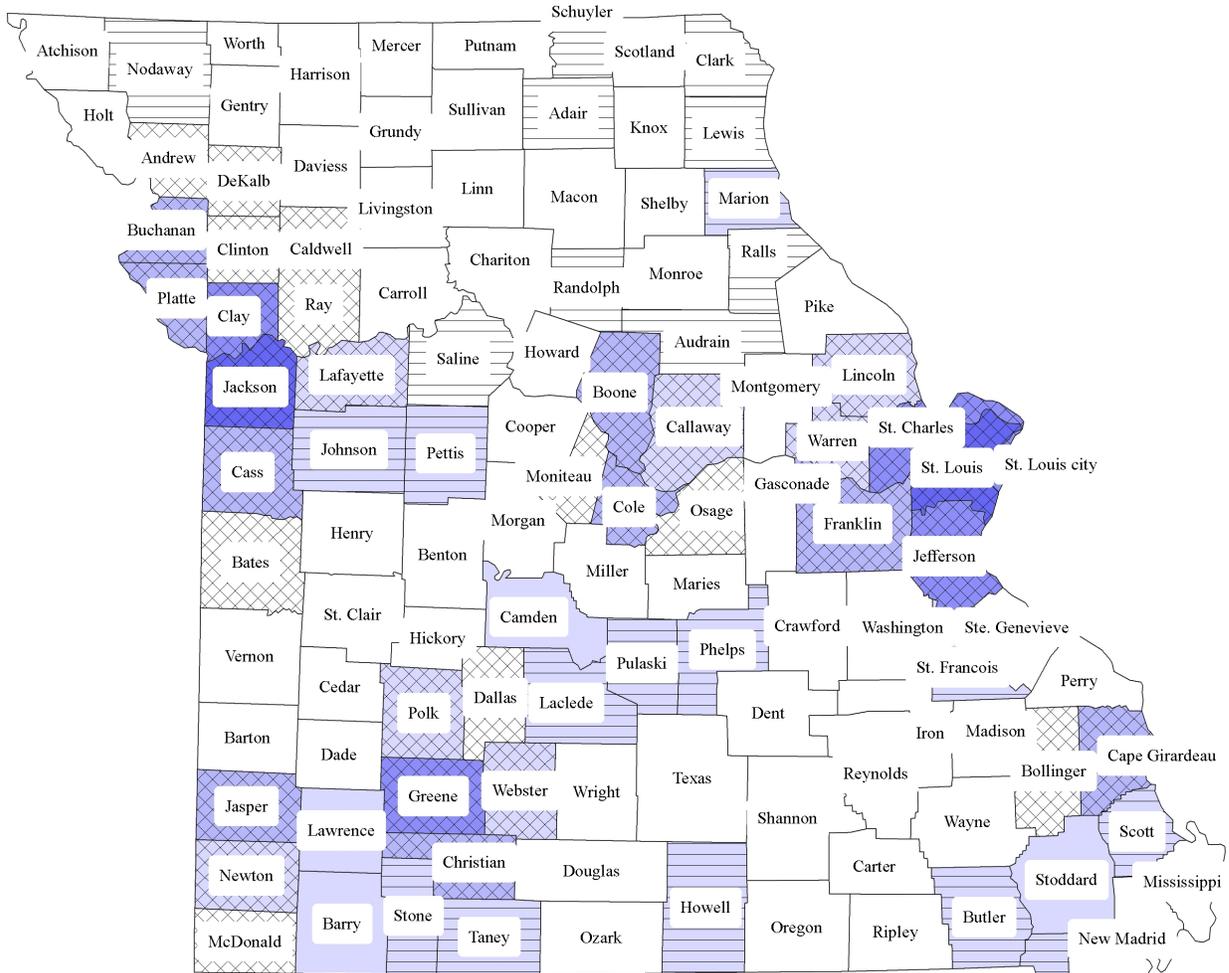
Gender questions are asked differently by Professional Registration (PR) and Nursys®. In PR, licensees declare either female or male. In Nursys®, respondents are also able to identify as non-binary, resulting in 28 nurses or 0.02% of the Nursys® population and 0.03% of the Merged population in this category. An additional 1,951 (1.6%) Nursys® respondents and 1,746 (1.6%) of the Merged population skipped the question.

In terms of female and male distribution, all three datasets have nearly the same gender distribution, with females comprising between 89.7% (Nursys®) and 91.6% (Professional Registration) of Missouri’s nurses, further demonstrating the representativeness of the Merged dataset (89.9% female).

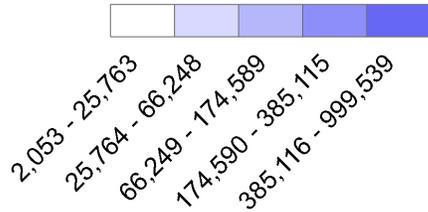
Based on the examination of license type, age and gender, it is clear that the Merged dataset is a representative sample of Missouri’s nurses. The remainder of this report utilizes the Merged dataset (n=111,276), which provides the most comprehensive data on Missouri’s nursing workforce ever available.

# Reference Map

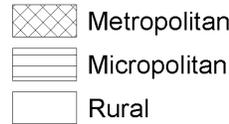
## Missouri Population by County



### Population Estimate (2013-2017)



### CBSA



Source: American Community Survey, 2013-2017  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: December 19, 2019

## Geographic Distribution

Like most of the United States, rural areas in Missouri face challenges meeting the demand for healthcare services. The following geographic analysis provides a series of maps and charts to learn more about the geographic distribution of nurses across the state.

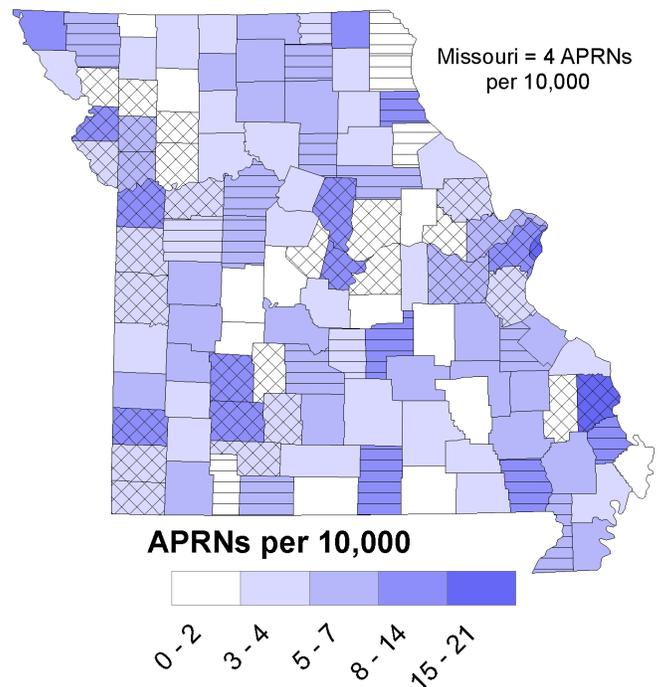
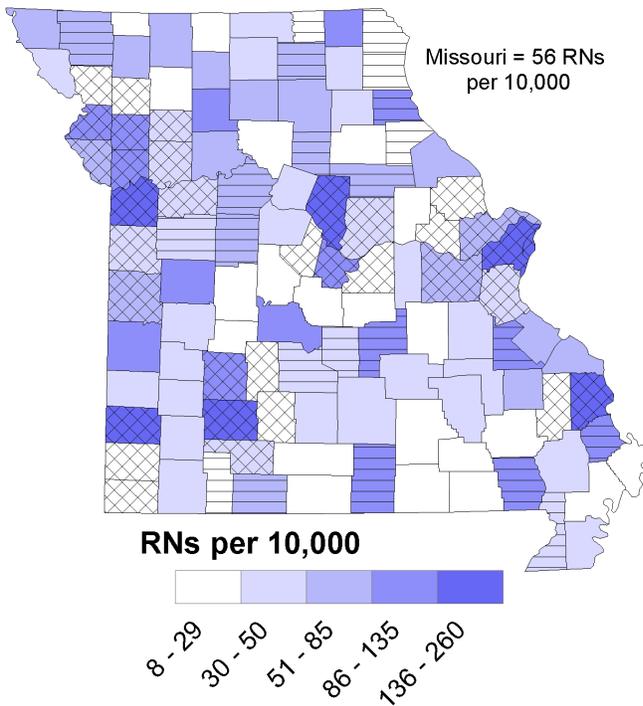
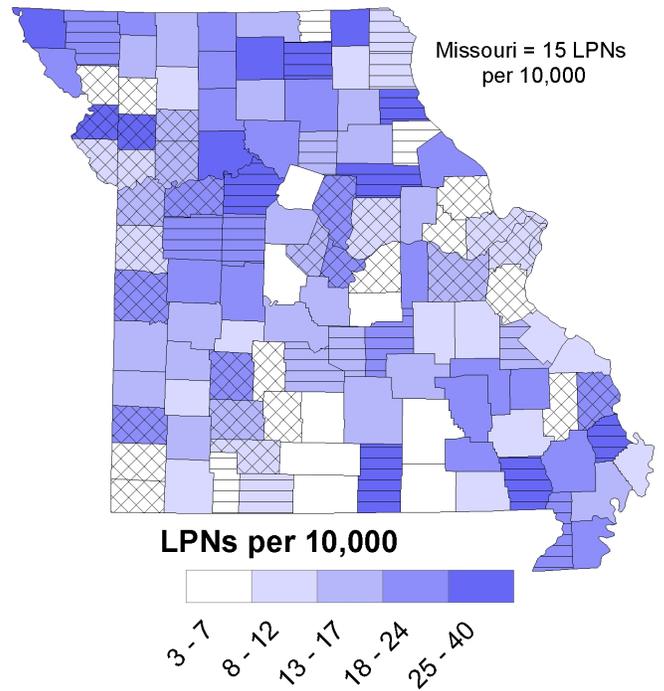
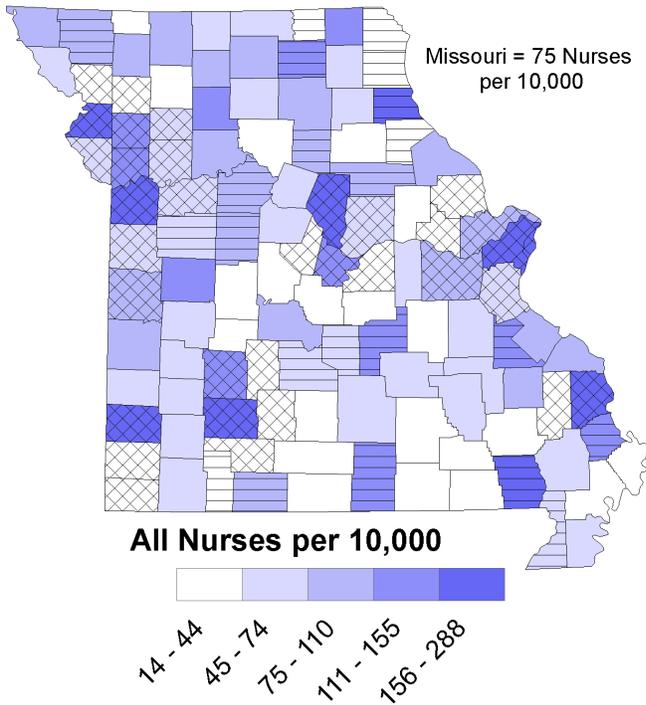
Maps include data grouped into 5 categories, known as quintiles, to show nurse distribution at the county level. Counties with no shading or lighter shading have lower rates of nurses per 10,000 residents; counties with darker shading have higher rates. Nurses per 10,000 residents is a ratio that norms for population density at the county level. While many Missouri counties have fewer than 10,000 residents, this ratio allows comparisons among counties with different populations, much like “percent” ratios (i.e. “per 100”).

Quintiles are created using the Jenks Natural Breaks method within ArcGIS Pro mapping software. This method uses an algorithm to create quintiles that best group similar values in the Merged dataset and maximize the differences between quintiles.

The maps also indicate core-based statistical areas (CBSAs), geographic areas defined by the U.S. Office of Management and Budget (OMB). A CBSA includes one or more counties (or county-equivalents like the City of St. Louis) anchored by an urban center plus the adjacent counties that are socioeconomically tied to the urban center by commuting. Metropolitan areas, shown with a diamond pattern on the maps below, have an urban center with more than 50,000 residents. Micropolitan areas have an urban center between 10,000-50,000 residents and are designated with horizontal lines on the maps below. For the purposes of this report, counties without a CBSA are defined as rural, and have a solid background on the maps.

In general, the maps below indicate that rural counties have lower rates of nurses per 10,000 residents than their metropolitan and micropolitan counterparts. This aligns with our knowledge of Health Professional Shortage Areas, defined by the U.S. Health Resources and Services Administration (HRSA). This pattern is consistent for both the county of employment and the county of residence. Of potential concern for meeting primary care needs in rural areas, there are low rates of APRNs employed in rural Missouri counties (4 APRNs per 10,000 residents) compared to micropolitan (5 per 10,000 residents) and metropolitan (6 per 10,000 residents).

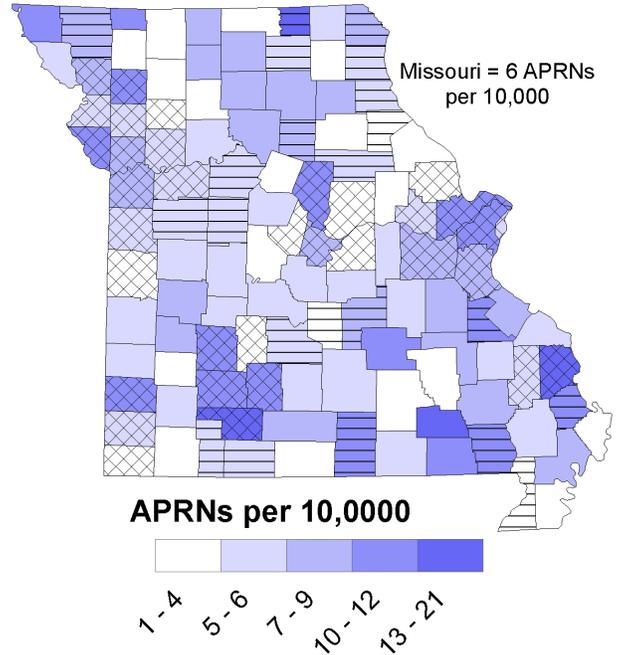
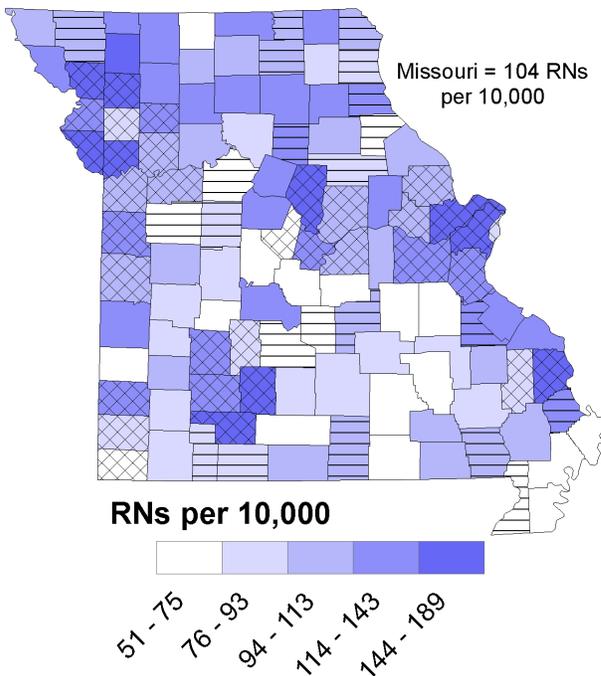
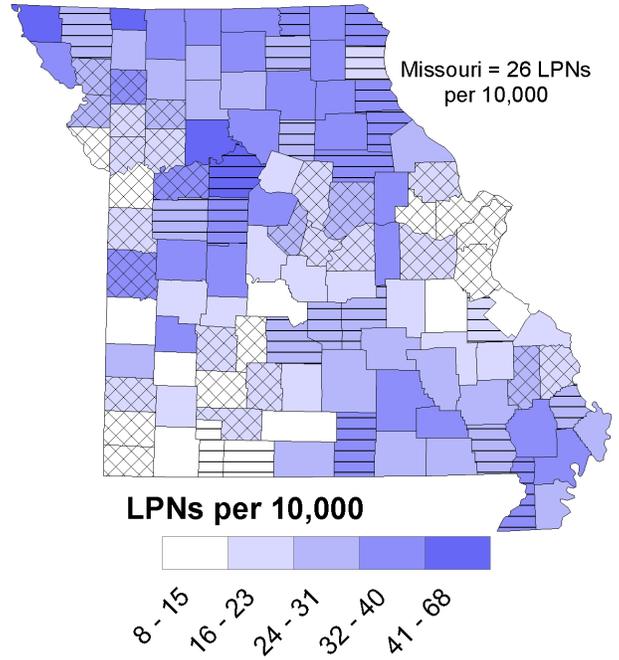
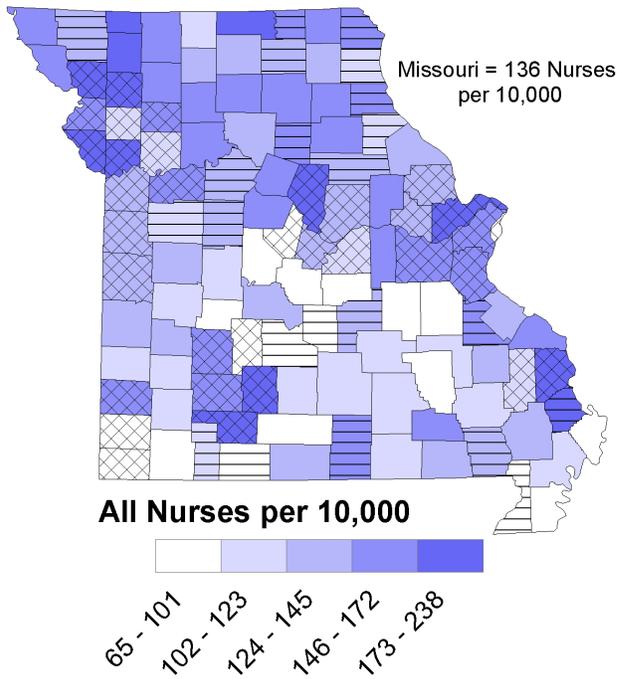
# County of Employment



 Metropolitan
  Micropolitan
  Rural

Source: Nursys, 1/1/2017-8/29/2019  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: December 12, 2019

# County of Residence



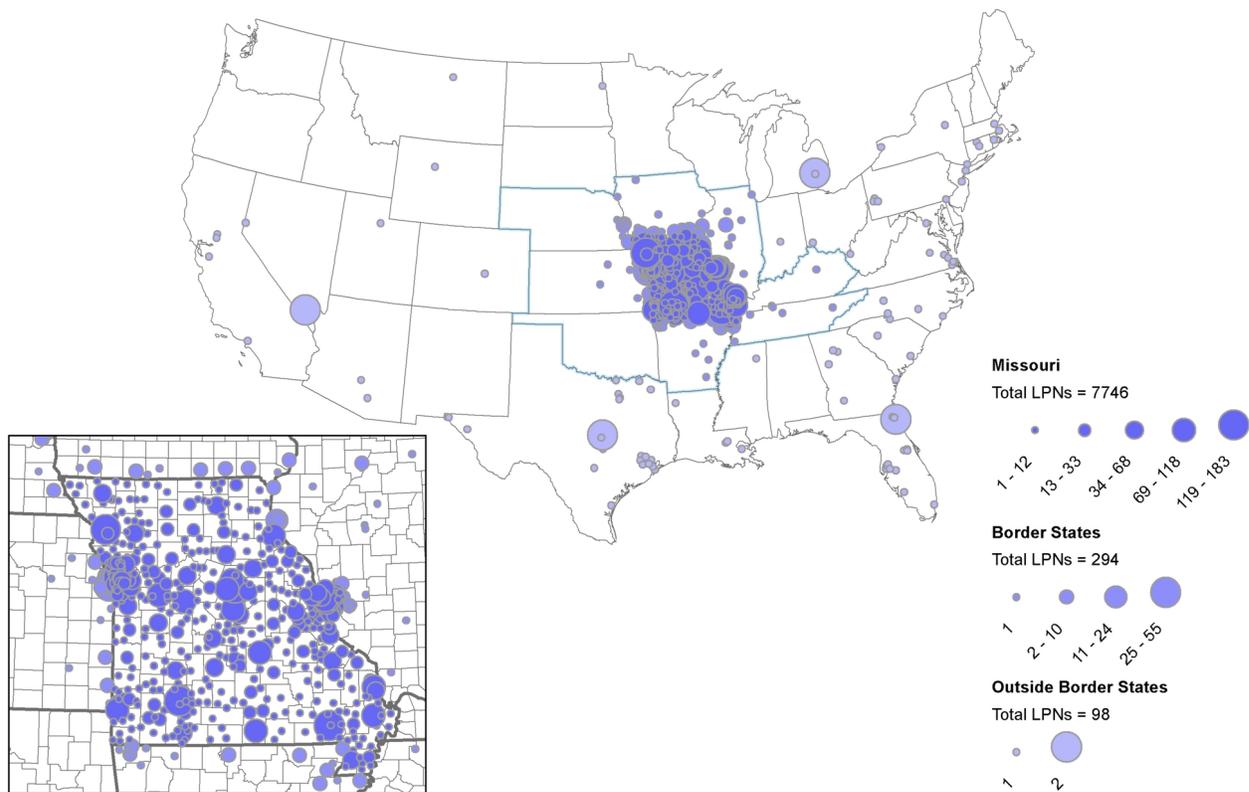
 Metropolitan
  Micropolitan
  Rural

Source: Missouri Division of Professional Registration, 2019  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: December 13, 2019

## Employment ZIP Code for Nurses Living in Missouri

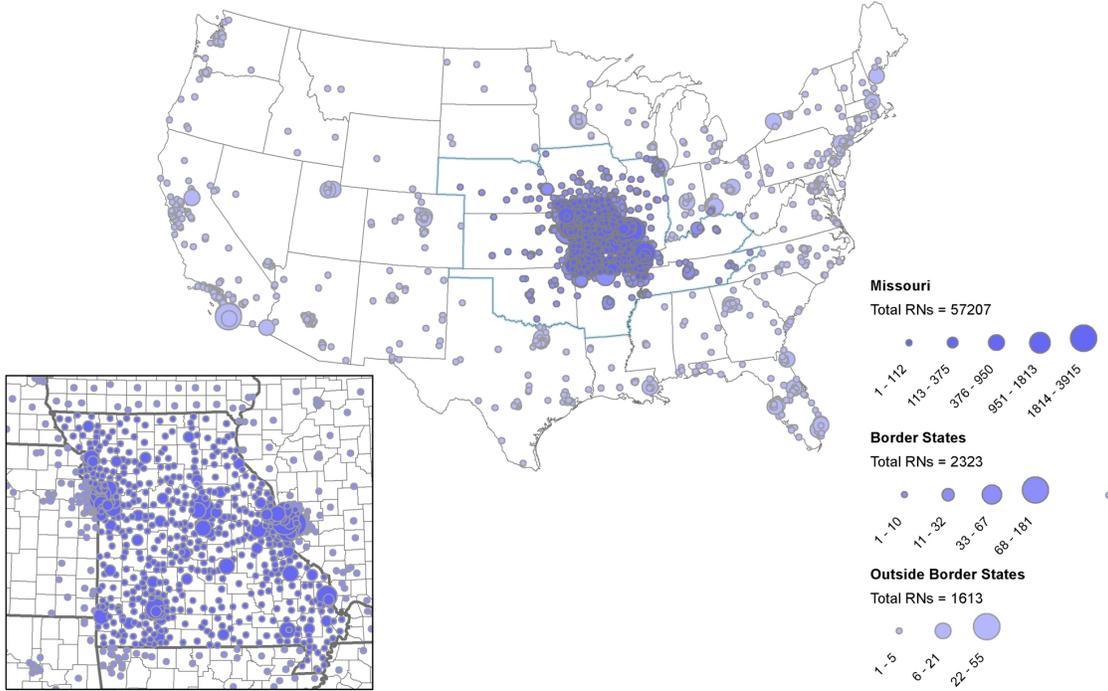
The next series of maps provides the employment ZIP codes for LPNs, RNs and APRNs who reside in Missouri. The majority of all three groups of nurses both work and live in Missouri, including 7,746 LPNs; 57,207 RNs and 4,481 APRNs. Those who live in Missouri but have an employment ZIP code outside Missouri are most likely to work in a border state (294 LPNs; 2,323 RNs and 213 APRNs), particularly within the Kansas City and St. Louis metropolitan regions. There are a small number of each type of nurse with employment ZIP codes outside the border states, including 98 LPNs; 1,613 RNs and 104 APRNs.

### Employment ZIP Code of all Licensed Practical Nurses whose Residence is in Missouri



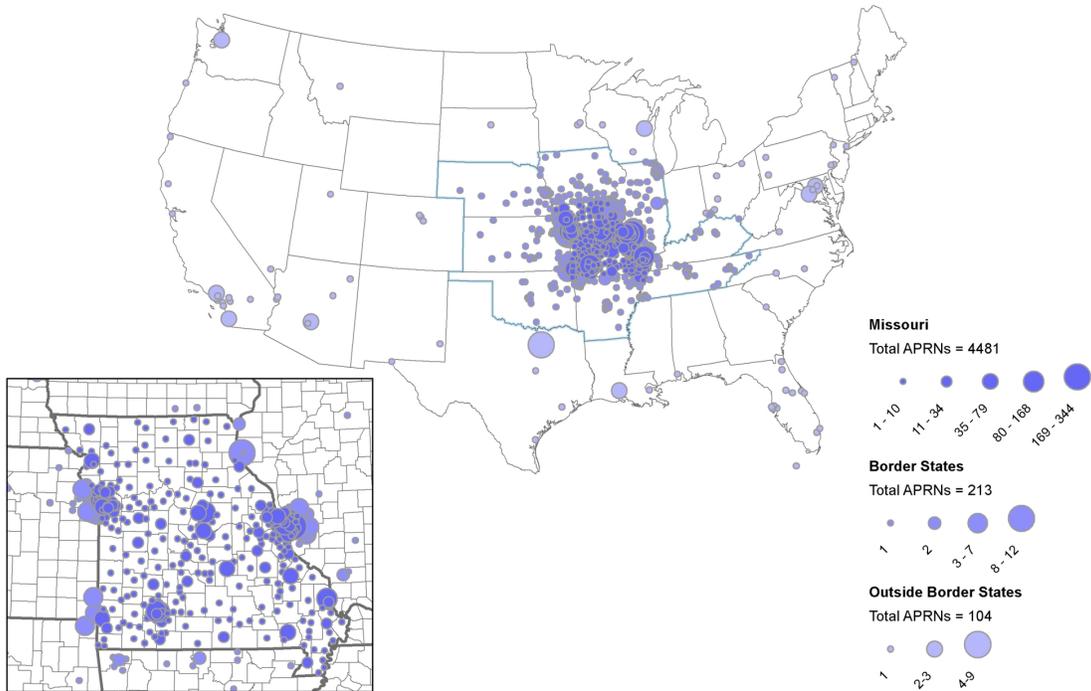
Source: Missouri Division of Professional Registration, 2019; Nursys, 1/1/2017-8/29/2019  
Created by: Center for Health Policy, University of Missouri  
Generated on: December 20, 2019

## Employment ZIP Code of all Registered Nurses whose Residence is in Missouri



Source: Missouri Division of Professional Registration, 2019; Nursys, 1/1/2017-8/29/2019  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: December 20, 2019

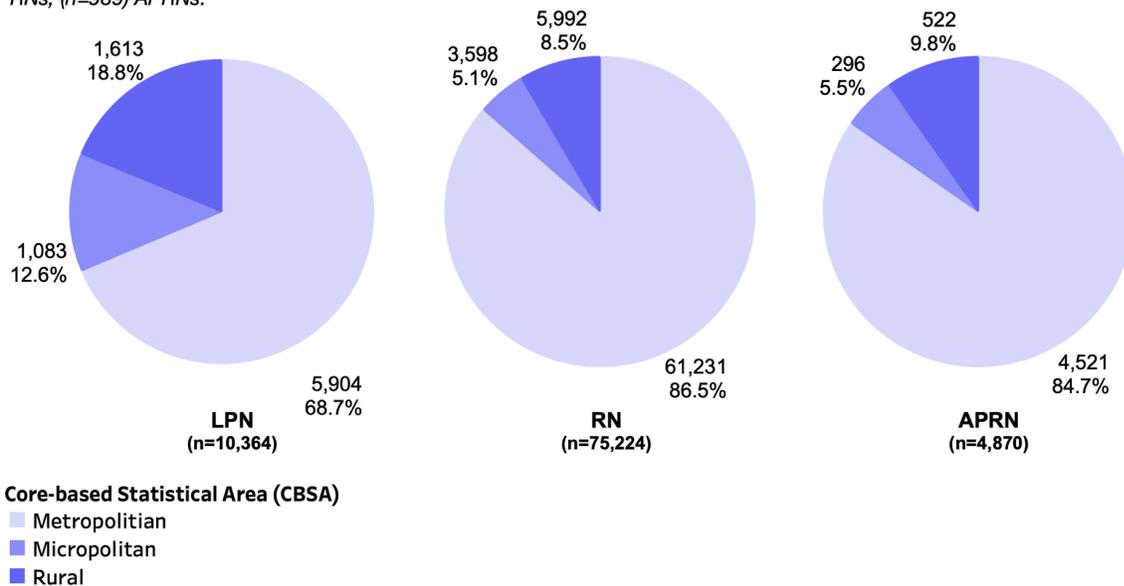
## Employment ZIP Code of all Advanced Practice Registered Nurses whose Residence is in Missouri



Source: Missouri Division of Professional Registration, 2019; Nursys, 1/1/2017-8/29/2019  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: December 20, 2019

## Employment of LPNs, RNs and APRNs in Metropolitan, Micropolitan or Rural Counties in Missouri and Adjacent Counties, 2019, (n=84,760)

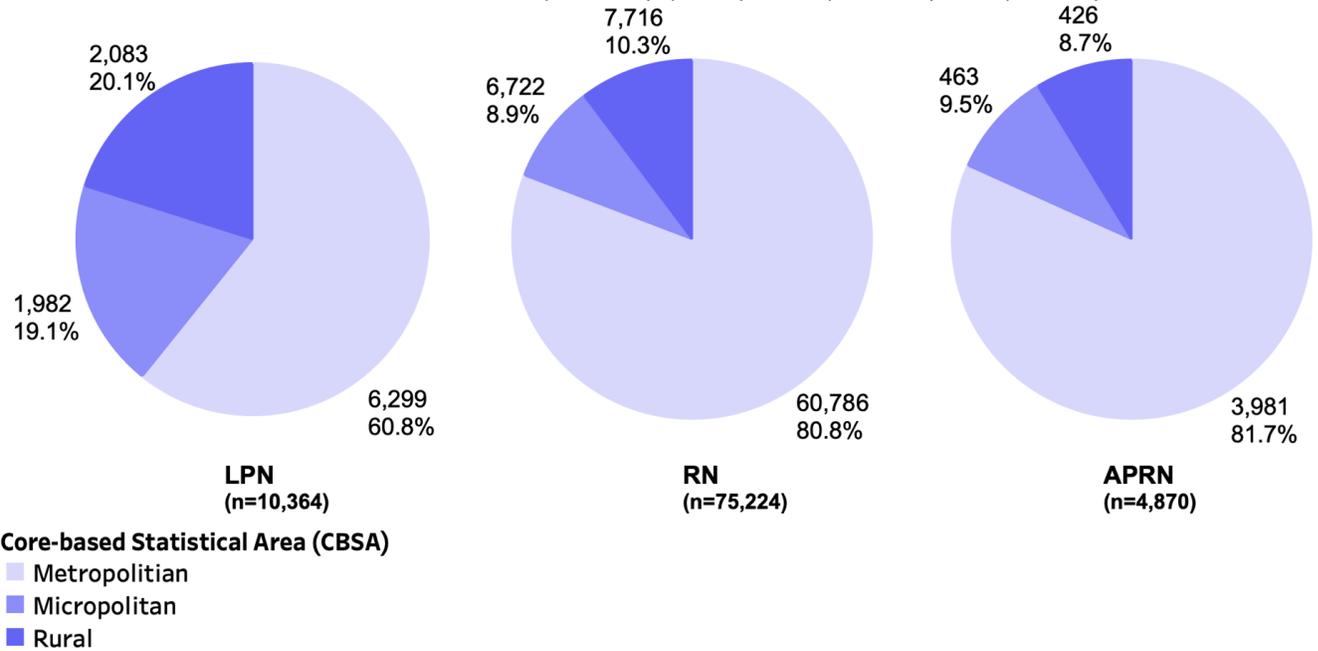
Does not include nurses who are employed outside of Missouri or adjacent counties (n=26,516); (n=2,740) LPNs; (n=22,787) RNs; (n=989) APRNs.



- While there are many nurses with a Missouri license and an out-of-state employment county, the majority of these are located in out-of-state counties adjacent to Missouri. The chart above reports the number and percent of LPNs, RNs and APRNs who work in metropolitan, micropolitan or rural counties in Missouri or adjacent counties (n=84,760).
- The majority of nurses work in metropolitan counties in Missouri or adjacent counties.
  - Over two-thirds of LPNs (68.7% or 5,904) and around 85% of both RNs (86.5% or 61,231) and APRNs (84.7% or 4,521) work in metropolitan counties.
- The maps above indicate that rural Missouri counties have lower rates of nurses per 10,000 residents than micropolitan and metropolitan areas. The overall rate of nurses per 10,000 residents is 60 in rural counties, 88 in micropolitan counties and 92 in metropolitan counties.
  - The percent of nurses working in micropolitan counties is lower than rural counties for all nurse types due to the small number of Missouri counties defined as micropolitan.
  - The rate of nurses per 10,000 residents is relatively similar for micropolitan and metropolitan counties (88 and 92, respectively), indicating that the shortage of nurses is most prevalent in rural Missouri counties.
- While the majority of Missouri counties are defined as rural by their Core Based Statistical Area, there appear to be fewer employment opportunities for LPNs, RNs and APRNs than in metropolitan and micropolitan counties.
- The low number of nurses employed in rural counties often coincides with a shortage of health care providers and facilities, including hospitals, urgent care and other health care services.

## Residence of LPNs, RNs, and APRNs in Metropolitan, Micropolitan, or Rural Counties in Missouri, 2019, (n=90,458)

Does not include nurses who live outside Missouri (n=20,818); (n=976) LPNs; (n=18,384) RNs; (n=1,458) APRNs.



- While county of employment is available for all nurses licensed in Missouri, county of residence is only available for those living in Missouri. A total of 20,818 nurses licensed in Missouri live outside state borders. Based on data available for employment county, it is likely that many of these nurses live in counties adjacent to Missouri.
- Among nurses living in Missouri, the majority live in metropolitan counties, including 60.8% or 6,299 LPNs; 80.8% or 60,786 RNs; and 81.7% or 3,981 APRNs.
  - The higher proportion of LPNs living in rural areas aligns with their employment setting: the largest group of LPNs works in nursing homes, extended care and assisted living facilities, many of which are located in rural areas.
  - With just 8.7% of APRNs living in rural areas, filling the demand for primary care providers in rural areas of the state may remain a challenge.

## Age Distribution

In general, the nursing workforce is well distributed among age cohorts, and the average age of nurses in each license type is similar, with LPNs averaging 45.7, RNs 46.7 and APRNs 45.4. The largest age cohort for both LPNs and APRNs is 35-44 years old, while the largest cohort for RNs is 25-34. Of potential concern for the future of Missouri's RN workforce, over one-third of RNs (33.9% or 31,731) are age 55 and older, and may be retired or thinking about retiring in the near future.

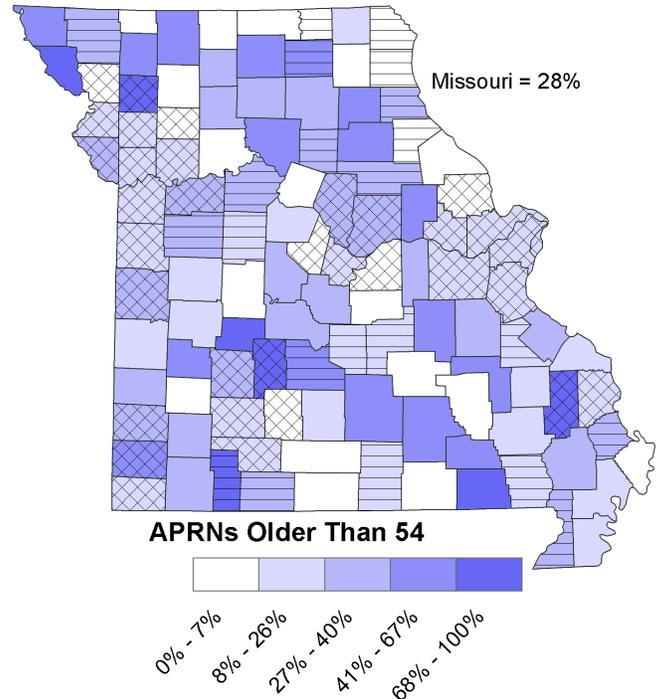
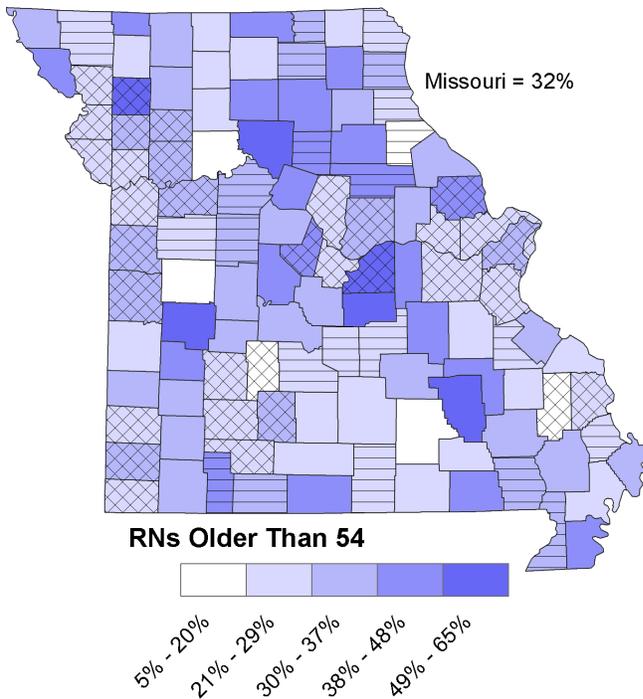
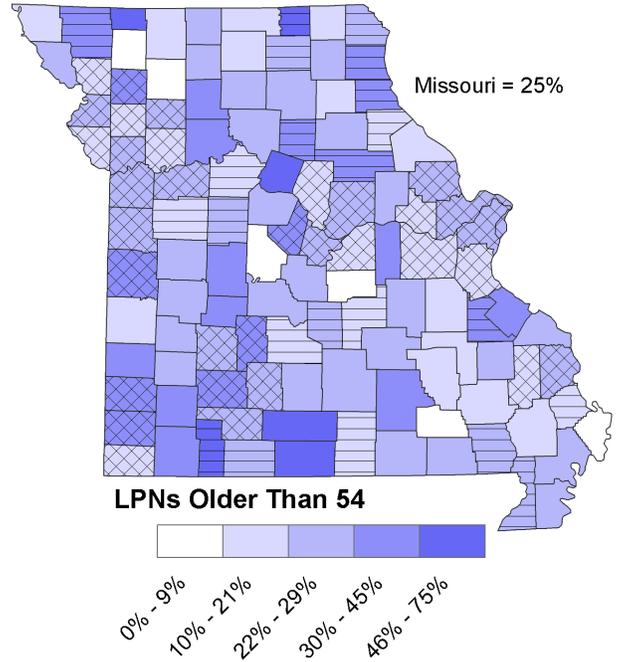
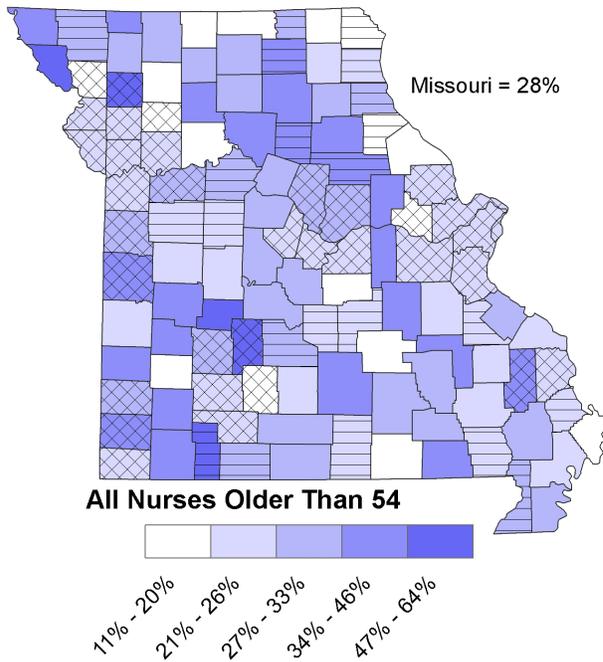
A series of maps on the county of employment for nurses older than 54 is provided to demonstrate where the nursing workforce is near retirement age in Missouri. Some counties, such as Dallas, DeKalb, Hickory, Holt and Stone, have more than half of their nurse workforce over the age of 54, ranging from 51% in Dallas County to 64% in DeKalb County.

Maps include data grouped into 5 categories, known as quintiles, to show the percent of nurses who are over the age of 54 by all nurses and each nursing license type. Counties with no shading or lighter shading have lower percentages of nurses over age 54; counties with darker shading have higher percentages of nurses over 54.

Quintiles are created using the Jenks Natural Breaks method within ArcGIS Pro mapping software. This method uses an algorithm to create quintiles that best group similar values in the Merged dataset and maximize the differences between quintiles.

The maps also indicate core-based statistical areas (CBSAs), geographic areas defined by the U.S. Office of Management and Budget (OMB). A CBSA includes one or more counties (or county-equivalents like the City of St. Louis) anchored by an urban center plus the adjacent counties that are socioeconomically tied to the urban center by commuting. Metropolitan areas, shown with a diamond pattern on the maps below, have an urban center with more than 50,000 residents. Micropolitan areas have an urban center between 10,000-50,000 residents and are designated with horizontal lines on the maps below. For the purposes of this report, counties without a CBSA are defined as rural and have a solid background on the maps.

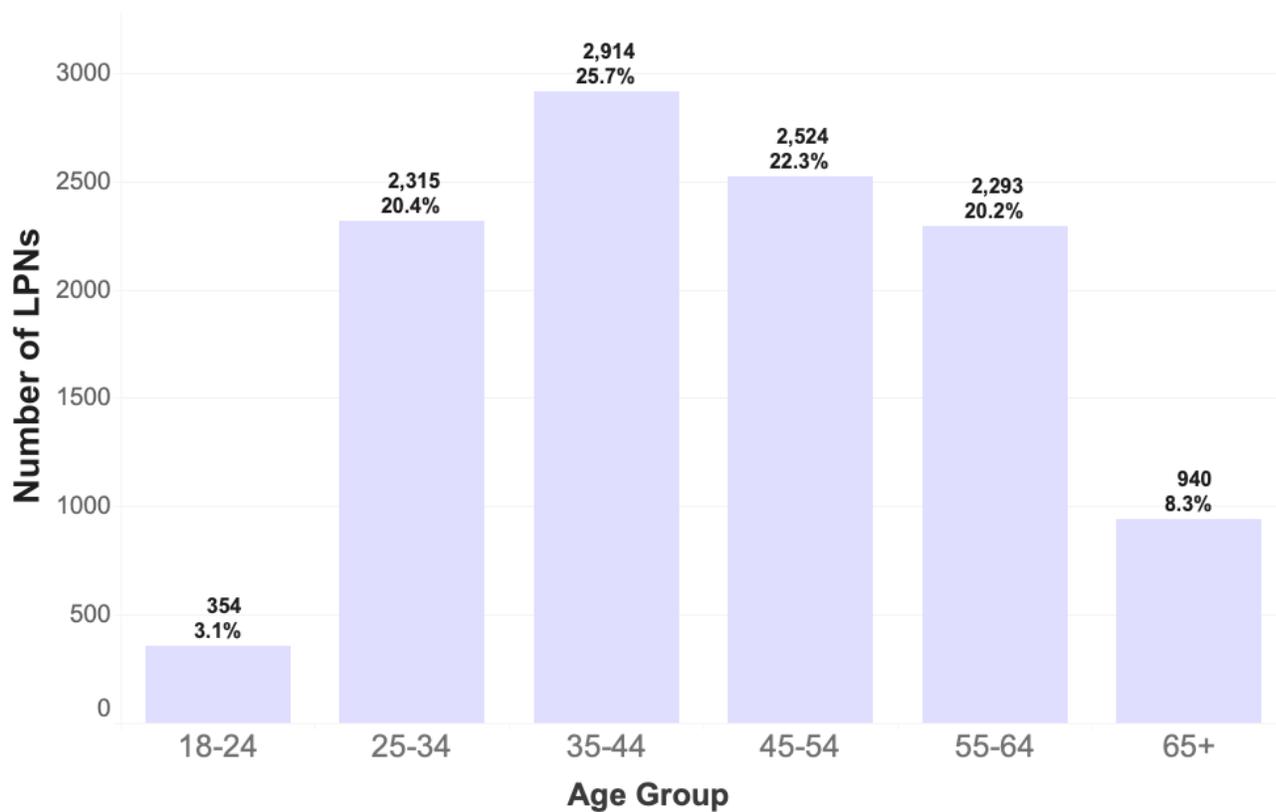
# Percent of Nurses Older Than 54 Years by County of Employment



Metropolitan
 Micropolitan
 Rural

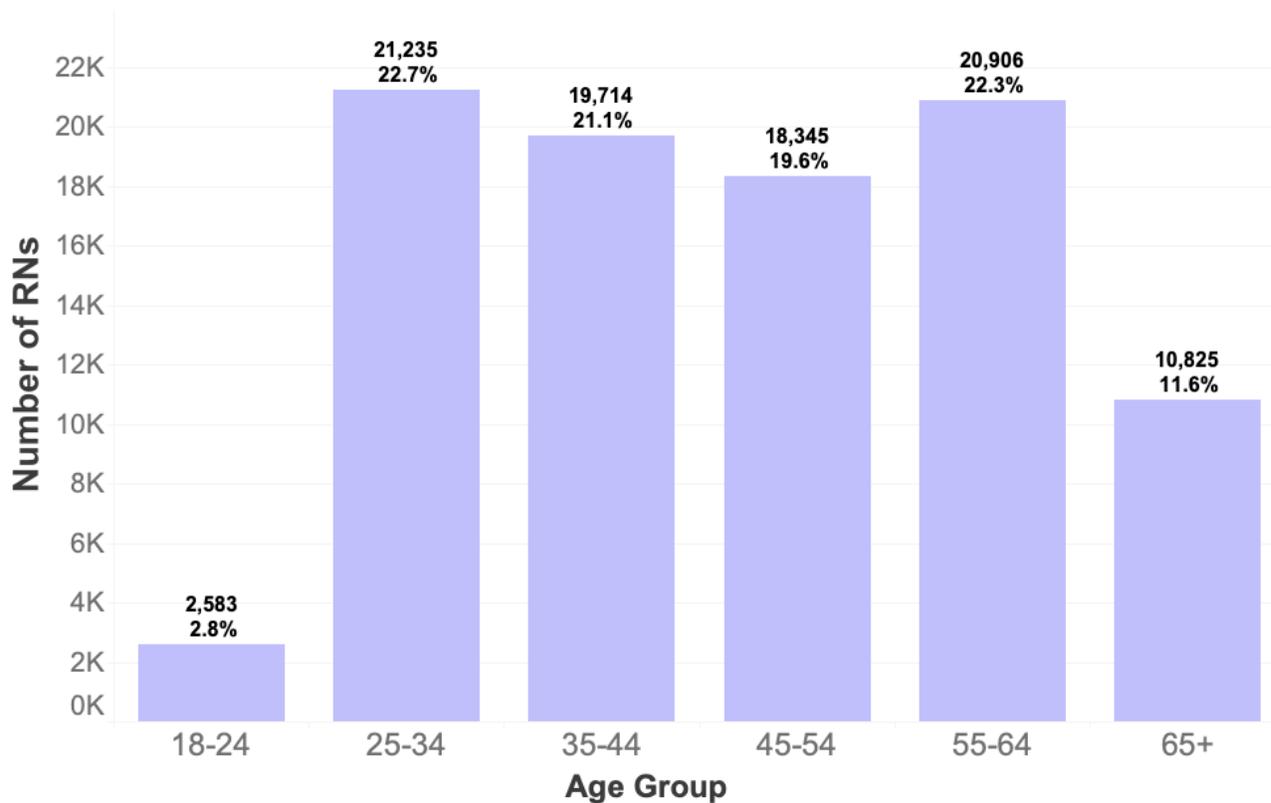
Source: Nursys, 1/1/2017-8/29/2019  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: December 13, 2019

## Distribution of Ages for LPNs in Missouri, 2019, (n=11,340)



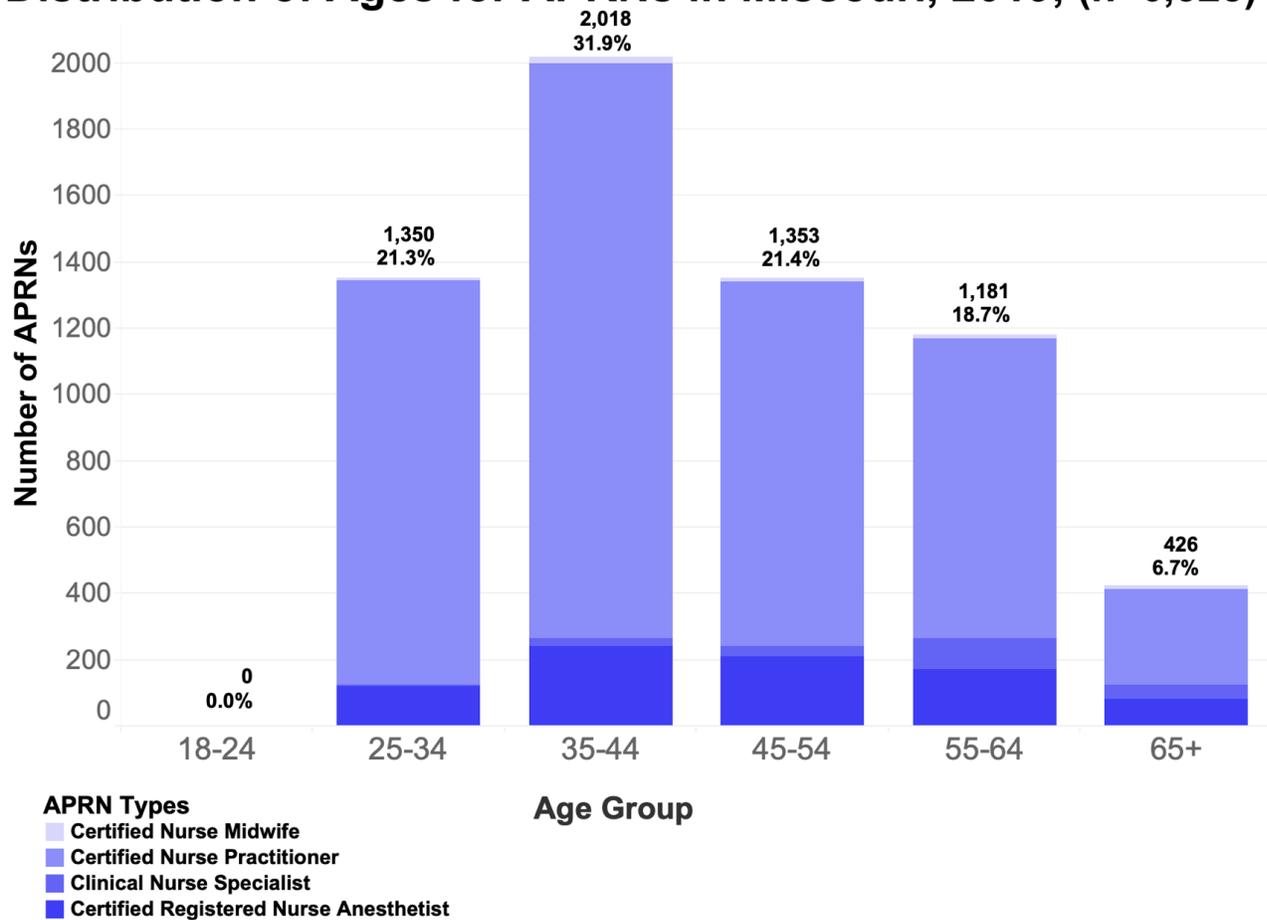
- Licensed Practical Nurses (LPNs) are relatively evenly distributed between the age cohorts 25-34, 35-44, 45-54 and 55-64.
  - While the largest age cohort includes LPNs aged 35-44 (25.7% or 2,914), cohorts aged 25-34 (20.4% or 2,315), 45-54 (22.3% or 2,524) and 55-64 (20.2% or 2,293) are all around one-fifth of the LPN population.
- The youngest age cohort, aged 18-24, has the fewest LPNs with 3.1% or 354.
- LPNs age 65 and older are also a small cohort, with 8.3% of the LPN population, or 940 LPNs.

## Distribution of Ages for RNs in Missouri, 2019, (n=93,608)



- Like LPNs, RNs are relatively evenly distributed between age cohorts 25-34, 35-44, 45-54 and 55-64. Each of these groups has about one-fifth of the RN population.
- The largest age group of RNs are those aged 25-34. They comprise 22.7% or 21,235 of Missouri's RNs.
- Of concern for the future of Missouri's RN workforce, over one-third of RNs (33.9% or 31,731) are age 55 and older, and may be retired or thinking about retiring in the near future.

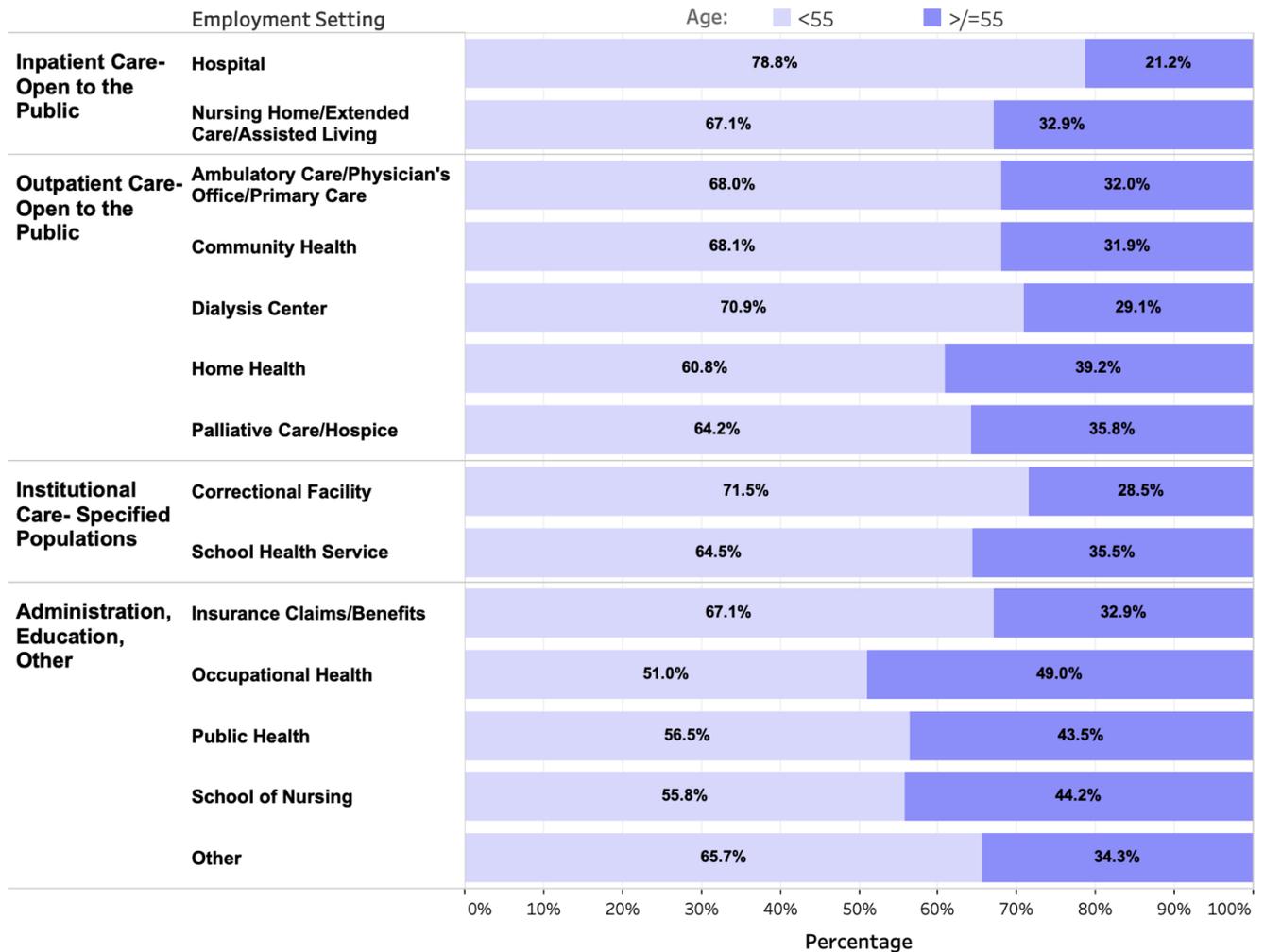
## Distribution of Ages for APRNs in Missouri, 2019, (n=6,328)



- The chart above shows the overall number and percent of Advanced Practice Registered Nurses (APRNs) in each of the age groups. APRN certifications comprising the overall population of APRNs, including Certified Nurse Midwife, Certified Nurse Practitioner, Clinical Nurse Specialist and Certified Registered Nurse Anesthetist, are shown in different shades of blue.
- The largest age group of APRNs are those aged 35 to 44, comprising nearly one-third (31.9% or 2,018).
- There are no APRNs under the age of 25 in Missouri, likely due to the higher levels of education required.

## Percentage of LPNs, RNs, and APRNs by Age: 54 and Younger and 55 and Older, 2019, (n=93,551)

Does not include nurses who did not report their employment setting (n=17,725).



- The chart above is provided to give perspective on the the age distribution of nurses in all license types within each employment setting collected by the Nursys® survey.
  - Additional information on employment setting is provided later in this report.
- Employment settings with more than 40% of nurses age 55 and older include occupational health (49.0%), school of nursing (44.2%) and public health (43.5%).

## Gender Distribution

For the first time in 2019, Nursys® respondents are able to identify as non-binary, resulting in 28 nurses or 0.02% of the Nursys® population and 0.03% of the Merged population in this category. An additional 1,951 (1.6%) Nursys® respondents and 1,746 (1.6%) of the Merged population skipped the question. In order to protect privacy, data on non-binary people (n=28) and those who skipped the question (n=1,746) are removed from the charts below.

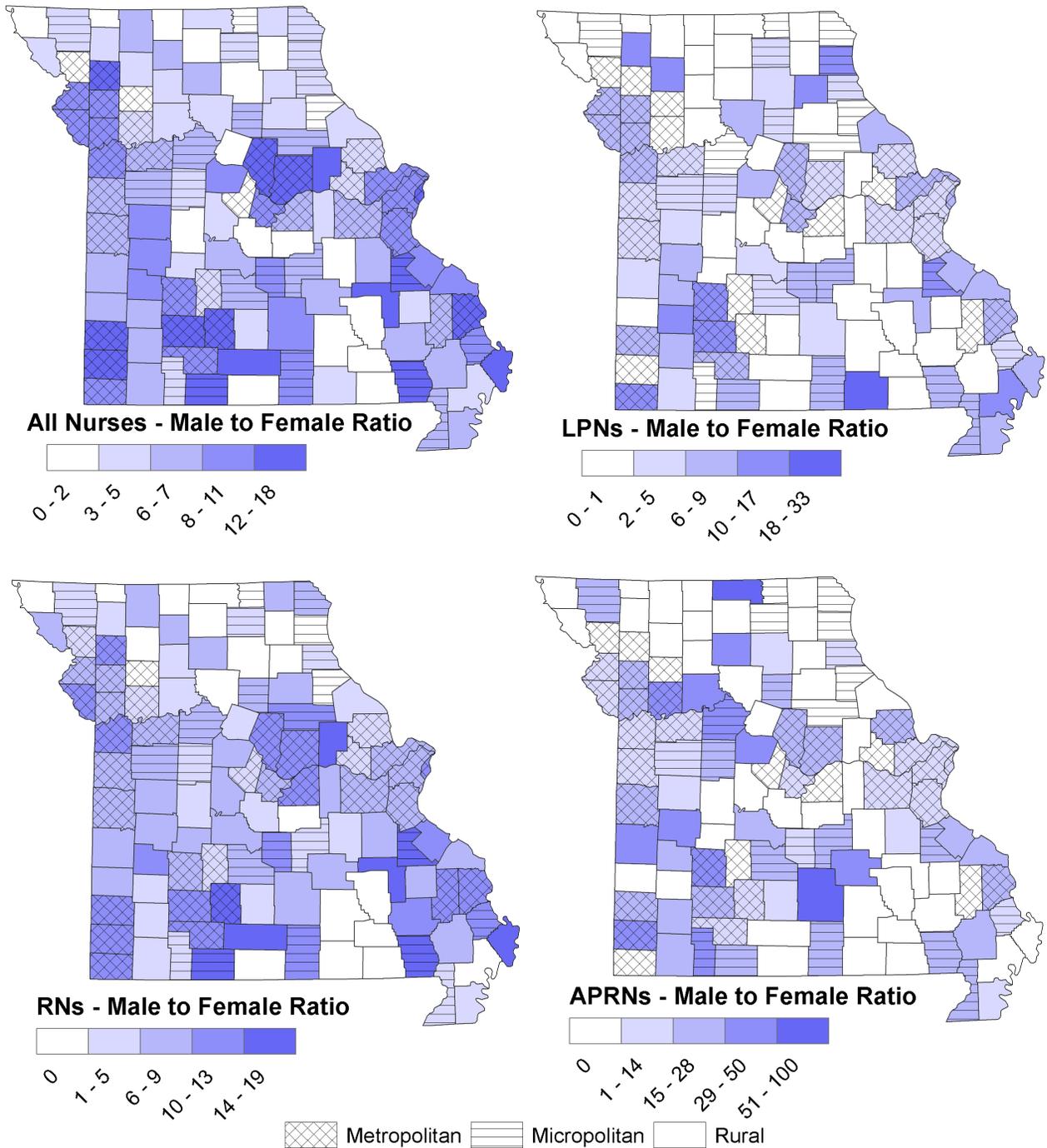
Analysis indicates that nursing continues to be a female-dominated profession, with about 90% of the workforce in Missouri identifying as female. APRNs are the license type with the highest proportion of males, including 12.6% or 778 nurses.

Maps include data grouped into 5 categories, known as quintiles, to show the ratio of male to 100 female nurses. Counties with no shading or lighter shading have the fewest male nurses relative to their female counterparts; counties with darker shading have more male nurses per 100 female nurses. When considering all license types, the highest male to female ratio is in Taney County, with a ratio of 18 male nurses for every 100 female nurses. The actual number of nurses in Taney County includes 67 male and 377 female nurses. According to the maps below, an even gender ratio (i.e. 100:100) exists in just two counties in Missouri, and only within the APRN license type: Putnam and Texas.

Quintiles are created using the Jenks Natural Breaks method within ArcGIS Pro mapping software. This method uses an algorithm to create quintiles that best group similar values in the Merged dataset and maximize the differences between quintiles.

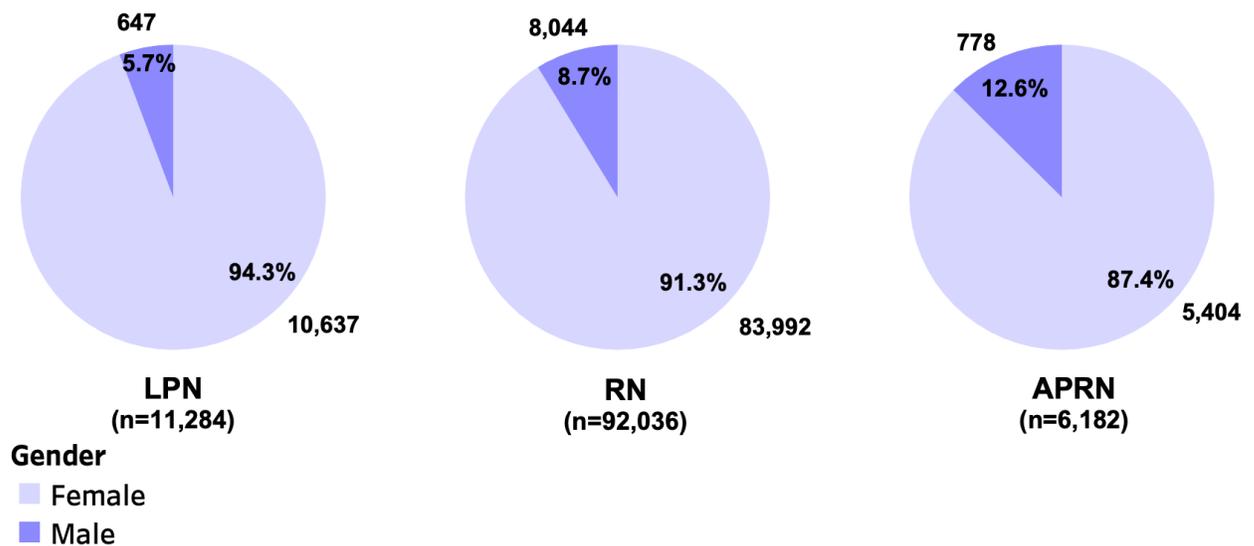
The maps also indicate core-based statistical areas (CBSAs), geographic areas defined by the U.S. Office of Management and Budget (OMB). A CBSA includes one or more counties (or county-equivalents like the City of St. Louis) anchored by an urban center plus the adjacent counties that are socioeconomically tied to the urban center by commuting. Metropolitan areas, shown with a diamond pattern on the maps below, have an urban center with more than 50,000 residents. Micropolitan areas have an urban center between 10,000-50,000 residents and are designated with horizontal lines on the maps below. For the purposes of this report, counties without a CBSA are defined as rural and have a solid background on the maps.

## Gender Ratio by County of Employment



Source: Nursys, 1/1/2017-8/29/2019  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: December 13, 2019

## Gender of LPNs, RNs, APRNs in Missouri, 2019, (n=109,502)



- Nursing continues to be a female-dominated profession: 94.3% of LPNs, 91.3% of RNs and 87.4% of APRNs are women.
- In order to protect privacy, data on non-binary people (n=28) and those who skipped the question (n=1,746) are removed from these charts.

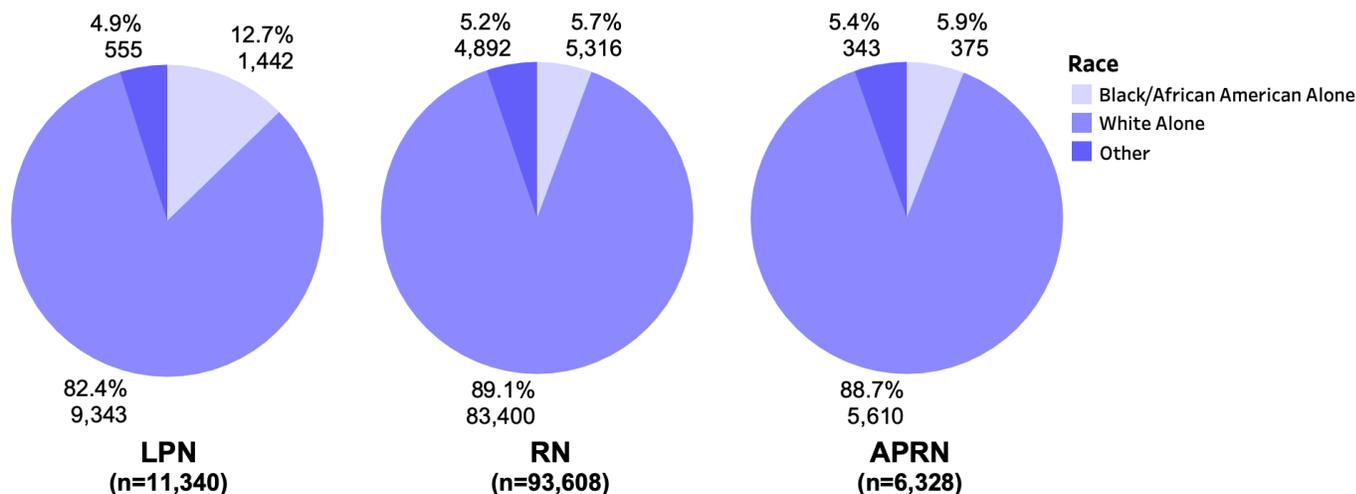
## Race and Ethnicity

In 2019, Nursys® aligned their collection of data on race and ethnicity with U.S. Census standards, which allow respondents to report multiple races and report their ethnicity as a separate category from race.

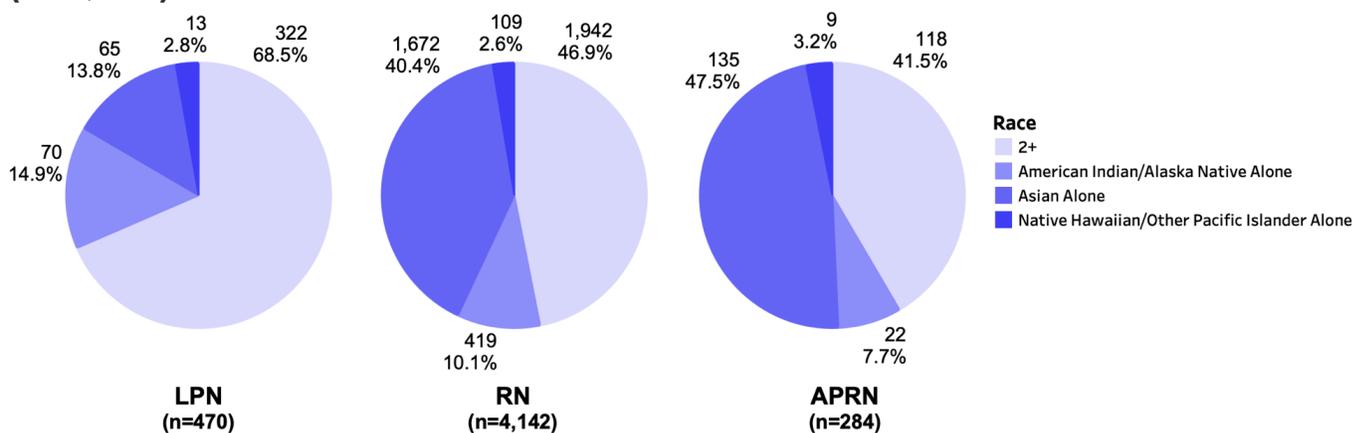
Race categories include African American, American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, Two or More Races and White. White Alone and African American Alone comprise the two largest categories of LPNs, RNs and APRNs in Missouri, and are reported along with “Other” on the charts below. The category of “Other” is detailed in a second chart, showing the distribution of nurses identifying with another race category. The largest group of LPNs and RNs among those included in “Other” declare Two or More races, with 68.5% or 322 for LPNs and 46.9% or 1,942 for RNs. The largest category with “Other” for APRNs is Asian with 47.5% or 135.

Ethnicity includes those who identify as Hispanic or Latinx, and those who do not. A small number of nurses in Missouri identify as Hispanic or Latinx, including 1.9% or 214 LPNs, 2.0% or 1,857 RNs and 1.7% or 108 APRNs. According to 2018 Population Estimates from the US Census Bureau, 4.3% of Missourians are Hispanic or Latinx, demonstrating that this ethnicity is underrepresented among nurses of all license types.

## Race of LPNs, RNs, APRNs in Missouri, 2019, (n=111,276)

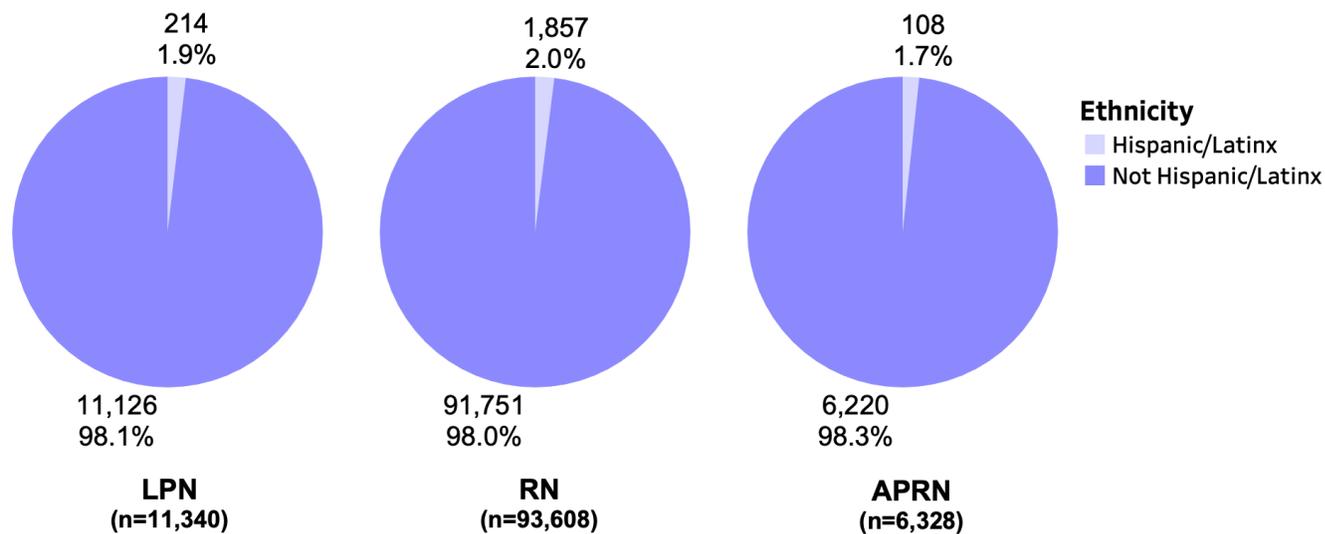


## Race of LPNs, RNs, APRNs in Missouri Represented in "Other," 2019, (n=4,896)



- The majority of Missouri nurses in all license types are White Alone, including 82.4% of LPNs, 89.1% of RNs and 88.7% of APRNs.
- According to 2018 Population Estimates from the US Census Bureau, 11.8% of Missourians are Black or African American Alone.
  - Blacks or African Americans are underrepresented among RNs and APRNs, which have 5.7% and 5.9% reporting their race as Black or African American Alone.
  - LPNs have a slightly higher Black or African American population (12.7% or 1,442) than the general Missouri population.
- "Other" includes American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, Two or More Races and Unknown, and comprise 4.9% or 555 LPNs, 5.2% or 4,892 RNs, and 5.4% or 343 APRNs.
  - The largest categories represented in "Other" are Two or More Races for LPNs (68.5% or 322) and RNs (46.9% or 1,942) and Asian for APRNs (47.5% or 135).

## Ethnicity of LPNs, RNs, APRNs in Missouri, 2019, (n=111,276)



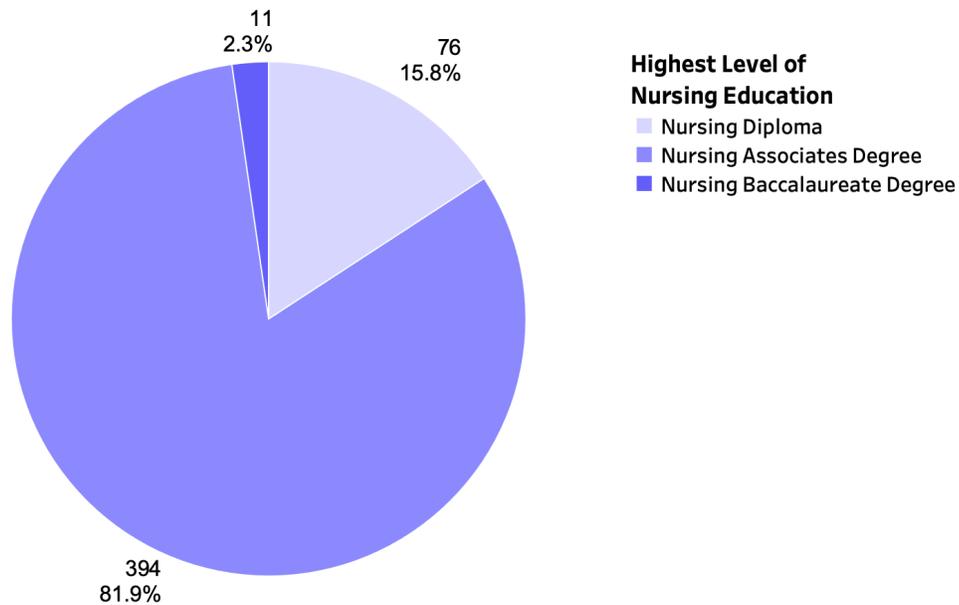
- A small percent of Missouri nurses are Hispanic or Latinx, including 1.9% or 214 LPNs, 2.0% or 1,857 RNs and 1.7% or 108 APRNs.
- According to 2018 Population Estimates from the US Census Bureau, 4.3% of Missourians are Hispanic or Latinx, indicating that this population is underrepresented among LPNs, RNs and APRNs in Missouri.

# Education

The Merged dataset includes multiple education measurements, including highest level of education, highest level of nursing education, and initial level of nursing education. Many nurses hold multiple degrees, both in nursing and other fields, and many nurses enter the field with one type of diploma or degree and add additional nursing degrees over time. The following analysis explores highest level of nursing education for LPNs, RNs and APRNs.

## Highest Level of Nursing Education of LPNs, 2019, (n=481)

Does not include LPNs who did not report their highest level of nursing education (n=10,159) or who selected "Other Degree" (n=700).



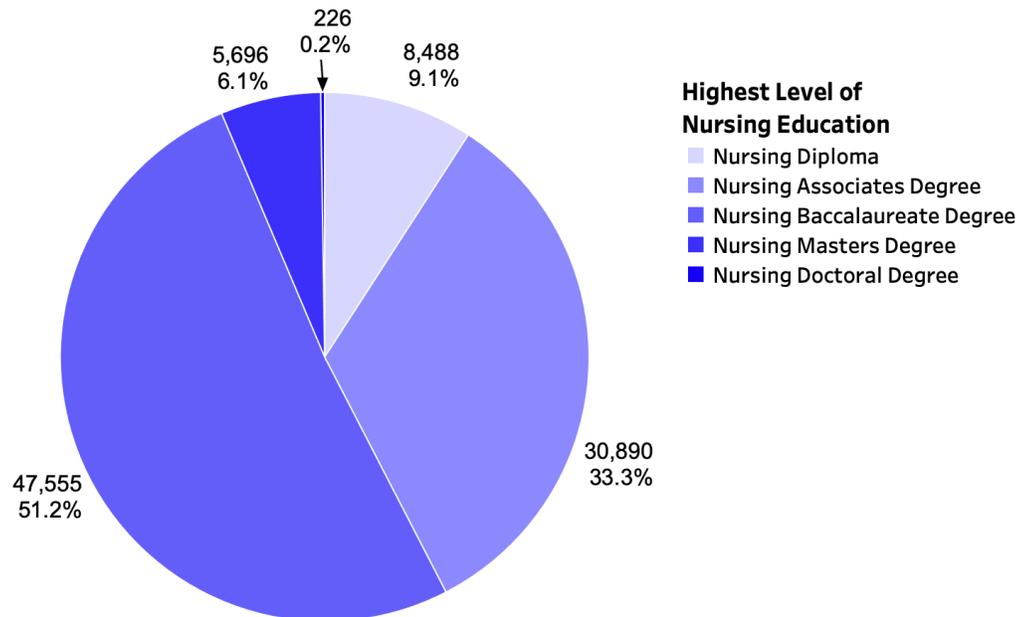
- This chart describes the highest level of nursing education for LPNs. A small percent of LPNs (4.5% or 482) reported their highest level of nursing education. Data on highest level of nursing education will improve after LPNs renew their licenses in 2020, requiring their participation in the Nursys® survey.
- Among those who report, LPNs are most likely to hold a Nursing Associates Degree (81.7% or 394), followed by 15.8% or 76 with a Nursing Diploma.<sup>4</sup>

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<sup>4</sup> Missouri law allows a person who has completed a RN program to obtain a LPN license after completing a course on the role of a LPN and passing the national LPN licensure exam. That may account for LPNs with a Nursing Baccalaureate Degree.

# Highest Level of Nursing Education of RNs, 2019, (n=92,855)

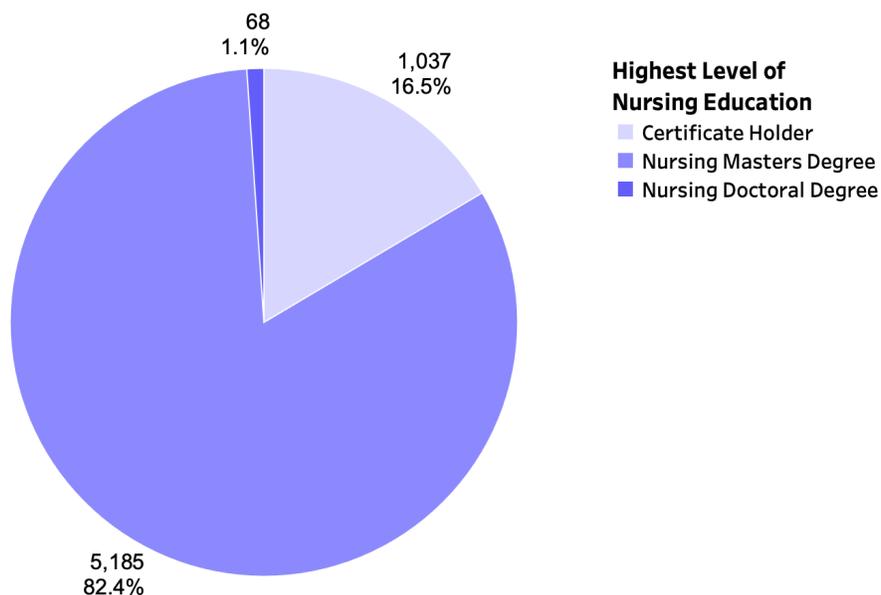
Does not include RNs who did not report their highest level of nursing education (n=616) or who selected "Other Degree" (n=137).



- Nearly all RNs (99.2% or 92,855) reported their highest level of nursing education in the Nursys® survey.
- More than half of RNs (51.2% or 47,555) report a Nursing Baccalaureate Degree as their highest level of nursing education.
- An additional one-third (33.3% or 30,890) hold a Nursing Associates Degree.

## Highest Level of Nursing Education for APRNs, 2019, (n=6,290)

Does not include APRNs who did not report their highest level of nursing education (n=38).

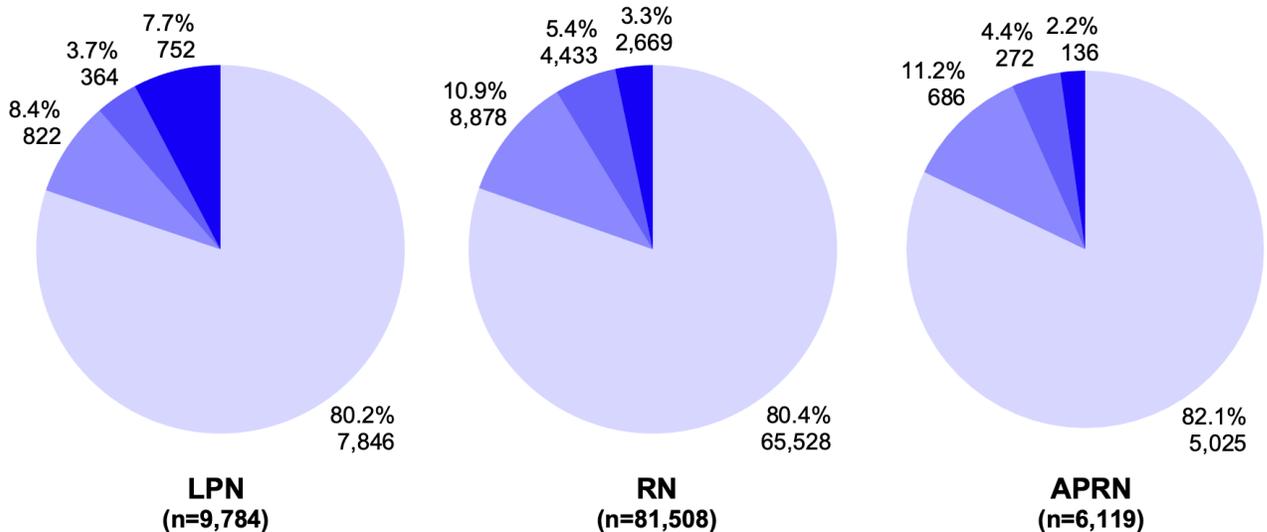


- The large majority of APRNs (82.4% or 5,185) hold a Nursing Masters Degree as their highest level of nursing education, which is the current requirement for initial APRN recognition in Missouri.
- A small percentage of APRNs are Certificate Holders (16.5% or 1,037). They are comprised of two groups:
  - APRNs who received recognition before new educational requirements were in place and are grandfathered in, or
  - APRNs whose initial recognition was received in another state and later applied for Missouri recognition.
- A small number of APRNs (68 or 1.1%) hold a Nursing Doctoral Degree as their highest level of nursing education.

## Employment Status

Employment status consists of whether nurses are working part-time, full-time or as a per diem employee; the number of nursing positions held; the number of hours they are working as a nurse; as well as their position description.

## Employment Status of LPNs, RNs, APRNs in Missouri, 2019, (n=97,411)

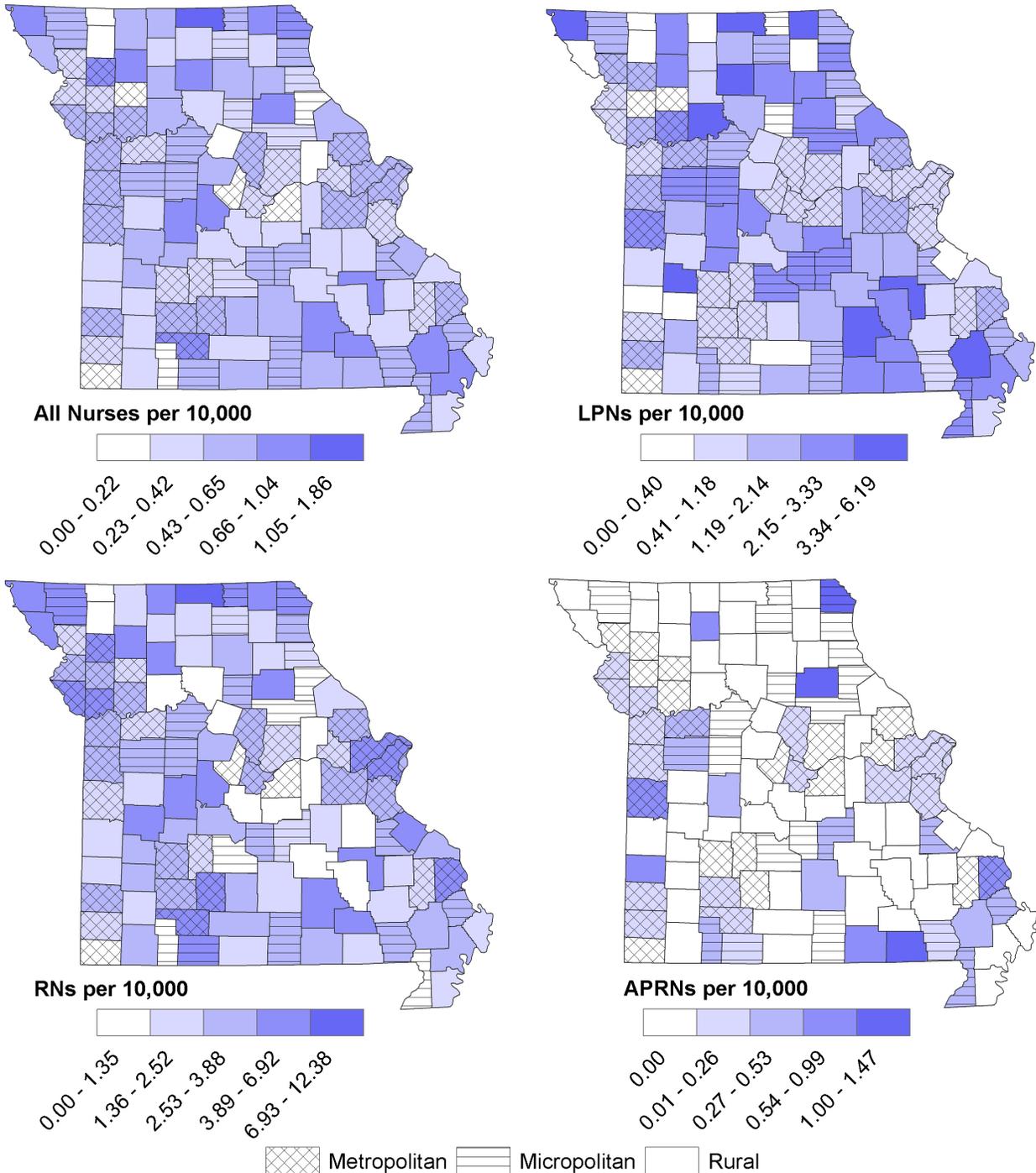


### Current Employment Status

- Actively employed in nursing or in a position that requires a nurse license - Full-time
- Actively employed in nursing or in a position that requires a nurse license - Part-time
- Actively employed in nursing or in a position that requires a nurse license - Per diem
- Report being unemployed - Looking for work as a nurse

- The vast majority of Missouri nurses are actively employed full-time in nursing or a position that requires a nursing license, including:
  - 80.2% or 7,846 LPNs,
  - 80.4% or 65,528 RNs, and
  - 82.1% or 5,025 APRNs.
- There are very few RNs and APRNs who report that they are unemployed and looking for work as a nurse (3.3% of RNs and 2.2% of APRNs), indicating that there is a limited supply of RNs and APRNs within the state available to meet the current need.
- A higher percentage of LPNs, 7.7%, report being unemployed and looking for work as a nurse.
- The maps below indicate the county of residence for nurses who report being unemployed and looking for work as a nurse.

# County of Residence for Nurses Who Report Being Unemployed and Looking for Work as a Nurse

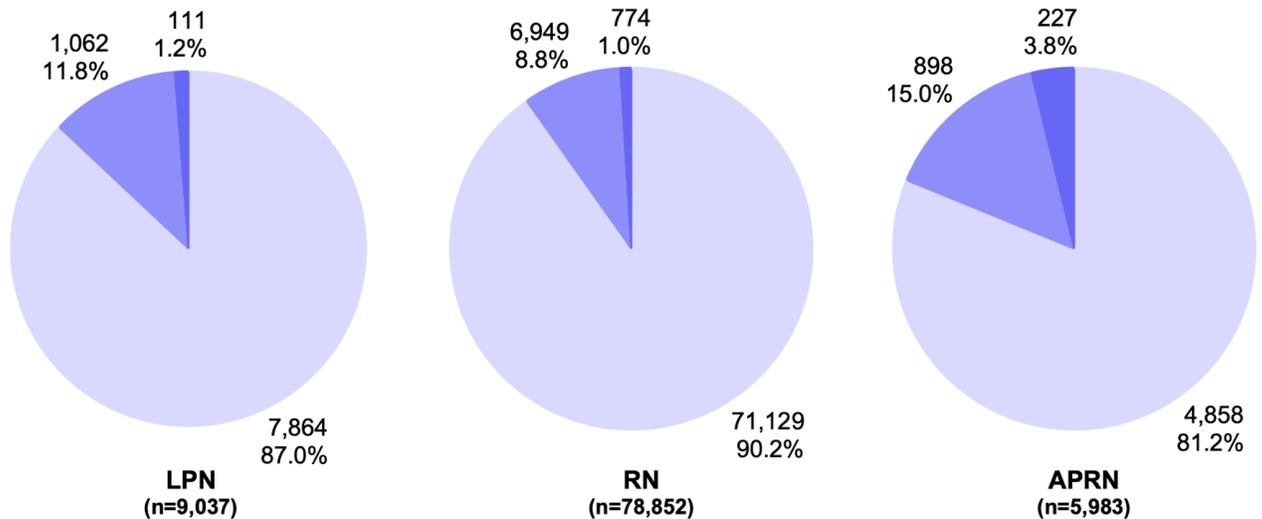


Source: Nursys, 1/1/2017-8/29/2019  
 Created by: Center for Health Policy, University of Missouri  
 Generated on: January 16, 2020

## Number of Positions Employed as a Nurse

### How Many Positions LPNs, RNs, and APRNs Are Currently Employed As a Nurse, 2019, (n=93,872)

Does not include nurses who did not report in how many positions they are currently employed as a nurse (n=17,404); (n=2,303) LPNs; (n=14,756) RNs; (n=345) APRNs.



#### How Many Positions Currently Employed As a Nurse

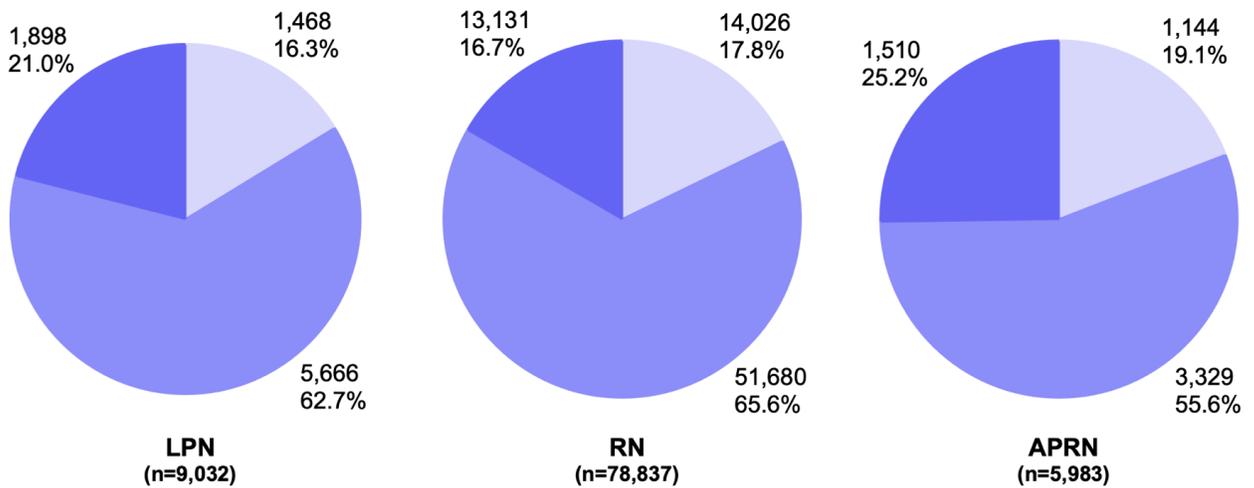
- One
- Two
- Three

- The vast majority of nurses of all license types hold one position, including 87.0% or 7,864 LPNs; 90.2% or 71,129 RNs and 81.2% or 4,858 APRNs.
- APRNs are most likely to hold multiple nursing positions, with 18.8% or 1,125 holding two or three positions.

## Average Hours per Week Working as a Nurse

### LPNs, RNs, and APRNs Average Hours Per Week Working as a Nurse, 2019 (n=93,852)

Does not include nurses who did not report their average hours per week working as a nurse (n=17,424); (n=2,308) LPNs; (n=14,771) RNs; (n=345) APRNs.



#### Average Hours Per Week Working as a Nurse

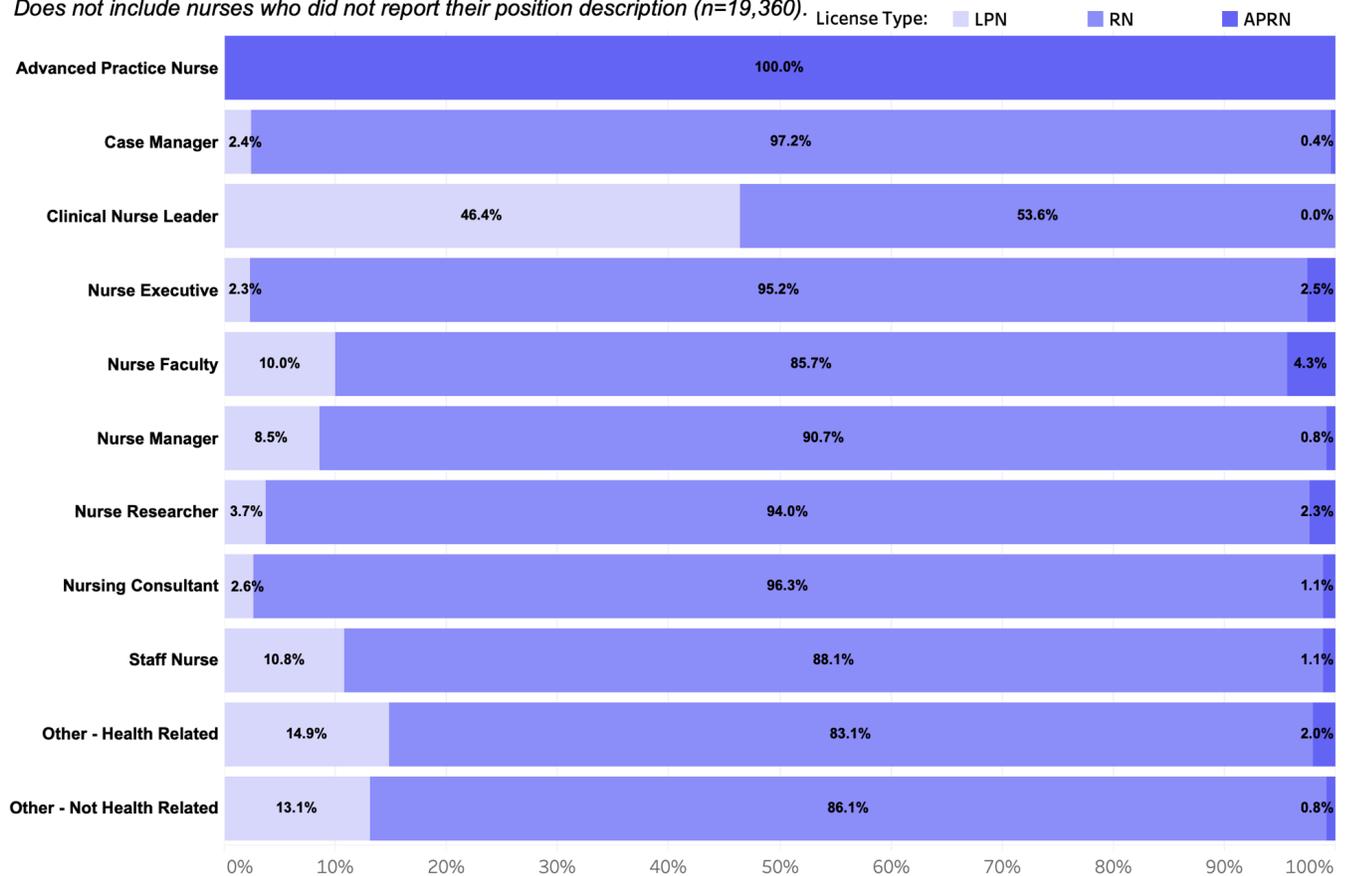
- 0-35
- 36-40
- >40

- The proportion of nurses working 0-35 hours, 36-40 and 41 or more hours is relatively stable across license types, with most nurses in all license types working the equivalent of a full-time nursing job between 36-40 hours per week.
  - RNs have the highest proportion of nurses working 36-40 hours per week, including 65.6% or 51,680.
  - LPNs have 62.7% or 5,666 working 36-40 hours per week, while APRNs have 55.6% or 3,329 in this category.
- APRNs are the license type most likely to work more than traditional full-time hours, including a quarter (25.2% or 1,510) working 41 or more hours per week.

## Position Description

### Position Description of LPNs, RNs, and APRNs, 2019, (n=91,916)

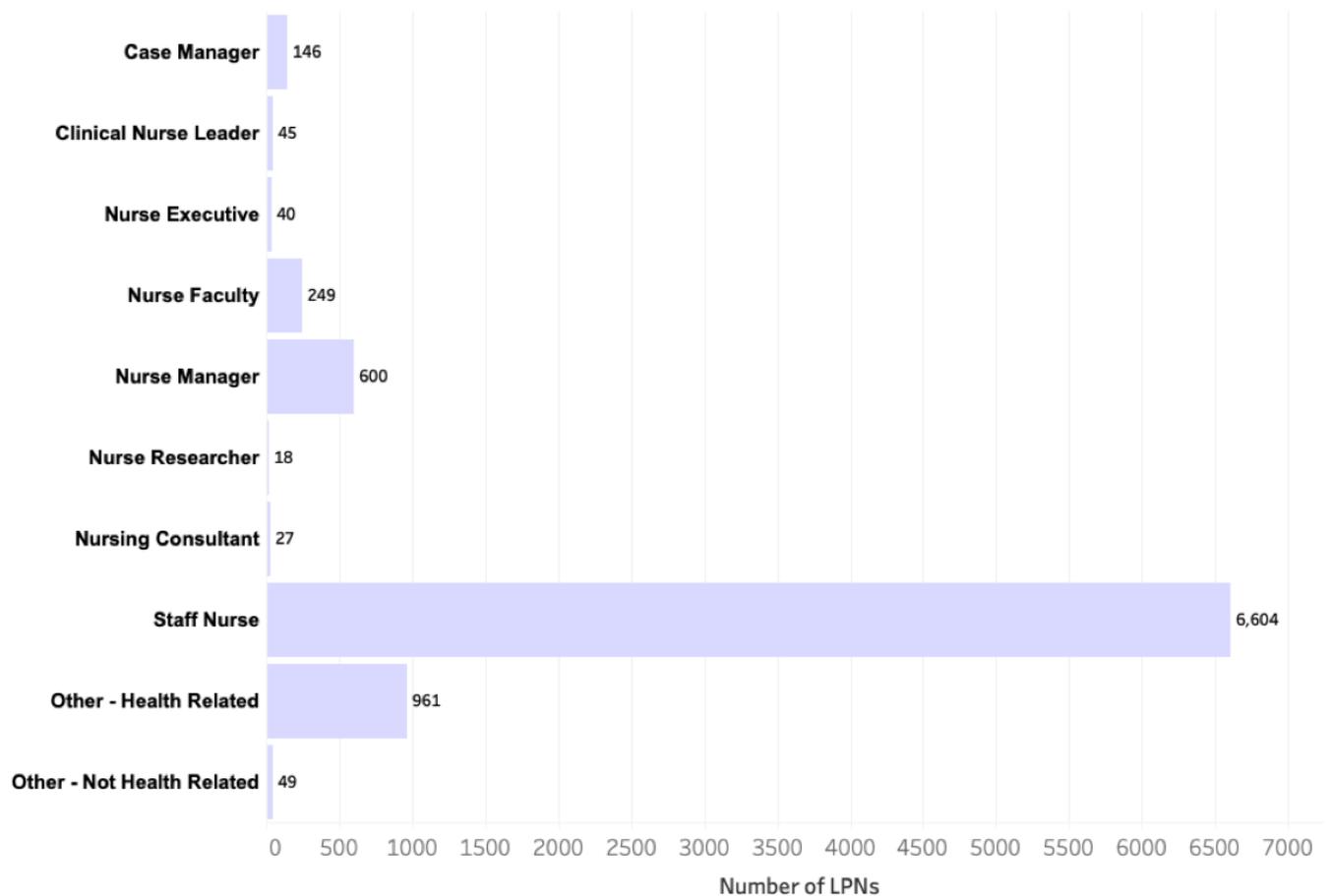
Does not include nurses who did not report their position description (n=19,360).



- With the exception of Advanced Practice Registered Nurse, the majority of nurses in each of the position descriptions are RNs.
- A significant portion of Clinical Nurse Leaders (46.4%) are LPNs.

## Position Description of LPNs, 2019, (n=8,739)

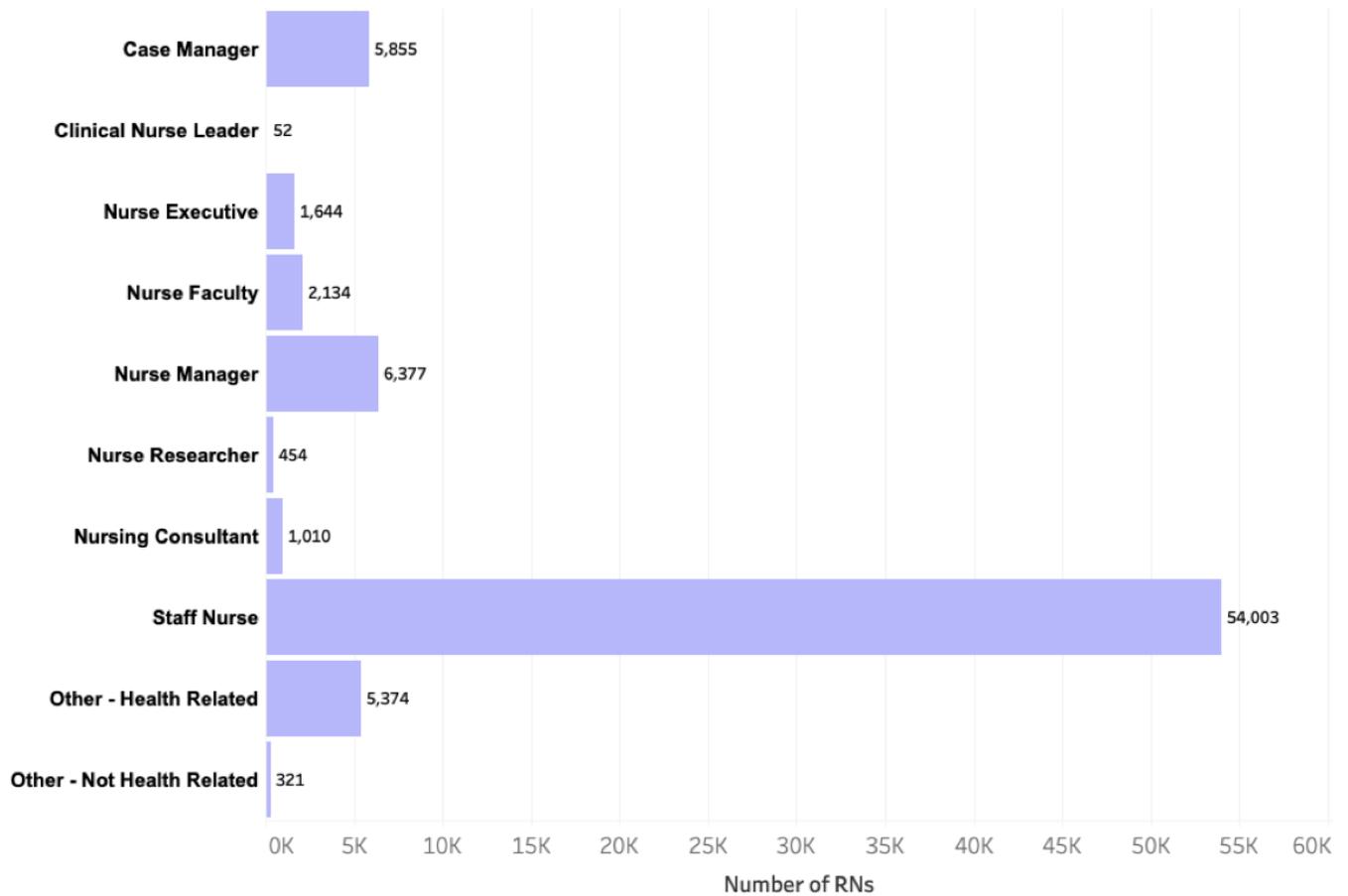
Does not include LPNs who did not report their position description (n=2,601).



- Nearly three-quarters of LPNs who reported their position description are Staff Nurses (74.8% or 6,604).
- Other-Health Related (10.9% or 961) and Nurse Manager (6.8% or 600) are other common position descriptions for LPNs.

## Position Description of RNs, 2019, (n=77,224)

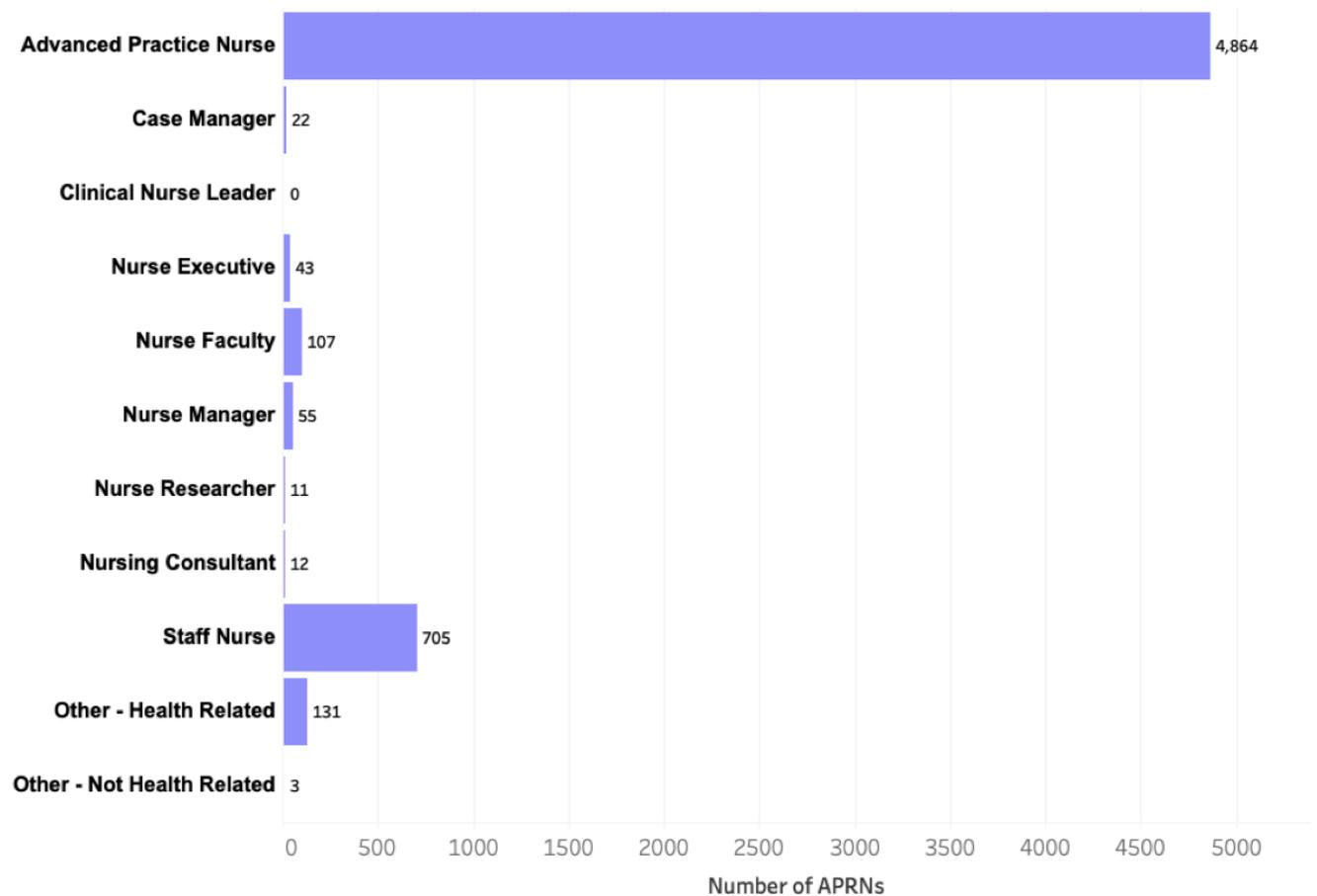
Does not include RNs who did not report their position description (n=16,384).



- Like LPNs, Staff Nurse is the most common reported position description for RNs, with over two-thirds of RNs in that category (69.6% or 54,003).
- There are three additional position descriptions with sizeable numbers of RNs, including Nurse Manager (8.2% or 6,377), Case Manager (7.5% or 5,855) and Other-Health Related (6.9% or 5,374).

## Position Description of APRNs, 2019, (n=5,953)

Does not include APRNs who did not report their position description (n=375).



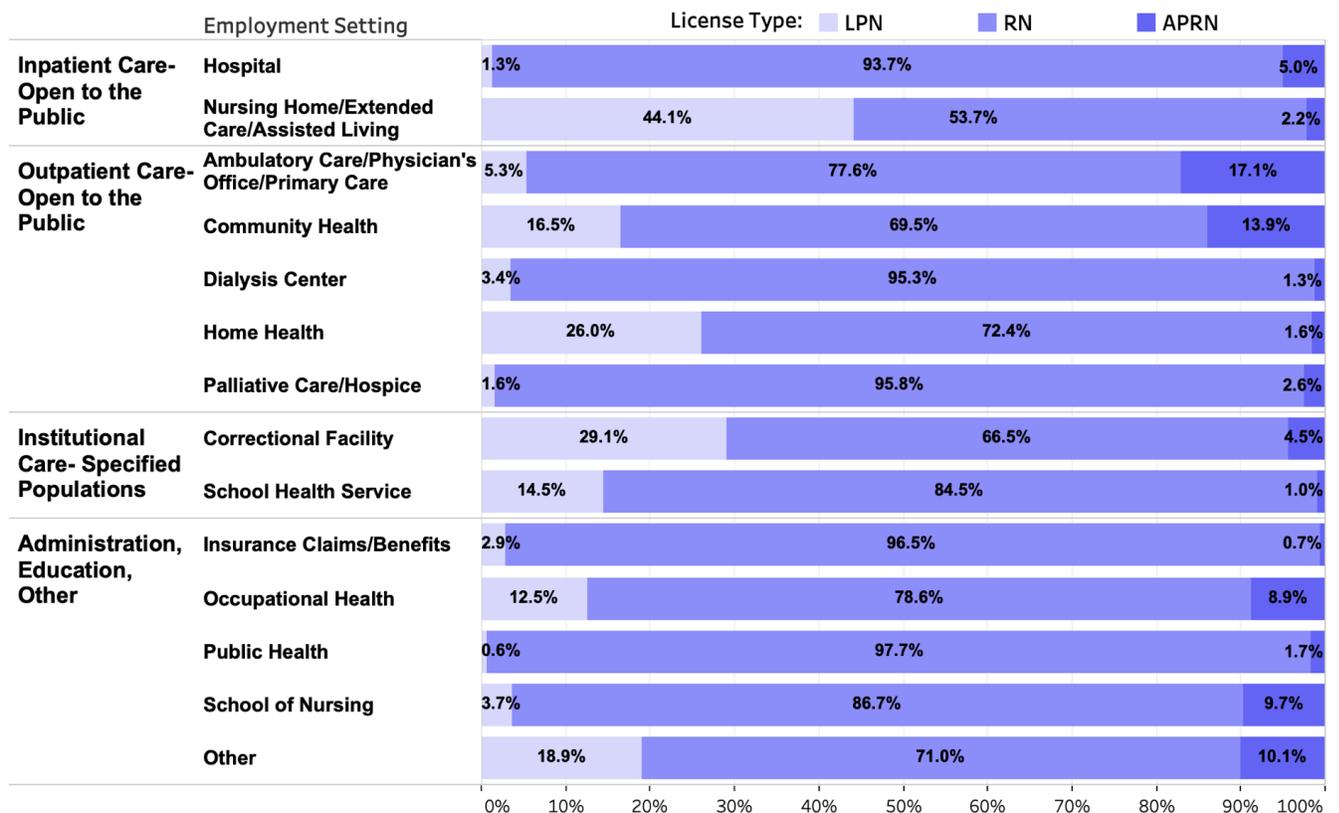
- Over 80% of APRNs (81.7% or 4,864) have a position description of Advanced Practice Registered Nurse.
- The next most common position description is Staff Nurse with 11.8% or 705.

## Employment Setting

Employment setting includes the range of places where nurses practice, including inpatient care, outpatient care, institutional care and administration, education and other functions. RNs comprise the largest group of nurses in all employment settings.

## Percentage of LPNs, RNs, APRNs in Each Employment Setting, (n=93,551)

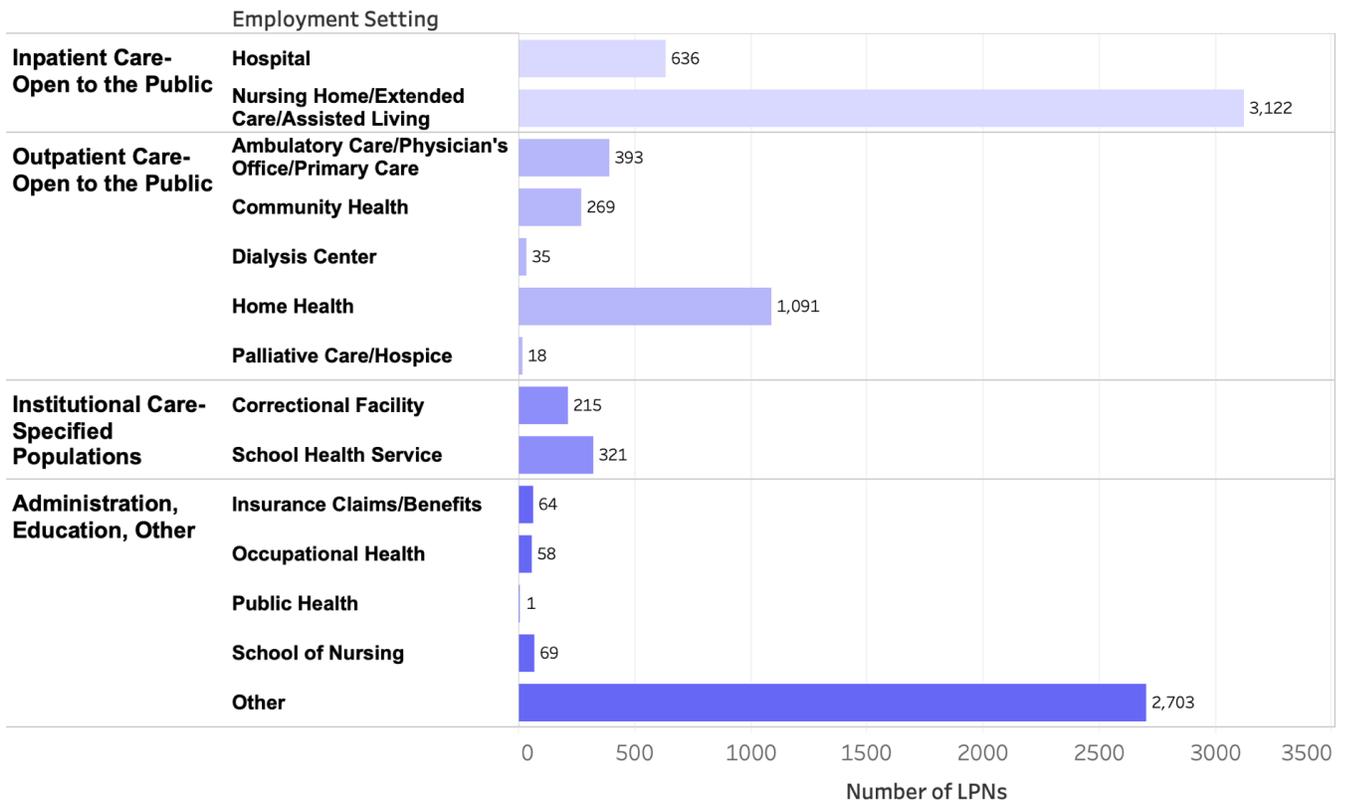
Does not include nurses who did not report their employment setting (n=17,725).



- RNs comprise the largest group of nurses in every employment setting, including those offering inpatient care, outpatient care, institutional care and administration, education and other.
- Sizeable portions of the nursing workforce in nursing homes, extended care and assisted living facilities (44.1%), correctional facilities (29.1%) and home health (26.0%) are LPNs.
- APRNs have their highest proportion employment setting in ambulatory care, physician's offices and primary care (17.1%).

## Number of LPNs in Each Employment Setting, 2019, (n=8,995)

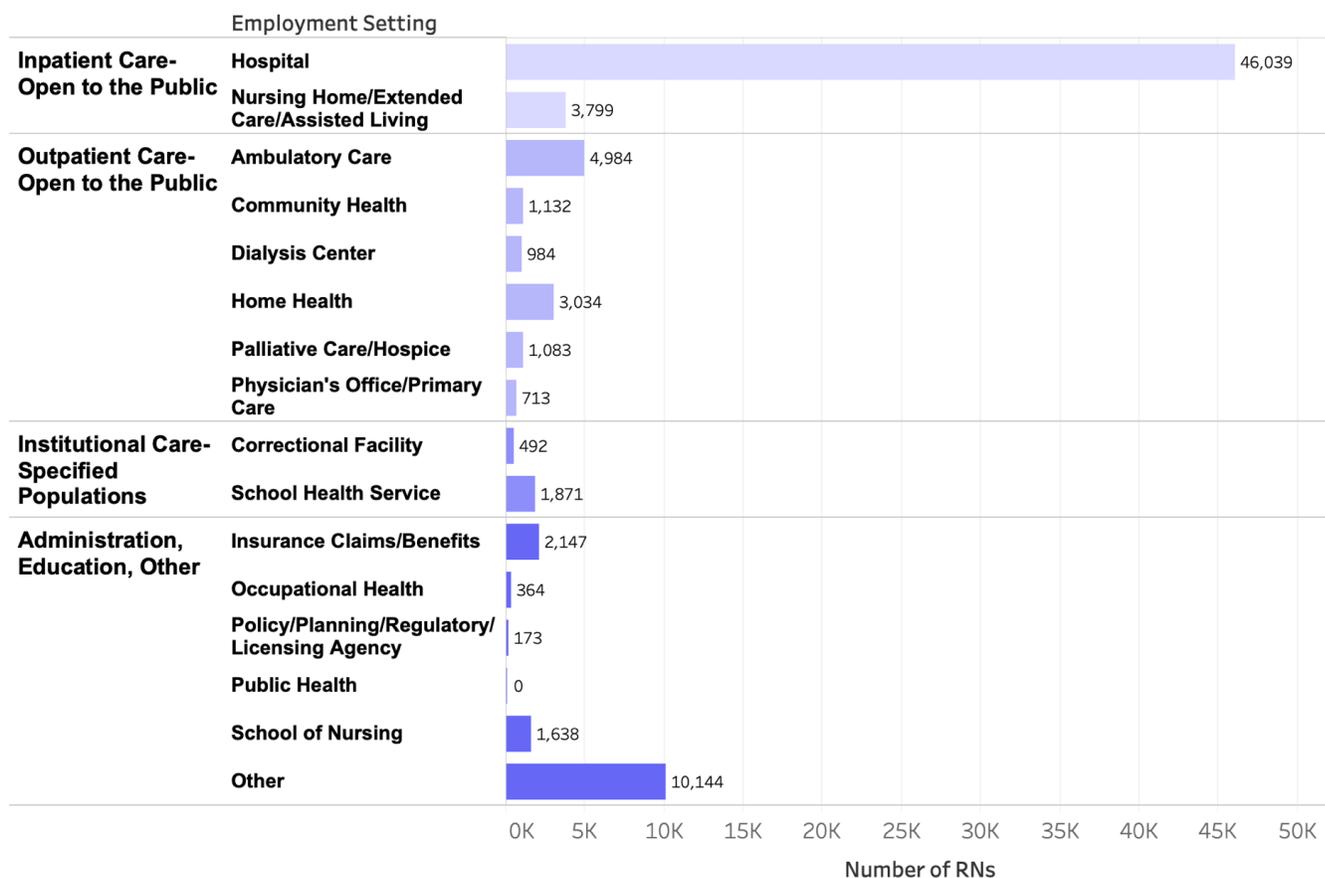
Does not include LPNs who did not report their employment setting (n=2,345).



- Over one-third of LPNs (34.7% or 3,122) are working in nursing homes, extended care or assisted living facilities.
- The next largest group (30.0% or 2,702) listed “Other” as their employment setting, offering little information about their actual work setting. According to the Missouri Board of Nursing, common employment settings that comprise “Other” include private duty, camp, dental office, chiropractor office, government, rehabilitation programs or legal settings.
- Another substantial portion of LPNs (12.1% or 1,091) work in home health.

## Number of RNs in Each Employment Setting, 2019, (n=78,597)

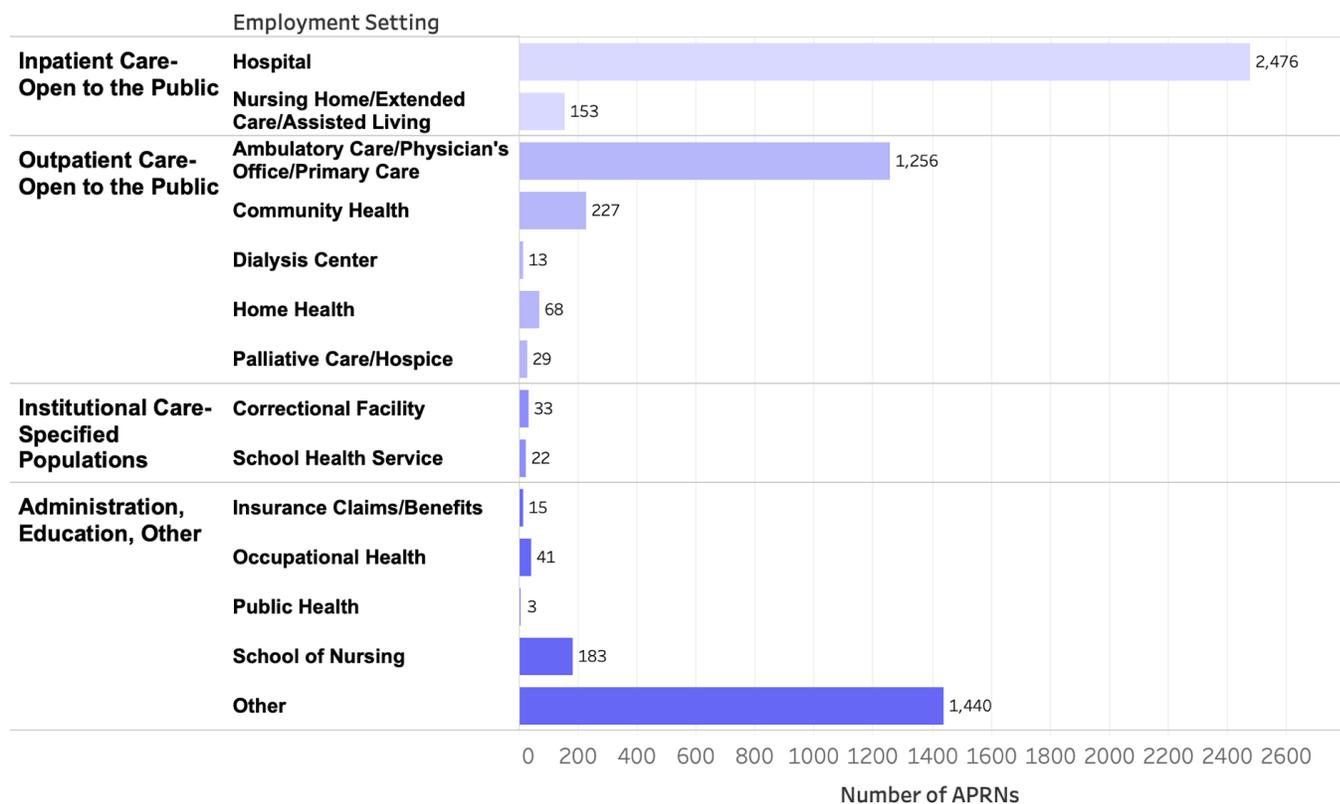
Does not include RNs who did not report their employment setting (n=15,011).



- Over half of the RNs reporting their employment setting (58.6% or 46,039) work in hospitals.
- Little information is available for RNs who answer “other,” though they comprise a significant portion of the RN workforce (12.9% or 10,144).
  - According to the Missouri Board of Nursing, common employment settings that comprise “Other” include private duty, camp, dental office, chiropractor office, government, rehabilitation programs or legal settings.

## Number of APRNs in Each Employment Setting, 2019, (n=5,959)

Does not include APRNs who did not report their employment setting (n=369).



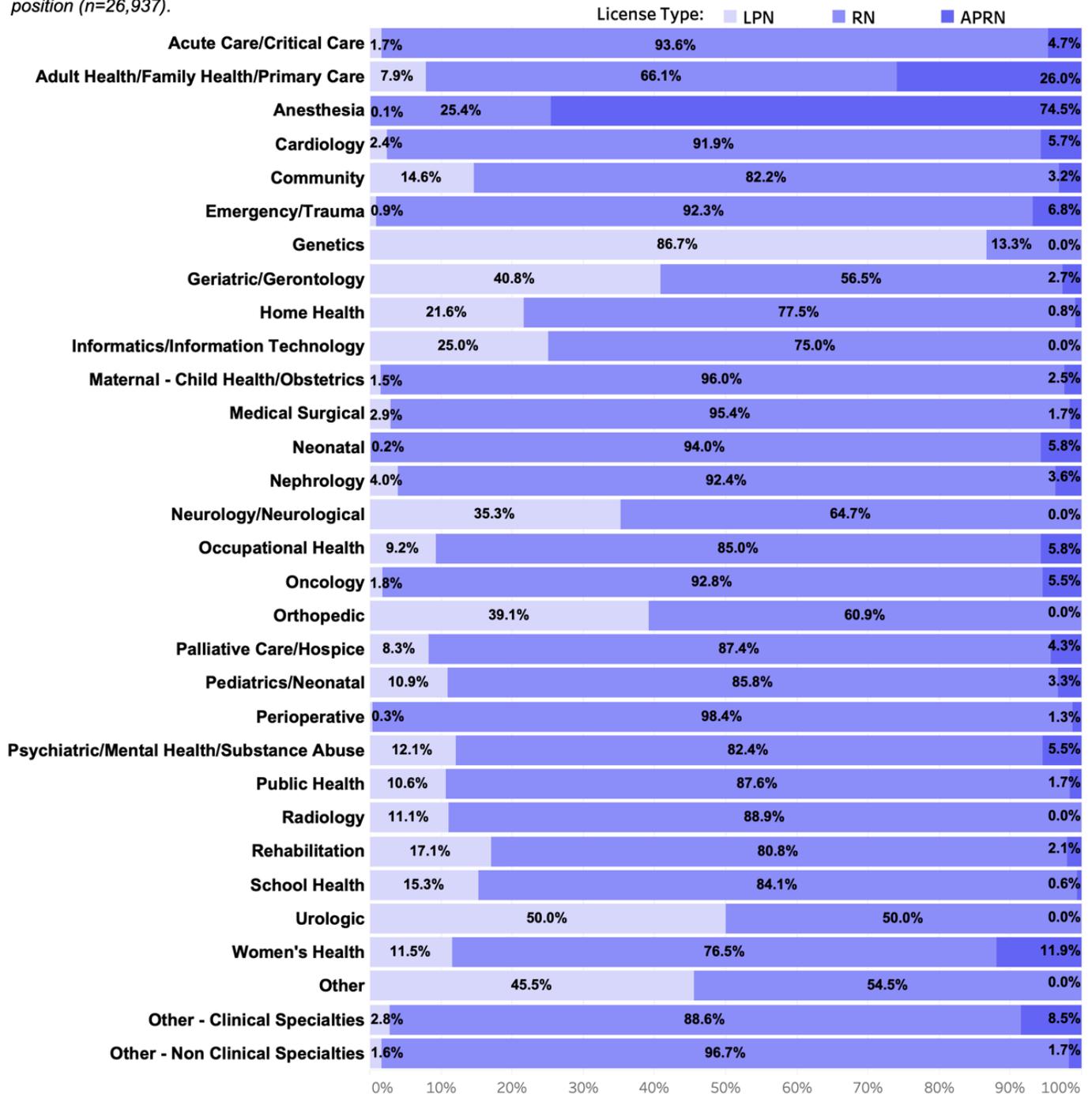
- APRNs most often work in hospitals, including 41.6% or 2,476 APRNs in this setting.
- “Other” is the next highest category with nearly a quarter of APRNs (24.2% or 1,440). Unfortunately, very little information exists about their specific setting.
  - According to the Missouri Board of Nursing, common employment settings that comprise “Other” include private duty, camp, dental office, chiropractor office, government, rehabilitation programs or legal settings.
- Another important employment setting for APRNs is ambulatory care, including physician’s offices or primary care facilities, with 21.1% or 1,256.

## Employment Specialty

Employment specialty indicates the focus of a nurse's practice in their primary nursing position. Nursing specialties in the Nursys® survey include a wide variety of clinical specialties like gerontology and pediatrics/neonatal, as well as practice settings like acute or critical care. The most common specialties include geriatrics or gerontology for LPNs, acute or critical care for RNs and primary care or adult and family health for APRNs.

## Employment Specialty of LPNs, RNs, and APRNs That Most Closely Corresponds to Their Primary Nursing Practice Position, (n=84,339)

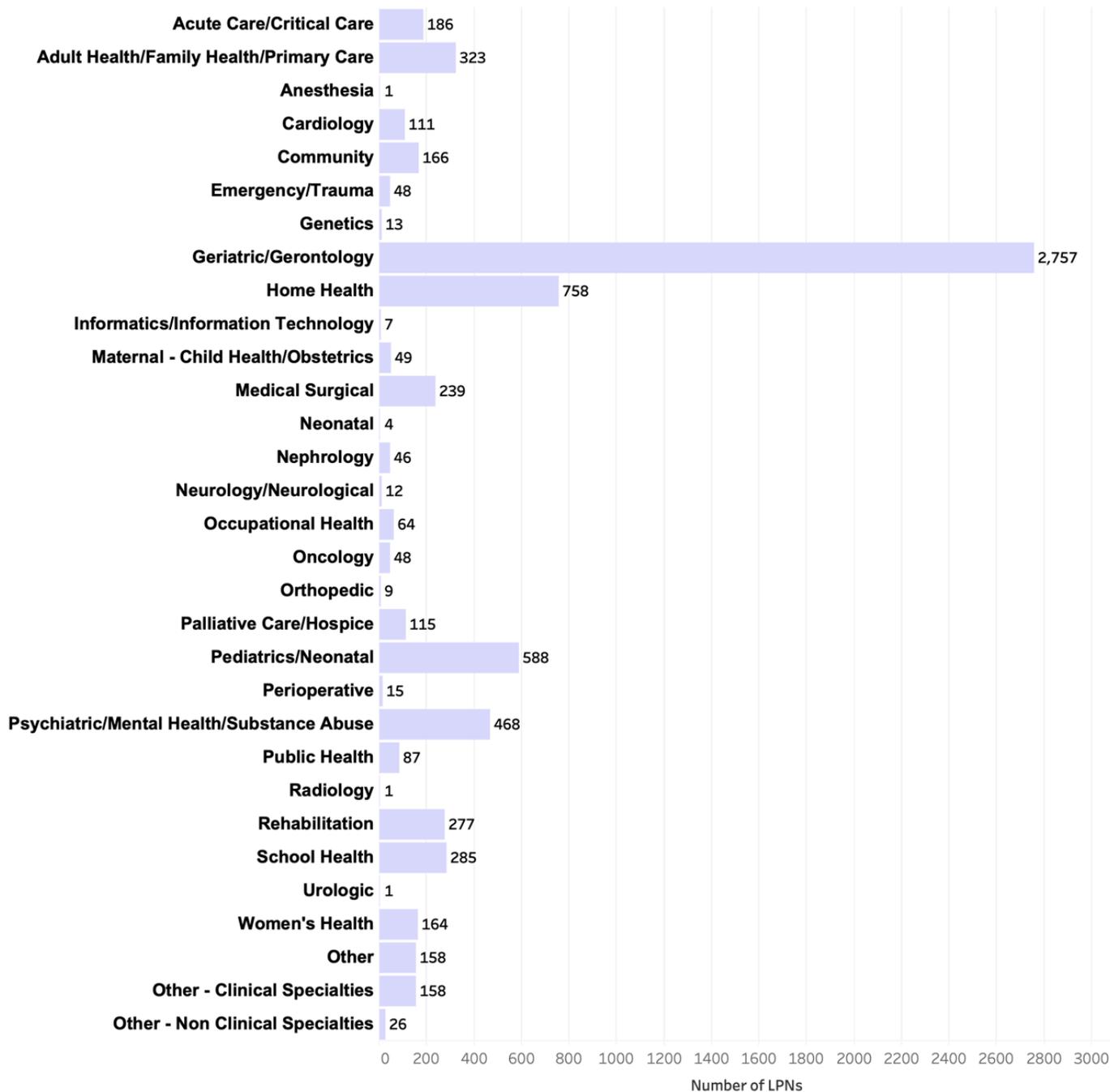
Does not include nurses who did not report their employment specialty that most closely corresponds to their primary nursing practice position (n=26,937).



- Because most nurses in Missouri are RNs, it is not surprising that RNs comprise the largest percentage of most of the nursing specialties.
- Some key exceptions include genetics and urologic, where LPNs comprise at least half of the nursing workforce. Nearly three-quarters (74.5%) of nurses working in anesthesia are APRNs.

## Employment Specialty of LPNs That Most Closely Corresponds to Their Primary Nursing Practice Position, 2019, (n=7,184)

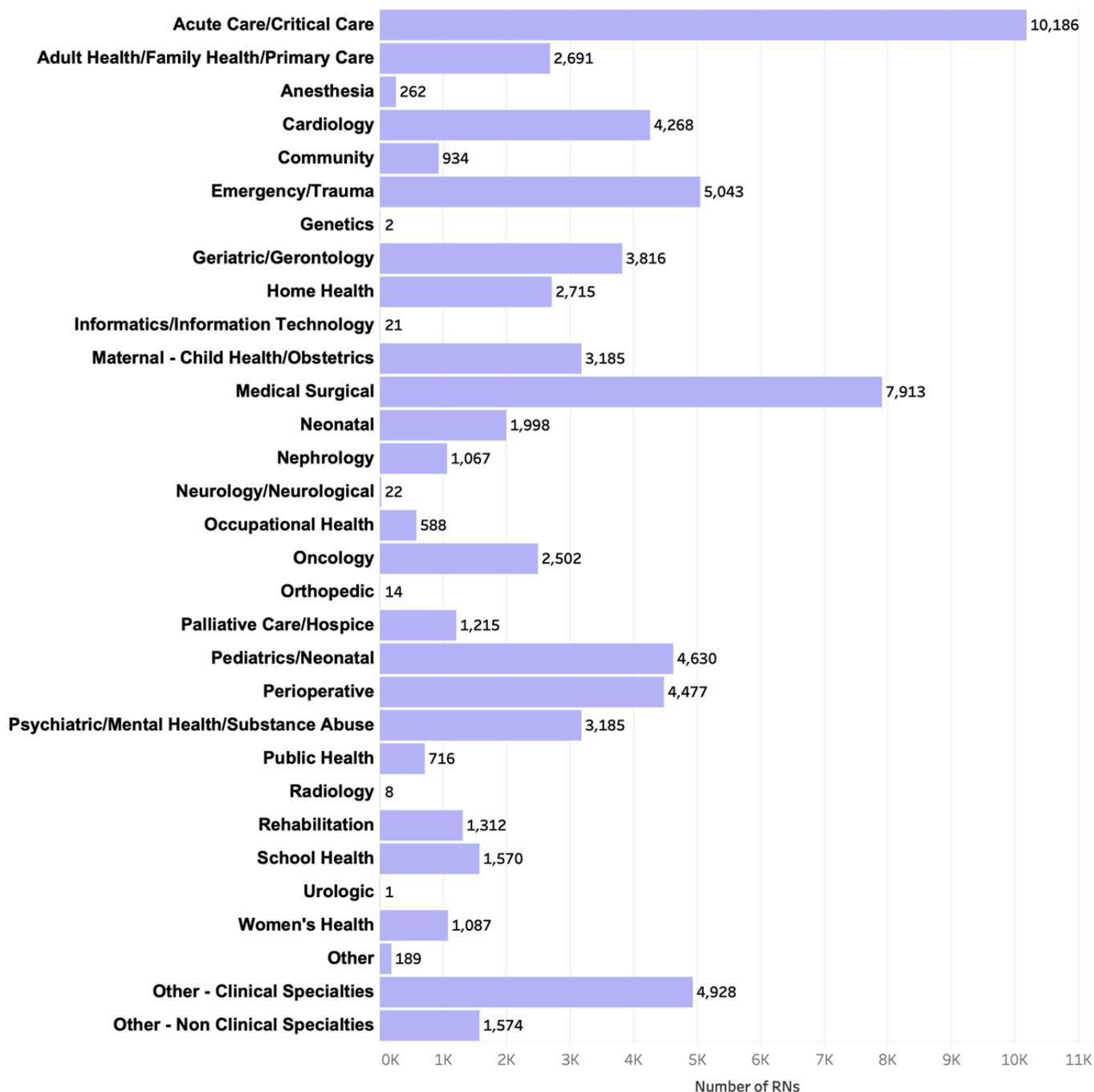
Does not include LPNs who did not report their employment specialty that most closely corresponds to their primary nursing practice position (n=4,156).



- The largest number of LPNs specialize in geriatric/gerontology (n=2,757), which corresponds with their largest employment setting in nursing homes, extended care and assisted living facilities.
- Other important specialties include home health (n=758), pediatrics/neonatal (n=588) and psychiatric/mental health/substance abuse (n=468).

## Employment Specialty of RNs That Most Closely Corresponds to Their Primary Nursing Practice Position, 2019, (n=72,119)

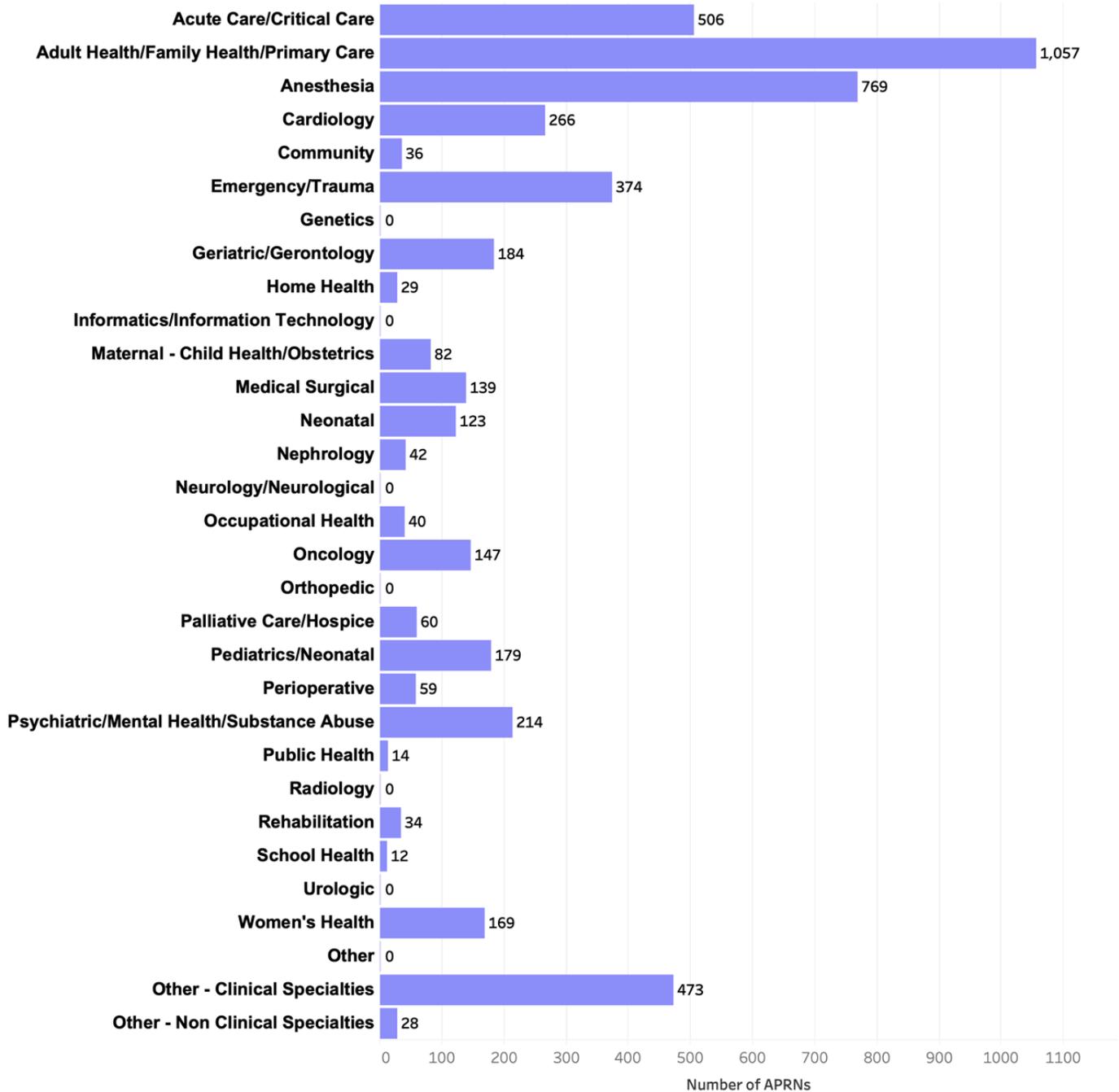
Does not include RNs who did not report their employment specialty that most closely corresponds to their primary nursing practice position (n=21,489).



- The largest number of RNs specialize in acute or critical care (n=10,186), which corresponds with their largest employment setting in hospitals.
- Another important specialty is medical surgical, including 7,913 RNs.

## Employment Specialty of APRNs That Most Closely Corresponds to Their Primary Nursing Practice Position, 2019, (n=5,036)

Does not include APRNs who did not report their employment specialty that most closely corresponds to their primary nursing practice position (n=1,292).



- The largest portion of APRNs have a specialty of adult health, family health and primary care, with 21.0% or 1,057 practicing this specialty.

## Next Steps

The Missouri Division of Professional Registration Board of Nursing and the University of Missouri will continue to collaborate on providing information on the nursing workforce in Missouri. In 2019, RNs and APRNs were required to enroll in Nursys®, and LPNs will join them in 2020. More robust data for all license types will be included in the *2020 Missouri Nursing Workforce Report*, as well as subsequent editions.

Additional analysis is planned on APRN scope of practice regulation, as well as commuting patterns for each nurse license type.

The Missouri Nursing Workforce Report is part of a larger collaboration on the healthcare workforce in Missouri. In 2018, the first Missouri Nursing Workforce Report was completed, and 2019 brought completion of the first physician workforce report. Next steps include doing similar analysis for additional health care providers, such as physical therapists and physical therapist assistants, psychologists and other behavioral and mental health providers.

Data, charts and graphics included in this report will be available through the Missouri healthcare workforce web application, which houses data on a wide variety of healthcare professions: <http://apps.oseda.missouri.edu/HCWF/Home.aspx>.

# Appendix 1: Number and Rate of Nurses by Geography

## Number and Rate Per 10,000 of Nurses in Metropolitan Counties by County of Employment and Nurse Type

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Metropolitan Total	5,491	12.6	56,157	74.2	3,972	5.5	65,620	92.3
Andrew	10	5.8	37	21.3	1	0.6	48	27.7
Bates	30	18.3	107	65.2	5	3.0	142	86.6
Bollinger	8	6.5	22	17.8	1	0.8	31	25.1
Boone	389	22.3	2,569	147.1	167	9.6	3,125	179.0
Buchanan	243	27.2	1,174	131.3	78	8.7	1,495	167.2
Caldwell	12	13.3	29	32.1	1	1.1	42	46.4
Callaway	42	9.4	175	39.1	6	1.3	223	49.8
Cape Girardeau	174	22.3	1,472	188.7	160	20.5	1,806	231.5
Cass	118	11.6	425	41.7	27	2.6	570	55.9
Christian	64	7.7	264	31.8	33	4.0	361	43.5
Clay	248	10.5	2,579	109.2	148	6.3	2,975	126.0
Clinton	66	32.2	211	103.0	13	6.3	290	141.5
Cole	167	21.8	946	123.3	75	9.8	1,188	154.8
Dallas	12	7.3	30	18.2	2	1.2	44	26.8
DeKalb	9	7.2	10	8.0	1	0.8	20	15.9
Franklin	138	13.5	777	75.9	62	6.1	977	95.4
Greene	484	16.9	4,829	168.4	338	11.8	5,651	197.1
Jackson	836	12.1	10,292	149.5	719	10.4	11,847	172.1
Jasper	222	18.7	1,724	145.5	132	11.1	2,078	175.3
Jefferson	117	5.3	861	38.7	73	3.3	1,051	47.2
Lafayette	69	21.1	119	36.4	12	3.7	200	61.2
Lincoln	28	5.1	158	28.8	14	2.6	200	36.5
McDonald	16	7.0	21	9.2	5	2.2	42	18.5
Moniteau	20	12.6	39	24.5	1	0.6	60	37.7
Newton	23	3.9	127	21.8	15	2.6	165	28.3
Osage	7	5.1	21	15.4	2	1.5	30	22.0
Platte	97	10.0	549	56.7	28	2.9	674	69.6
Polk	57	18.2	348	111.0	35	11.2	440	140.4
Ray	35	15.3	86	37.6	4	1.7	125	54.7
St. Charles	299	7.8	2,844	73.8	196	5.1	3,339	86.7
St. Louis City	250	7.9	8,202	260.5	617	19.6	9,069	288.0
St. Louis	1,159	11.6	14,963	149.7	987	9.9	17,109	171.2
Warren	16	4.8	54	16.1	5	1.5	75	22.4
Webster	26	6.9	93	24.8	9	2.4	128	34.1

<sup>1</sup> Rate of LPNs, RNs and APRNs in each geography may not exactly add to Rate of All Nurses due to rounding.

## Number and Rate Per 10,000 of Nurses in Micropolitan Counties by County of Employment and Nurse Type

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Micropolitan Total	1,475	19.8	5,127	63.4	425	5.2	7,027	88.4
Adair	68	26.7	215	84.5	15	5.9	298	117.2
Audrain	69	26.8	163	63.3	11	4.3	243	94.3
Butler	137	32.0	580	135.4	55	12.8	772	180.3
Clark	7	10.3	18	26.4	1	1.5	26	38.2
Dunklin	75	24.3	103	33.3	15	4.9	193	62.4
Howell	130	32.4	407	101.4	39	9.7	576	143.5
Johnson	98	18.2	265	49.1	19	3.5	382	70.8
Laclede	52	14.7	176	49.6	16	4.5	244	68.8
Lewis	11	10.9	26	25.8	0	0.0	37	36.7
Marion	116	40.4	367	127.9	24	8.4	507	176.6
Nodaway	51	22.4	134	58.9	12	5.3	197	86.6
Pettis	94	22.2	298	70.4	20	4.7	412	97.4
Phelps	109	24.3	460	102.5	45	10.0	614	136.8
Pulaski	73	13.7	190	35.8	17	3.2	280	52.7
Ralls	7	6.9	11	10.8	0	0.0	18	17.6
Randolph	41	16.4	175	70.0	13	5.2	229	91.6
Saline	78	33.9	151	65.6	14	6.1	243	105.6
Schuyler	3	6.7	10	22.5	1	2.2	14	31.5
Scott	103	26.5	346	89.0	35	9.0	484	124.6
St. Francois	83	12.5	636	96.0	45	6.8	764	115.3
Stone	10	3.2	30	9.5	4	1.3	44	14.0
Taney	60	11.0	366	67.4	24	4.4	450	82.9

## Number and Rate Per 10,000 of Nurses in Rural Counties by County of Employment and Nurse Type

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Rural Total	1,147	14.6	3,728	42.1	310	3.6	5,185	60.3
Atchison	19	35.6	30	56.2	5	9.4	54	101.2
Barry	34	9.6	178	50.3	16	4.5	228	64.4
Barton	16	13.4	57	47.7	6	5.0	79	66.2
Benton	38	20.1	40	21.1	2	1.1	80	42.3
Camden	57	12.7	410	91.4	28	6.2	495	110.4
Carroll	23	25.8	56	62.9	3	3.4	82	92.0
Carter	11	17.6	8	12.8	2	3.2	21	33.6
Cedar	21	15.1	52	37.5	7	5.0	80	57.7
Chariton	14	18.5	14	18.5	2	2.6	30	39.5
Cooper	29	16.5	65	36.9	4	2.3	98	55.6
Crawford	19	7.8	28	11.5	4	1.6	51	20.9
Dade	8	10.6	25	33.0	2	2.6	35	46.2
Daviess	7	8.4	17	20.5	1	1.2	25	30.1
Dent	19	12.2	78	50.1	7	4.5	104	66.8
Douglas	7	5.2	31	23.1	3	2.2	41	30.6
Gasconade	36	24.4	52	35.2	3	2.0	91	61.6
Gentry	11	16.4	54	80.7	2	3.0	67	100.2

<sup>1</sup> Rate of LPNs, RNs and APRNs in each geography may not exactly add to Rate of All Nurses due to rounding.

## Number and Rate Per 10,000 of Nurses in Rural Counties by County of Employment and Nurse Type, Continued

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Rural Total	1,147	14.6	3,728	42.1	310	3.6	5,185	60.3
Grundy	19	18.8	82	81.1	6	5.9	107	105.8
Harrison	13	15.1	69	80.1	2	2.3	84	97.5
Henry	49	22.4	198	90.7	16	7.3	263	120.5
Hickory	8	8.6	18	19.2	1	1.1	27	28.9
Holt	8	17.8	18	40.0	1	2.2	27	60.0
Howard	4	3.9	48	47.3	4	3.9	56	55.2
Iron	18	17.5	45	43.7	7	6.8	70	68.1
Knox	4	10.1	13	32.7	1	2.5	18	45.3
Lawrence	47	12.3	147	38.6	14	3.7	208	54.5
Linn	16	13.1	69	56.3	6	4.9	91	74.3
Livingston	30	20.0	158	105.2	6	4.0	194	129.1
Macon	34	22.2	97	63.3	8	5.2	139	90.7
Madison	25	20.4	74	60.5	7	5.7	106	86.7
Maries	5	5.6	11	12.3	1	1.1	17	19.0
Mercer	7	19.1	9	24.5	1	2.7	17	46.3
Miller	33	13.2	35	14.0	7	2.8	75	30.1
Mississippi	16	11.5	38	27.3	1	0.7	55	39.5
Monroe	11	12.7	13	15.0	2	2.3	26	30.0
Montgomery	14	12.1	32	27.5	2	1.7	48	41.3
Morgan	13	6.5	28	13.9	3	1.5	44	21.9
New Madrid	28	15.5	35	19.4	5	2.8	68	37.7
Oregon	4	3.7	21	19.5	0	0.0	25	23.2
Ozark	4	4.3	16	17.2	1	1.1	21	22.5
Pemiscot	38	21.9	66	38.1	9	5.2	113	65.2
Perry	17	8.9	143	74.7	6	3.1	166	86.8
Pike	37	20.0	102	55.1	4	2.2	143	77.2
Putnam	7	14.4	20	41.3	2	4.1	29	59.8
Reynolds	12	18.9	20	31.4	1	1.6	33	51.9
Ripley	13	9.4	39	28.2	4	2.9	56	40.6
Scotland	14	28.7	44	90.1	7	14.3	65	133.1
Shannon	5	6.0	20	24.2	2	2.4	27	32.6
Shelby	10	16.4	20	32.9	2	3.3	32	52.6
St. Clair	16	17.0	34	36.2	4	4.3	54	57.5
Ste. Genevieve	19	10.6	106	59.3	11	6.2	136	76.1
Stoddard	58	19.6	138	46.6	15	5.1	211	71.2
Sullivan	17	26.6	28	43.9	4	6.3	49	76.8
Texas	32	12.4	117	45.5	6	2.3	155	60.3
Vernon	28	13.5	187	90.5	8	3.9	223	107.9
Washington	20	8.0	97	38.8	11	4.4	128	51.3
Wayne	13	9.7	19	14.2	6	4.5	38	28.4
Worth	4	19.5	5	24.4	0	0.0	9	43.8
Wright	8	4.4	54	29.5	9	4.9	71	38.8

<sup>1</sup> Rate of LPNs, RNs and APRNs in each geography may not exactly add to Rate of All Nurses due to rounding

## Number and Rate Per 10,000 of Nurses in Metropolitan Counties by County of Residence and Nurse Type

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Metropolitan Total	6,299	19.8	60,786	123.0	3,981	7.4	71,066	150.1
Andrew	49	28.2	280	161.3	12	6.9	341	196.5
Bates	61	37.2	161	98.1	6	3.7	228	139.0
Bollinger	31	25.1	108	87.5	7	5.7	146	118.2
Boone	341	19.5	2,841	162.7	208	11.9	3,390	194.2
Buchanan	231	25.8	1,045	116.9	53	5.9	1,329	148.6
Caldwell	23	25.4	119	131.6	1	1.1	143	158.1
Callaway	120	26.8	487	108.7	14	3.1	621	138.6
Cape Girardeau	155	19.9	1,348	172.8	161	20.6	1,664	213.3
Cass	214	21.0	1,161	113.9	58	5.7	1,433	140.6
Christian	153	18.4	1,479	178.1	117	14.1	1,749	210.7
Clay	391	16.6	3,856	163.3	199	8.4	4,446	188.3
Clinton	43	21.0	189	92.2	11	5.4	243	118.6
Cole	128	16.7	927	120.8	55	7.2	1,110	144.6
Dallas	22	13.4	125	76.0	5	3.0	152	92.5
DeKalb	47	37.4	237	188.6	15	11.9	299	238.0
Franklin	234	22.8	1,337	130.6	75	7.3	1,646	160.7
Greene	363	12.7	3,811	132.9	259	9.0	4,433	154.6
Jackson	835	12.1	7,662	111.3	500	7.3	8,997	130.7
Jasper	239	20.2	1,532	129.3	124	10.5	1,895	159.9
Jefferson	273	12.3	2,924	131.3	150	6.7	3,347	150.3
Lafayette	125	38.3	333	102.0	20	6.1	478	146.4
Lincoln	100	18.2	611	111.5	21	3.8	732	133.6
McDonald	24	10.5	116	51.0	7	3.1	147	64.6
Moniteau	38	23.9	114	71.7	4	2.5	156	98.1
Newton	68	11.7	467	80.2	29	5.0	564	96.8
Osage	25	18.4	136	99.9	5	3.7	166	122.0
Platte	128	13.2	1,496	154.4	106	10.9	1,730	178.5
Polk	67	21.4	430	137.2	30	9.6	527	168.1
Ray	50	21.9	216	94.5	12	5.2	278	121.6
St. Charles	398	10.3	6,901	179.2	433	11.2	7,732	200.8
St. Louis City	248	7.9	2,759	87.6	179	5.7	3,186	101.2
St. Louis	953	9.5	14,656	146.6	1,043	10.4	16,652	166.6
Warren	42	12.5	361	107.6	18	5.4	421	125.5
Webster	80	21.3	561	149.4	44	11.7	685	182.4

<sup>1</sup> Rate of LPNs, RNs and APRNs in each geography may not exactly add to Rate of All Nurses due to rounding.

## Number and Rate Per 10,000 of Nurses in Micropolitan Counties by County of Residence and Nurse Type

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Micropolitan Total	1,982	30.0	6,722	93.5	463	6.6	9,167	130.0
Adair	64	25.2	240	94.4	14	5.5	318	125.0
Audrain	86	33.4	227	88.1	12	4.7	325	126.2
Butler	111	25.9	433	101.1	46	10.7	590	137.8
Clark	27	39.7	73	107.2	5	7.3	105	154.3
Dunklin	115	37.2	187	60.5	11	3.6	313	101.3
Howell	138	34.4	452	112.6	41	10.2	631	157.2
Johnson	141	26.1	406	75.3	27	5.0	574	106.4
Laclede	95	26.8	232	65.4	18	5.1	345	97.2
Lewis	23	22.8	83	82.4	5	5.0	111	110.1
Marion	116	40.4	329	114.6	14	4.9	459	159.9
Nodaway	69	30.3	220	96.7	17	7.5	306	134.5
Pettis	138	32.6	391	92.4	24	5.7	553	130.7
Phelps	107	23.8	441	98.3	39	8.7	587	130.8
Pulaski	135	25.4	328	61.7	12	2.3	475	89.4
Ralls	35	34.3	77	75.4	2	2.0	114	111.7
Randolph	71	28.4	312	124.9	17	6.8	400	160.1
Saline	122	53.0	156	67.8	10	4.3	288	125.2
Schuyler	18	40.4	47	105.6	7	15.7	72	161.8
Scott	120	30.9	557	143.3	41	10.6	718	184.8
St. Francois	122	18.4	841	126.9	61	9.2	1,024	154.6
Stone	46	14.6	268	85.0	15	4.8	329	104.3
Taney	83	15.3	422	77.7	25	4.6	530	97.6

## Number and Rate Per 10,000 of Nurses in Rural Counties by County of Residence and Nurse Type

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Rural Total	2,083	28.2	7,716	96.3	426	5.4	10,225	129.8
Atchison	29	54.4	56	105.0	5	9.4	90	168.7
Barry	34	9.6	296	83.6	12	3.4	342	96.6
Barton	28	23.4	90	75.4	7	5.9	125	104.7
Benton	65	34.4	154	81.4	11	5.8	230	121.6
Camden	66	14.7	518	115.5	20	4.5	604	134.7
Carroll	46	51.6	86	96.5	4	4.5	136	152.7
Carter	24	38.4	59	94.3	10	16.0	93	148.7
Cedar	46	33.2	124	89.5	9	6.5	179	129.1
Chariton	27	35.6	65	85.7	5	6.6	97	127.9
Cooper	67	38.0	213	120.9	9	5.1	289	164.0
Crawford	49	20.1	151	61.9	11	4.5	211	86.5
Dade	9	11.9	82	108.2	2	2.6	93	122.7
Daviess	22	26.5	100	120.5	2	2.4	124	149.4
Dent	42	27.0	129	82.9	14	9.0	185	118.8
Douglas	14	10.5	91	68.0	9	6.7	114	85.1
Gasconade	54	36.6	157	106.3	7	4.7	218	147.6
Gentry	19	28.4	98	146.5	2	3.0	119	177.9

<sup>1</sup> Rate of LPNs, RNs and APRNs in each geography may not exactly add to Rate of All Nurses due to rounding.

## Number and Rate Per 10,000 of Nurses in Rural Counties by County of Residence and Nurse Type, Continued

County of Residence	LPN	LPN Rate	RN	RN Rate	APRN	APRN Rate	Number of All Nurses	Rate of All Nurses <sup>1</sup>
Rural Total	2,083	28.2	7,716	96.3	426	5.4	10,225	129.8
Grundy	30	29.7	108	106.8	7	6.9	145	143.4
Harrison	28	32.5	118	137.0	2	2.3	148	171.8
Henry	75	34.4	207	94.8	13	6.0	295	135.1
Hickory	17	18.2	65	69.5	5	5.3	87	93.0
Holt	17	37.8	52	115.6	2	4.4	71	157.8
Howard	18	17.7	132	130.1	3	3.0	153	150.8
Iron	21	20.4	80	77.8	9	8.7	110	106.9
Knox	16	40.2	36	90.5	1	2.5	53	133.3
Lawrence	76	19.9	306	80.2	20	5.2	402	105.4
Linn	34	27.8	148	120.8	8	6.5	190	155.1
Livingston	38	25.3	180	119.8	4	2.7	222	147.8
Macon	62	40.5	183	119.5	12	7.8	257	167.8
Madison	27	22.1	130	106.3	5	4.1	162	132.5
Maries	16	17.9	65	72.6	5	5.6	86	96.0
Mercer	12	32.7	27	73.6	3	8.2	42	114.5
Miller	48	19.2	149	59.7	12	4.8	209	83.8
Mississippi	39	28.0	72	51.7	4	2.9	115	82.6
Monroe	29	33.4	96	110.7	3	3.5	128	147.5
Montgomery	39	33.6	134	115.3	4	3.4	177	152.4
Morgan	40	19.9	132	65.7	2	1.0	174	86.6
New Madrid	58	32.2	120	66.6	13	7.2	191	105.9
Oregon	28	26.0	80	74.2	6	5.6	114	105.8
Ozark	24	25.7	102	109.3	1	1.1	127	136.1
Pemiscot	44	25.4	116	66.9	5	2.9	165	95.1
Perry	31	16.2	244	127.5	8	4.2	283	147.9
Pike	55	29.7	184	99.4	2	1.1	241	130.2
Putnam	18	37.1	67	138.3	1	2.1	86	177.5
Reynolds	16	25.2	43	67.6	2	3.1	61	95.9
Ripley	43	31.1	131	94.9	16	11.6	190	137.6
Scotland	17	34.8	57	116.7	3	6.1	77	157.7
Shannon	27	32.6	62	74.9	1	1.2	90	108.8
Shelby	20	32.9	72	118.3	5	8.2	97	159.4
St. Clair	20	21.3	87	92.6	8	8.5	115	122.4
Ste. Genevieve	20	11.2	209	116.9	12	6.7	241	134.8
Stoddard	100	33.7	299	100.9	17	5.7	416	140.4
Sullivan	20	31.3	61	95.6	5	7.8	86	134.8
Texas	71	27.6	214	83.2	11	4.3	296	115.1
Vernon	31	15.0	241	116.6	10	4.8	282	136.5
Washington	37	14.8	149	59.7	17	6.8	203	81.3
Wayne	36	26.9	106	79.3	10	7.5	152	113.7
Worth	14	68.2	28	136.4	2	9.7	44	214.3
Wright	30	16.4	155	84.7	8	4.4	193	105.4

<sup>1</sup> Rate of LPNs, RNs and APRNs in each geography may not exactly add to Rate of All Nurses due to rounding.

# Appendix 2: Nursys Renewal Application MDS Nurse Supply Workforce Survey Questions

## Renewal Application MDS Nurse Supply Workforce Survey Questions

### Instructions for Collecting the Minimum Dataset

This document is intended to guide states in assembling the standardized nurse supply dataset. It is recommended that states collect the Minimum Nurse Supply Dataset at renewal from all licensed nurses in the state. This design generates a complete set of updated data for an individual nurse every time his or her license is renewed.

This Minimum Nurse Supply Dataset is intended to be a data standardization model and in no way is meant to limit data collection in your state.

### Essential Elements

The National Forum's Research Committee identified the following 6 variables as being the most essential data elements a state could collect. These variables are already being collected by a majority of states and standardizing the collection of these elements among all states would be the most paramount to workforce analyses.

- Variable 1: Gender
- Variable 2: Ethnicity
- Variable 3: Race
- Variable 4: Year of birth
- Variable 6: Highest level of nursing education
- Variable 12: Employment status
- Variable 17: Employer's zip code

### General Rules

1. When applicable and based on the board discretion additional selection can be added. Any additional responses will be mapped to "Other" when sent/added to the National Nurse Workforce Repository.
2. If any of the variables can be derived without asking the participant, then the question is not required to be asked/presented in the survey.
3. This question implies to the jurisdiction presenting the survey or for the jurisdiction this survey is intended for.
4. Some notes are specific to boards that have already implemented the MDS and currently participate in the National Nurse Workforce Repository.

## Demographics

**Variable 1:** Gender

**Stem (example):** Gender

Note: General rule 2 applies here

**Response Categories:**

Female = F

Male = M

Non Binary / X - (Optional) = X

**Variable 2:** Ethnicity

**Stem (example):** Are you of Hispanic or Latino origin?

Note: General Rule 2 applies here

**Response Categories:**

Yes = X

No = Blank

**Variable 3:** Race

**Stem (example):** What is your race? (Mark all that apply)

Note: General rule 1 & 2 applies here

**Response Categories:**

American Indian or Alaska Native

Asian

Black/African American

Native Hawaiian or Other Pacific Islander

White/Caucasian

Other

**Variable 4:** Year of birth

**Stem (example):** In what year were you born?

Note: General rule 2 applies here

**Response Categories:** Open ended field or drop-down menu

**Variable 5:** Entry level education

**Stem (example):** What type of nursing degree/credential qualified you for your first U.S. nursing license?

**Response Categories:**

Vocational/Practical certificate-nursing  
Diploma-nursing  
Associate degree-nursing

Baccalaureate degree-nursing  
Master's degree-nursing  
Doctoral degree-nursing (PhD)  
Doctoral degree-nursing (DNP)

**Variable 6:** Highest level of nursing education

**Stem (example):** What is your highest level of nursing education?

**Response Categories:**

Vocational/Practical certificate-Nursing  
Diploma Nursing  
Associate degree-Nursing  
Baccalaureate degree-Nursing

Master's degree-Nursing  
Doctoral degree-Nursing (PhD)  
Doctoral degree-Nursing Practice (DNP)  
Doctoral degree-Nursing other

**Variable 7:** Highest level of education in another field

**Stem (example):** What is your highest level of non-nursing education?

**Response Categories:**

Associate degree-Non nursing  
Baccalaureate degree-Non-nursing  
Master's degree-Non-nursing  
Doctoral degree-Non-nursing  
Not applicable

## License/Certification Information

**Variable 8:** License type

**Stem (example):** What type of license do you currently hold ? (Mark all that apply.)

**Response Categories:**

PN=PN

RN = RN

APRN = (NA , NM, NS, NP)

APRN-CRNA = NA

APRN-CNM = NM

APRN-CNS = NS

APRN-CNP = NP

**Variable 9:** Year of Initial licensure

**Stem (example):** Year of initial U.S. licensure

**Note:** General rule 2 & 3 applies here

**Minimum Response Categories:** Open-ended field or drop-down menu

**Variable 10:** Country of Initial RN/PN licensure

**Stem (example):** In what country were you initially licensed RN/PN?

**Minimum Response Categories:** Open-ended field or drop-down menu

**Variable 11:** License status

**Stem (example):** What is the status of your RN / PN license currently held?

**Note:** General rule 2 & 3 apply here

**Response Categories:**

Active = 1

Not Active = 0

**Variable 12:** Advanced Practice Registered Nurse License/Certification

**Stem (example):** Indicate whether you are credentialed to practice as an Active APRN as any of the following: (Select all that apply.)

**Note:** General rule 2 & 3 applies here

**Response Categories:**

- Certified Nurse Practitioner
- Clinical Nurse Specialist
- Certified Registered Nurse Anesthetist
- Certified Nurse Midwife
- Not credentialed as any of the above

## Employment Information

**Variable 13:** Employment status

**Stem (example):** What is your employment status? (Mark all that apply)

**Response Categories:**

- Actively employed in nursing or in a position that requires a nurse license full-time
- Actively employed in nursing or in a position that requires a nurse license part-time
- Actively employed in nursing or in a position that requires a nurse license on a per-diem basis
- Actively employed in a field other than nursing full-time
- Actively employed in a field other than nursing part-time
- Actively employed in a field other than nursing on a per-diem basis
- Working in nursing only as a volunteer
- Unemployed, seeking work as a nurse
- Unemployed, not seeking work as a nurse
- Retired

**Variable 14:** Reason for being unemployed

**Note:** General rule 1 applies here

**Stem (example):** If unemployed, please indicate the reasons.

**Response Categories:**

- |                                |  |
|--------------------------------|--|
| Taking care of home and family | School                                   |
| Disabled                       | Difficulty in finding a nursing position |
| Inadequate Salary              | Other                                    |

**Variables 15-19 intended only if individual is actively employed in nursing**

**Variable 15:** Number of positions employed in

**Stem (example):** In how many positions are you currently employed as a nurse?

**Response Categories:** 1, 2, 3 or more

**Variable 16:** Hours worked per week

**Stem (example):** How many hours do you work during a typical week in all your nursing positions?

**Response Categories:** Open-ended field or drop-down menu

**Variable 17:** Employer's address

**Stem (example):** Please indicate the state and zip code of your primary RN/PN employer

**Response Categories:** Open-ended field or drop-down menu

**It is recommended that information for both primary and secondary positions be collected for variables 18-20.**

**Variable 18: Employment Setting\***

**Stem (example):** Please identify the type of setting that most closely corresponds to your RN/PN nursing practice position.

**Note:** General rule 1, 3 & 4 applies here

*Assisted Living Facility is separated from Nursing Home/Extended (General Rule: 4)*

*Academic Setting is renamed to School of Nursing (General Rule: 4)*

**Response Categories:**

Hospital

Nursing Home/Extended Care

Assisted Living Facility

Home Health

Hospice

Correctional Facility

School of Nursing

Public Health

Dialysis Center

Community Health

School Health Service

Occupational Health

Ambulatory Care Setting

Insurance Claims/Benefits

Policy/Planning/Regulatory/Licensing Agency

Other (Please specify)

### Variable 19: Employment Position\*

**Stem (example):** Please identify the position title that most closely corresponds to your RN/PN nursing practice position.

**Note:** General rule 1, 3 & 4 applies here

#### Response Categories:

Consultant

Nurse Researcher

Nurse Executive

Nurse Manager

Nurse Faculty/Educator

Other-Not Health Related (Please specify)

Advanced Practice Registered Nurse

Staff Nurse

Case Manager

Other-Health Related (Please specify)

### Variable 20: Employment Specialty\*

**Stem (example):** Please identify the employment specialty that most closely corresponds to your RN/PN nursing practice position.

**Note:** General rule 1, 3 & 4 applies here

*Family Health is separated from Adult Health (General Rule: 4)*

*Neonatal is separated from Pediatrics (General Rule: 4)*

#### Response Categories:

Acute care/Critical Care

Adult Health

Family Health

Anesthesia

Cardiology

Community

Geriatric/Gerontology

Home Health

Maternal-Child Health/Obstetrics

Medical Surgical

Nephrology

Occupational health

Other-Non-clinical specialties (Please specify)

Oncology

Palliative Care/Hospice

Pediatrics

Neonatal

Perioperative

Public Health

Psychiatric/Mental Health/Substance Abuse

Rehabilitation

School Health

Emergency/Trauma

Women's Health

Other-Clinical specialties (Please specify)

### Variable 21: Secondary Employment Setting\*

**Stem (example):** Please identify the type of setting that most closely corresponds to your secondary nursing practice position.

**Note:** General rule 1, 3 & 4 applies here

*Assisted Living Facility is separated from Nursing Home/Extended (General Rule: 4)*

*Academic Setting is renamed to School of Nursing (General Rule: 4)*

#### Response Categories:

Hospital

Nursing Home/Extended Care

Assisted Living Facility

Home Health

Hospice

Correctional Facility

School of Nursing

Public Health

Dialysis Center

Community Health

School Health Service

Occupational Health

Ambulatory Care Setting

Insurance Claims/Benefits

Policy/Planning/Regulatory/Licensing Agency

Other (Please specify)

No Secondary Employment Setting

### Variable 22: Secondary Employment Position\*

**Stem (example):** Please identify the position title that most closely corresponds to your secondary nursing practice position.

**Note:** General rule 1, 3 & 4 applies here

#### Response Categories:

Consultant

Nurse Researcher

Nurse Executive

Nurse Manager

Nurse Faculty/Educator

Other-Not Health Related (Please specify)

No Secondary Practice Position

Advanced Practice Registered Nurse

Staff Nurse

Case Manager

Other-Health Related (Please specify)

### Variable 23: Secondary Employment Specialty\*

**Stem (example):** Please identify the employment specialty that most closely corresponds to your secondary nursing practice position.

**Note:** General rule 1, 3 & 4 applies here

*Family Health is separated from Adult Health (General Rule: 4)*

*Neonatal is separated from Pediatrics (General Rule: 4)*

#### Response Categories:

Acute care/Critical Care

Adult Health

Family Health

Anesthesia

Cardiology

Community

Geriatric/Gerontology

Home Health

Maternal-Child Health/Obstetrics

Medical Surgical

Nephrology

Occupational health

Other-Non-clinical specialties (Please specify)

Oncology

Palliative Care/Hospice

Pediatrics

Neonatal

Perioperative

Public Health

Psychiatric/Mental Health/Substance Abuse

Rehabilitation

School Health

Emergency/Trauma

Women's Health

Other-Clinical specialties (Please specify)

No Secondary Employment Specialty

- **Note from The Forum** The response options for these variables were derived from the response options to similar questions in HRSA's National Sample Survey of Registered Nurses. After discussion among work group members and Forum members who participated in the initial data summit, we felt that by collapsing some of the response options we would have a better opportunity of meeting our Minimum Data Set goals of capturing data that is already being collected instead of asking for an exhaustive and very detailed list of settings, positions, and specialties.