



## Missouri's Nursing Workforce – 2015

Nursing is the protection, promotion, and optimization of health and abilities, prevention of injury and illness and the alleviation of suffering through the diagnosis and treatment of human response and advocacy in the care of individuals, families, communities, and populations.<sup>1</sup> Nurses participate in a wide variety of health care settings and hold a wide variety of positions related to the provision, coordination, and administration of patient care, education of patients and the public about various health conditions, and conductance of health related research.<sup>1,2</sup> In Missouri, nurses receive licensure through the Department of Insurance, Financial Institutions, and Professional Registration, Board of Nursing.

The Board of Nursing licenses three categories of nurses:<sup>3</sup>

- Licensed Practical Nurse (LPN) – requires graduation from a school of practical nursing.
- Registered Nurse (RN) – requires graduation from a school of professional nursing.
- Advanced Practice Registered Nurse (APRN) – registered nurse providing advanced care in a specialty area of clinical nursing.

The Board of Nursing and the Missouri Department of Health and Senior Services (DHSS) collect data related to Missouri's nursing professionals. Basic demographic information on licensees is available from the Board's publicly reported data, through the Missouri Health Professionals Registry and the Missouri Healthcare Workforce Registry and Exchange (MoHWoRx), an information system developed by DHSS to help health professionals meet state registration requirements and to provide comprehensive and timely information on health care access statewide.<sup>4</sup>

This report serves as a comparison between the 2014 baseline assessment of Missouri's workforce using information obtained between March 3, 2014 and August 10, 2015.

---

<sup>1</sup> American Nursing Association. *What is Nursing?* Accessed August 14, 2015 at <http://www.nursingworld.org/EspeciallyForYou/What-is-Nursing>.

<sup>2</sup> Bureau of Labor Statistics. *Occupational Outlook Handbook: Registered Nurses*. Accessed August 14, 2015 at <http://www.bls.gov/ooh/healthcare/registered-nurses.htm>.

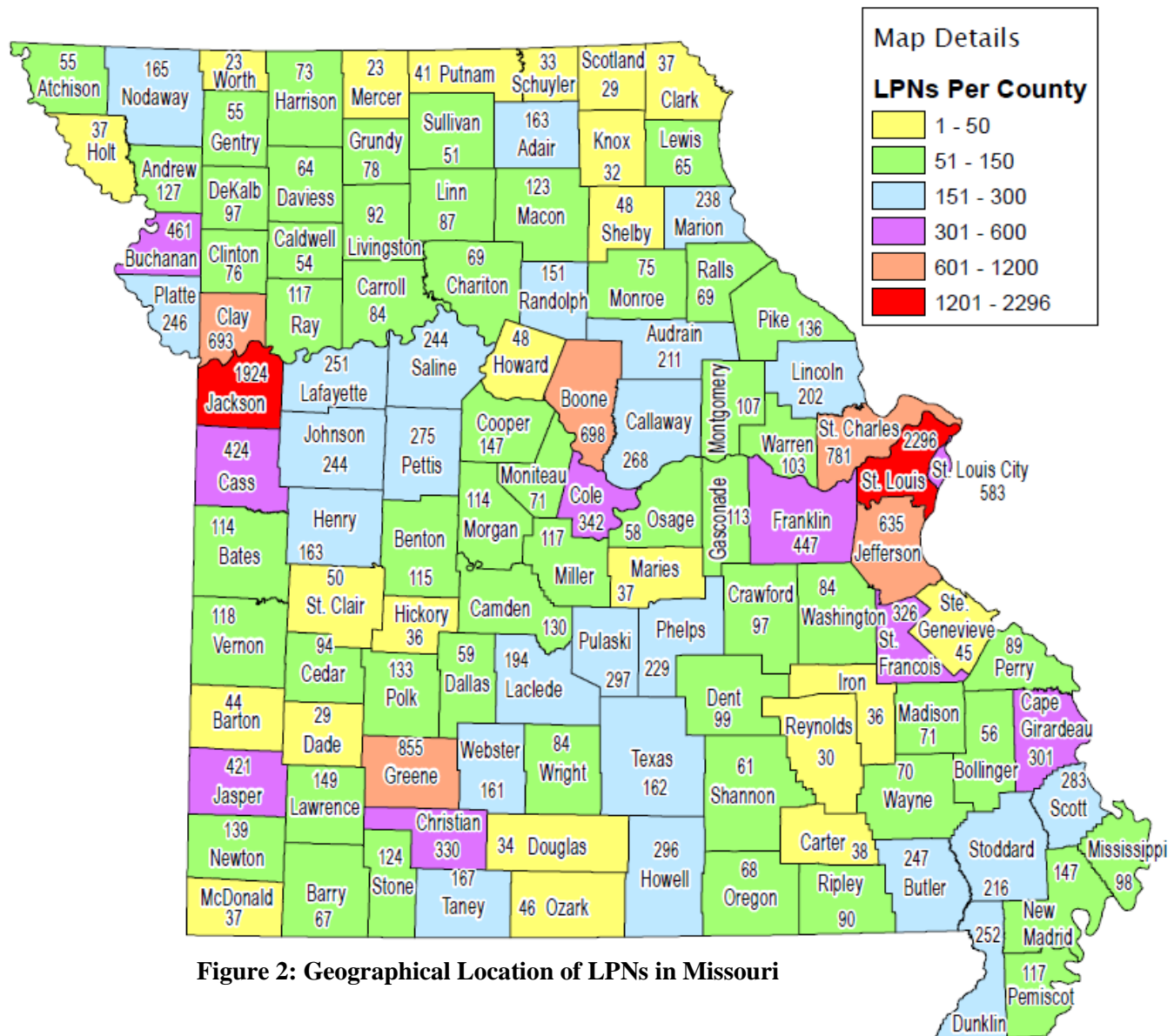
<sup>3</sup> Missouri Revised Statutes. *Chapter 335: Nurses*, August 28, 2014. Accessed September 16, 2015 at <http://www.moga.mo.gov/mostatutes/chapters/chapText335.html>.

<sup>4</sup> Missouri Department of Health and Senior Services. *MOHWORX:PR Search*. Accessed August 10, 2015 at <https://webapp01.dhss.mo.gov/Login/Login.aspx?ReturnUrl=%2fMoHWoRXAdmin%2fDefault.aspx>.



## Geographical Distribution of Licensed Practical Nurses

As of August 10, 2015 there were 24,458 Missouri LPN licensees. Of those, 22,622 list a current Missouri contact or practice address. These numbers have decreased slightly from 2014 in which there were 25,745 Missouri LPN licensees and 23,790 Missouri addresses listed. The county with the largest number of LPNs continues to be St. Louis County with 2,296 licensees, 117 less than 2014. Worth county remains the lowest (23 in 2015 vs. 24 in 2014). There are 59 counties that have less than 100 LPNs, all of which are rural.<sup>4</sup> The LPN to population ratio in rural Missouri is 1:184, compared to the LPN to population ratio in urban Missouri, 1:365.<sup>7</sup> It is important to note that there are 101 rural Missouri counties and 14 urban counties.<sup>8</sup> Figure 2 displays the number of LPNs for each Missouri County.



<sup>7</sup> United States Census. *State and County Quick Facts: Missouri*. Accessed August 18, 2015 at <http://quickfacts.census.gov/qfd/states/29000.html>.

<sup>8</sup> Missouri Department of Health and Senior Services, *Health in Rural Missouri*. Accessed August 18, 2015 at <http://health.mo.gov/living/families/ruralhealth/pdf/biennial2013.pdf>.

## Employment & Wages

Employment numbers vary depending on the industry and geographic location each LPN serves in. Skilled Nursing Facilities (SNF) employ the largest amount of LPNs, with over twice as many employees as the second highest industry, General Medical and Surgical Hospitals. In addition, LPNs employed at SNFs earn a marginally higher salary on average than those employed in most other industries.<sup>9</sup> Figure 3 displays the industries with the highest levels of employment for LPNs. Figure 4 highlights the geographical areas with the highest levels of LPN employment in Missouri.

Industry	Employment	Percent of industry employment	Hourly mean wage	Annual mean wage
Nursing Care Facilities (Skilled Nursing Facilities)	212,760	12.84	\$21.39	\$44,500
General Medical and Surgical Hospitals	101,580	1.94	\$20.35	\$42,330
Offices of Physicians	91,870	3.74	\$19.20	\$39,930
Home Health Care Services	78,810	6.28	\$21.81	\$45,370
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	46,400	5.53	\$21.30	\$44,310

Figure 3. Industries with the Highest Level of National Employment for LPNs<sup>9</sup>

Area	Total Employment
St. Louis	5,920
Kansas City	4,470
Springfield	1,460
Columbia	600
Joplin	370
Jefferson City	460
St. Joseph	390
Cape Girardeau	300

Figure 4. Geographical Areas with Highest Levels of Employment in Missouri for LPNs<sup>9</sup>

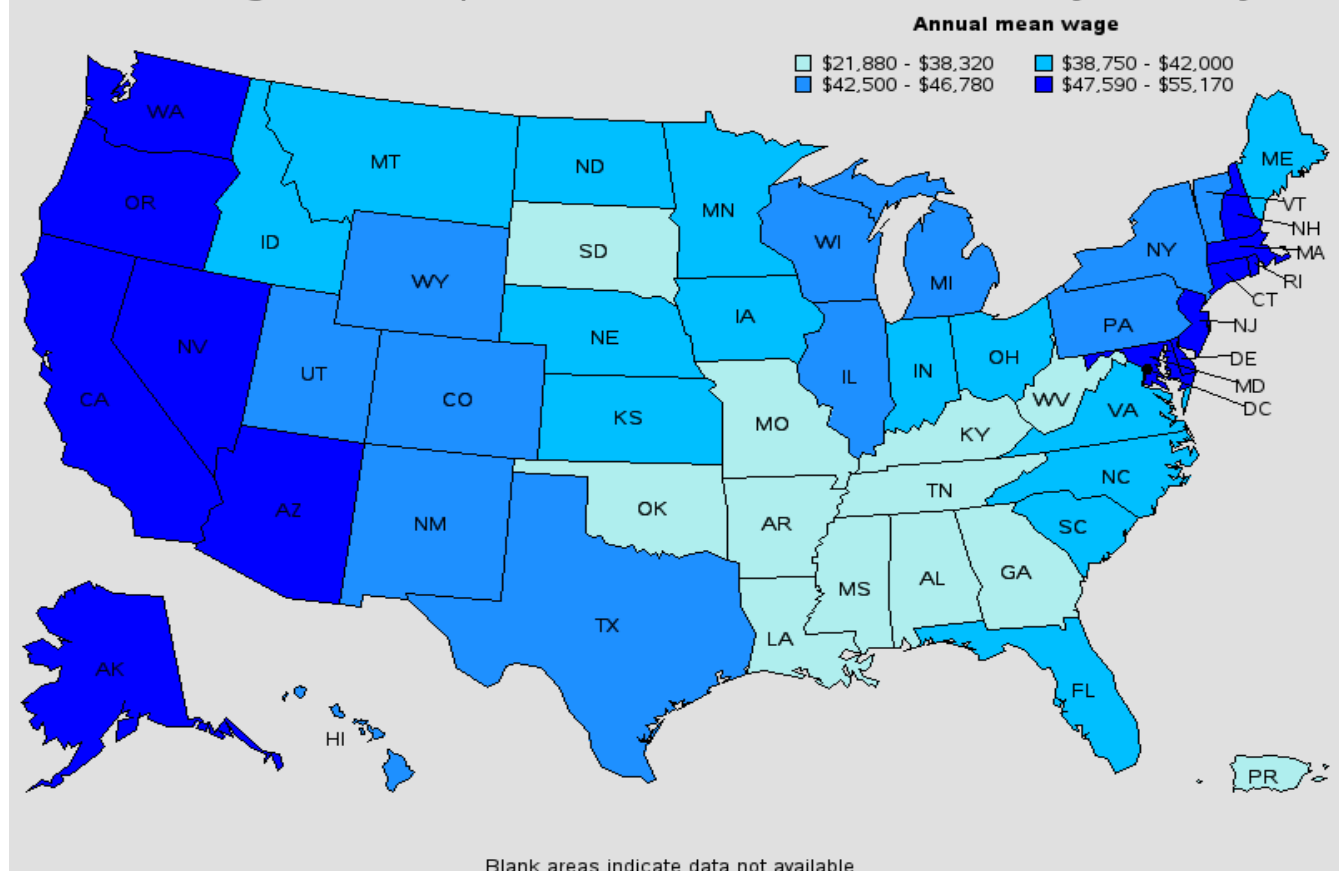
The national annual median wage for LPNs is \$41,540. The median annual wage for an LPN in Missouri is slightly higher than the national median at \$42,490.<sup>8</sup> Figure 5 shows the annual and hourly wage percentiles in Missouri as of May 2014. The map in figure 6 portrays the mean wage nationwide.

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	\$15.21	\$17.20	\$20.43	\$23.78	\$28.22
Annual Wage	\$31,640	\$35,780	\$42,490	\$49,450	\$58,710

Figure 5. Percentage Ranks of Missouri LPN wages<sup>9</sup>

<sup>9</sup> Bureau of Labor Statistics. *Occupational Employment Statistics: Licensed Practical and Licensed Vocational Nurses*. Accessed August 10, 2015 at <http://www.bls.gov/oes/current/oes292061.htm>.

## Annual mean wage of licensed practical and licensed vocational nurses, by state, May 2014



**Figure 6. Geographical Distribution of the Annual Mean Wage for LPNs<sup>9</sup>**

According to the Health Resources and Services Administration's (HRSA) Health Workforce Simulation Model, nationally the supply of LPNs is projected to grow 36 percent between the years 2012 and 2025 while the demand for LPNs during the same time period is only projected to grow by 28 percent.<sup>10</sup> Using the same model, it is expected that growth in supply of LPNs in Missouri will exceed growth in demand by over 1,710 nurses by the year 2025. Notwithstanding the projected oversupply, the continued growth in demand for LPNs is expected to be driven by need in Skilled Nursing Facilities and other extended care facilities to care for the increasing number of geriatric patients. In addition, many procedures are now being performed in outpatient centers with a high LPN staffing rate.<sup>11</sup>

### Registered Nurses (RNs)

#### Education & Licensure

There are 3 common education paths one can take to become an RN: a diploma from an approved nursing program, an Associate's degree in nursing (ADN), or a bachelor's degree in nursing (BSN). Programs last between 2 and 4 years and all programs include clinical experience and RNs must be licensed before being employed. In Missouri, RNs obtain licensure through either endorsement or examination. RNs that have been previously licensed in a different state can become licensed by endorsement in Missouri under the NLC.<sup>12</sup>

Currently there are 37 Missouri approved Associate Degree nursing programs, and 25 Missouri approved Bachelor's Degree nursing programs. Lutheran School of Nursing in St. Louis, Missouri is listed as the 1 Missouri approved Diploma program of Professional Nursing.<sup>13</sup>

<sup>10</sup> HRSA. *Future of Nursing Workforce: National- and State-level Projections, 2012-2025*. Accessed September 15, 2015 at <http://bhpr.hrsa.gov/healthworkforce/supplydemand/nursing/workforceprojections/nursingprojections.pdf>,

## Geographical Distribution of RNs

As of August 10, 2015, there were 99,754 Missouri RN licensees. Of those, 80,201 list a current Missouri contact or practice address. The number of Missouri Licensees has increased by 1,921 since March of 2014. The number of RNs listing a current Missouri address has decreased by 1,058. In comparison with the 2014 analysis, St. Louis County continues to have the largest population of RNs, 16,581. This is 1,257 less than the previous year. Worth County continues to have the lowest number at 26 RNs, 9 more than 2014.<sup>4</sup> The RN to population ratio for rural Missouri is 1:91 and 1:68 for urban Missouri.<sup>7</sup> Figure 7 displays the number of RNs for each Missouri County.

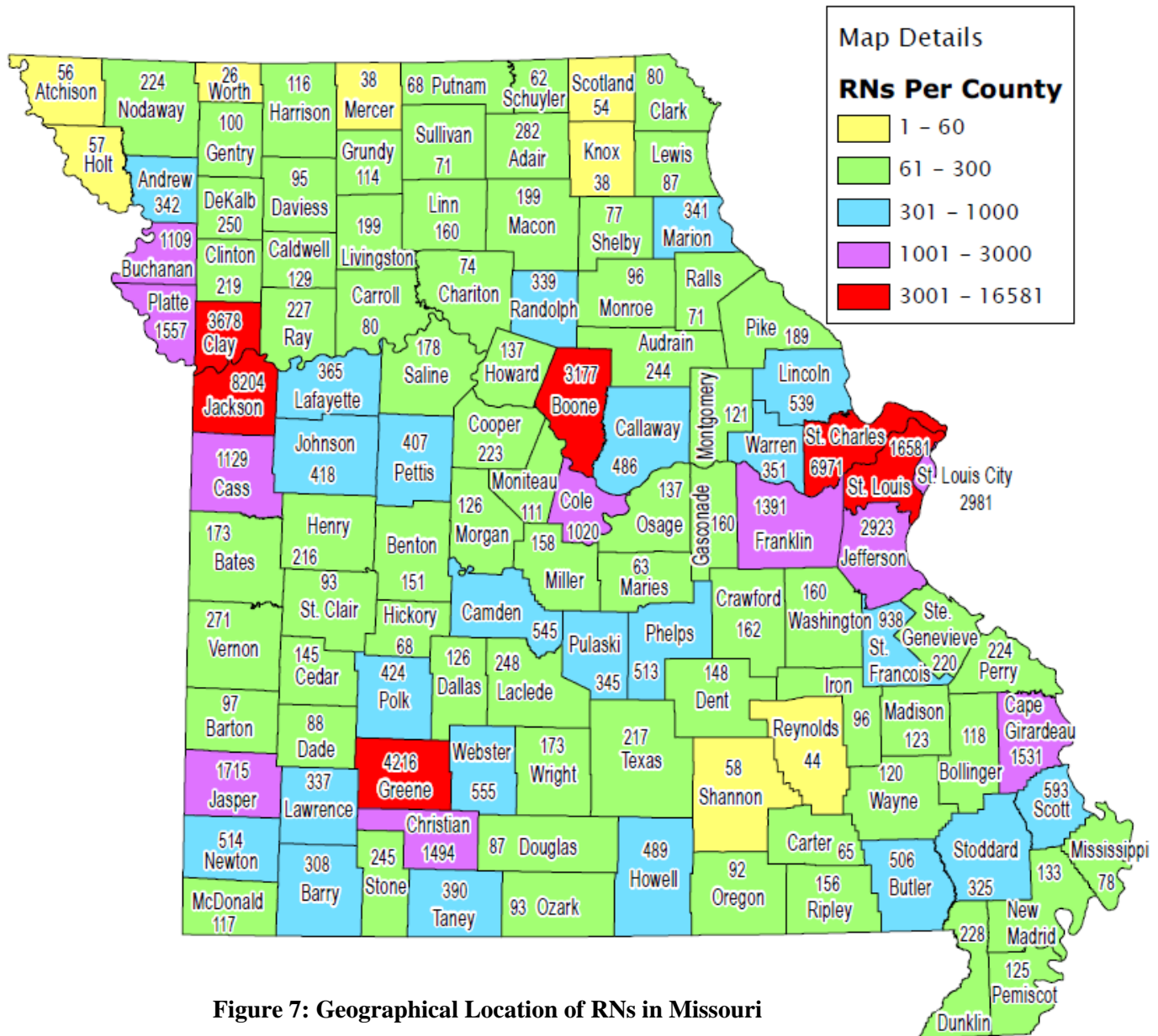


Figure 7: Geographical Location of RNs in Missouri

<sup>11</sup> Bureau of Labor Statistics. *Occupational Outlook Handbook: Licensed Practical and Licensed Vocational Nurses*. Accessed 10, 2015 at <http://www.bls.gov/ooh/healthcare/licensed-practical-and-licensed-vocational-nurses.htm>.

<sup>12</sup> National Council of State Board of Nursing. *Licensure*. Accessed August 10, 2015 at <https://www.ncsbn.org/licensure.htm>.

<sup>13</sup> Missouri Approved Programs of Practical Nursing. Accessed August 15, 2015 at <http://pr.mo.gov/boards/nursing/schoolsofnursing.pdf>.



Occupation: Registered Nurses	Employment	Hourly mean wage	Annual mean wage	Annual 25 <sup>th</sup> % wage	Annual median wage	Annual 75 <sup>th</sup> % wage	Employment per 1,000 jobs
Area name							
Cape Girardeau- Jackson, MO-IL	1940	25.00	51990	42310	49130	61600	46.090
Columbia, MO	3170	27.18	56530	45490	55490	67870	34.856
Jefferson City, MO	1290	26.36	54820	46380	53650	61660	18.234
Joplin, MO	2250	21.84	45430	37990	43900	50630	28.795
Kansas City, MO-KS	21150	30.18	62770	53040	63310	72430	21.014
St. Louis, MO-IL	34400	28.43	59130	46700	57490	71120	26.353
Springfield, MO	5160	25.14	52300	42200	50540	62970	26.498
Central Missouri nonmetropolitan area	2800	25.76	53580	43550	52560	63160	16.236
North Missouri nonmetropolitan area	1460	24.02	49950	42610	48800	57280	16.761
Southeast Missouri nonmetropolitan area	3850	24.58	51120	42690	49190	58610	24.739
Southwest Missouri nonmetropolitan area	1100	26.25	54600	44640	52260	62120	15.377

Figure 10. Geographical Distribution of RN Employment and Wages in Specific Areas of Missouri <sup>14</sup>

According to data from the Health Resources and Services Administration's (HRSA) Health Workforce Simulation Model, 2.9 million RNs were employed nationally in 2012 and the number of new graduates entering the workforce annually increased significantly from 68,000 in 2001 to more than 150,000 in 2012-2013.<sup>10</sup> The national supply of RNs is projected to grow by 33 percent between the years 2012 and 2025, outpacing the projected 21 percent increase in demand over the same time period. In Missouri it is projected that growth in the supply of RNs will exceed growth in demand by over 17,000 nurses in the year 2025.<sup>10</sup> Again, notwithstanding the projected oversupply, a continued increase in the aging population, as well as an increase in the number of people having access to healthcare through the expanded availability of health insurance, will result in increased demand for health care services provided by RNs.<sup>14</sup>

### Advanced Practice Registered Nurses (APRN)

#### Education & Licensure

In 2008 the Census Model for APRN Regulation: Licensure, Accreditation, Certification, and Education was established to regulate the education and practice of APRNs. There are 4 APRN roles defined in the model<sup>15</sup>:

- Certified nurse-midwives (CNM)
- Certified registered nurse anesthetists (CRNA)
- Clinical nurse specialists (CNS)
- Certified nurse practitioners (CNP)

APRNs are educated in 1 of these 4 roles and in at least 1 of the following 6 focus points: family or individual across lifespan, adult gerontology, pediatrics, neonatal, women's health, and psych/mental health. An APRN education consists of a broad-based education, including three separate graduate-level courses in advanced physiology/pathophysiology, health assessment and pharmacology, as well as appropriate clinical experiences. The individual must then pass a national competency exam. To become a certified APRN, one must have a formal education with a graduate degree or post-graduate certificate awarded by an academic institution accredited by the U.S. Department of Education and/or the Council for Higher Education Accreditation.<sup>15</sup>





## **Employment & Wages**

APRN employment and wages vary depending on industry and geographical location. Figure 12 lists the current number of APRN categories and areas of clinical nursing specialties listing a Missouri address in comparison with the 2014 numbers. Overall, numbers increased slightly over the 15 month period between assessments.<sup>4</sup>

<b>APRN Categories</b>	<b>2015</b>	<b>2014</b>
<b>Acute Care NP</b>	<b>151</b>	<b>120</b>
<b>Acute Care Pediatric NP</b>	<b>4</b>	<b>4</b>
<b>Adult Acute &amp; Critical Care CNS</b>	<b>11</b>	<b>8</b>
<b>Adult Health CNS</b>	<b>134</b>	<b>133</b>
<b>Adult NP</b>	<b>760</b>	<b>654</b>
<b>Adult Psych/Mental Health CNS</b>	<b>82</b>	<b>89</b>
<b>Adult Psych/Mental Health NP</b>	<b>45</b>	<b>47</b>
<b>Advanced Dialysis CNS</b>	<b>2</b>	<b>3</b>
<b>Advanced Oncology CNS</b>	<b>11</b>	<b>11</b>
<b>Advanced Oncology NP</b>	<b>1</b>	<b>2</b>
<b>Child-Adolescent Psych/ MH CNS</b>	<b>15</b>	<b>16</b>
<b>Community Health CNS</b>	<b>5</b>	<b>5</b>
<b>Family Nurse Practitioner</b>	<b>2,555</b>	<b>2,153</b>
<b>Family Psych/Mental Health NP</b>	<b>56</b>	<b>37</b>
<b>Gerontological CNS</b>	<b>18</b>	<b>21</b>
<b>Gerontological NP</b>	<b>57</b>	<b>61</b>
<b>Maternal-Child CNS</b>	<b>1</b>	<b>2</b>
<b>Neonatal Acute/Critical Care CNS</b>	<b>2</b>	<b>2</b>
<b>Nurse Anesthetist</b>	<b>1,199</b>	<b>1,175</b>
<b>Nurse Midwife</b>	<b>84</b>	<b>67</b>
<b>Pediatric Acute/Critical Care CNS</b>	<b>2</b>	<b>0</b>
<b>Neonatal NP</b>	<b>143</b>	<b>130</b>
<b>Pediatric CNS</b>	<b>21</b>	<b>20</b>
<b>Pediatric NP</b>	<b>499</b>	<b>467</b>
<b>Perinatal CNS</b>	<b>3</b>	<b>3</b>
<b>Psych/Mental Health NP</b>	<b>2</b>	<b>2</b>
<b>Women's Health NP</b>	<b>269</b>	<b>271</b>
<b>Total</b>	<b>6,133</b>	<b>5,503</b>

**Figure 12. APRN Employment Comparisons in Missouri by Specialty<sup>4</sup>**

\*2014 data was obtained from the Missouri Division of Professional Registration. Downloadable listings from this data source were not available for 2015 at the time of publication. Due to the use of two differing data sources, discrepancies in numbers may occur.

Figures 13-15 show the variation of APRN employment due to sector on a national level and geographical location on a state level. Distribution of National mean wage of APRNs by geographical location is represented in Figure 16. Estimates are not available for geographical listings of Nurse Midwives in Missouri.<sup>16</sup>

Industry	Employment	Percent of industry employment	Hourly mean wage	Annual mean wage
General Medical and Surgical Hospitals	1,556,930	29.98	\$33.56	\$69,810
Offices of Physicians	235,710	10.06	\$35.04	\$72,890
Home Health Care Services	156,730	13.92	\$31.31	\$65,120
Nursing Care Facilities	138,080	8.27	\$29.25	\$60,830
Outpatient Care Centers	95,180	15.56	\$34.72	\$72,220

Figure 13. Industries with the Highest Levels of Employment for an APRN Nationally<sup>16</sup>

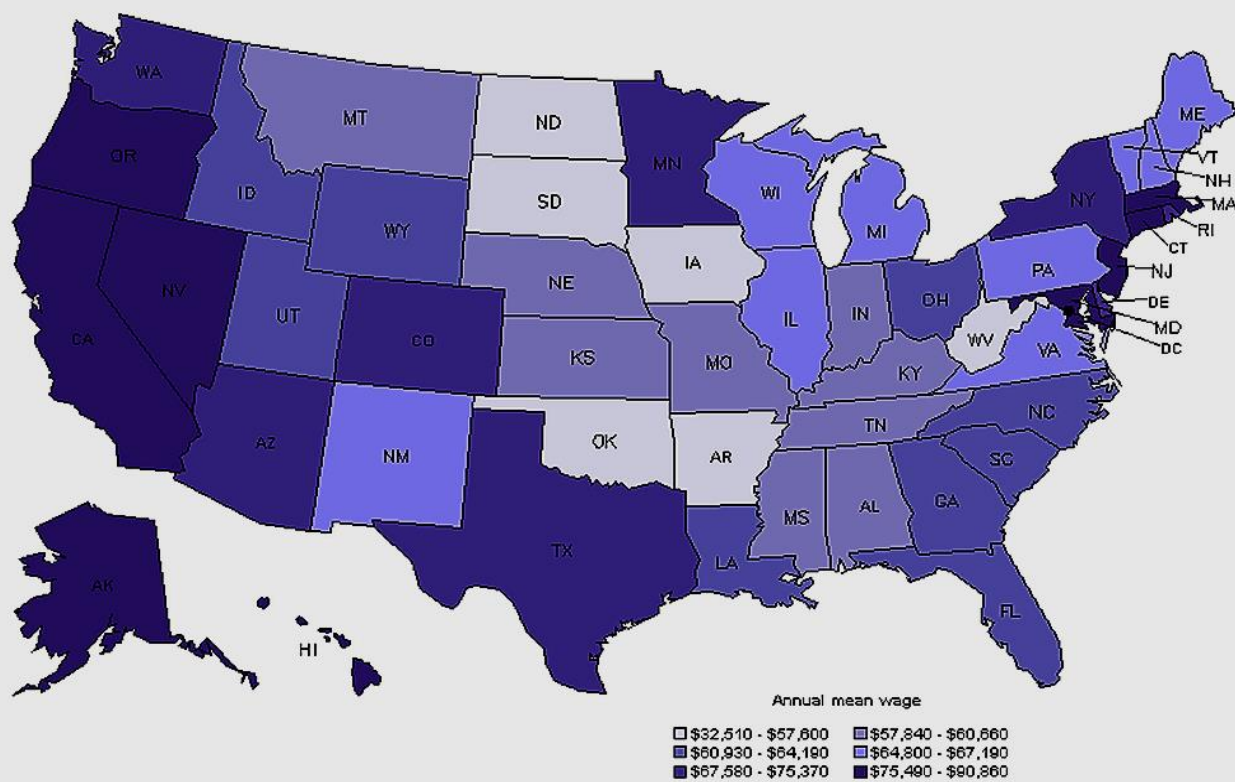
Area	Nurse Anesthetists Employment
Columbia, MO	100
Kansas City, MO-KS	450
St. Louis, MO-IL	530
Central Missouri nonmetropolitan area	Estimate not released
Southeast Missouri nonmetropolitan are	40

Figure 14. Geographical Distribution of Nurse Anesthetist Employment in Specific Regions of Missouri<sup>16</sup>

Area	Nurse Practitioners Employment
Cape Girardeau-Jackson, MO-IL	140
Columbia, MO	120
Jefferson City, MO	60
Joplin, MO	Estimate not released
Kansas City, MO-KS	1,030
St. Joseph, MO-KS	30
St. Louis, MO-IL	1,800
Springfield, MO	240
Central Missouri nonmetropolitan area	100
North Missouri nonmetropolitan area	170
Southeast Missouri nonmetropolitan area	190
Southwest Missouri nonmetropolitan area	60

Figure 15. Geographical Distribution of Nurse Practitioner Employment in Specific Regions of Missouri<sup>16</sup>

## Annual mean wage of registered nurses\*, by state, May 2011



**Figure 16. Geographical Distribution of the National Annual Mean Wage for APRNs** <sup>16</sup>

\* Includes advance practice nurses such as: nurse practitioners, clinical nurse specialists, certified nurse midwives, and certified registered nurse anesthetists.

The average percent of employed APRNs is projected to grow 31 percent between the years 2012 and 2022. This is much quicker than all other occupations, including LPNs (25 percent) and RNs (19 percent). APRNs are being permitted to perform additional services in recent years due to states changing their laws governing APRN practice authority. APRNs are able to perform many of the same services physicians do and are being more widely recognized as a source of primary care. These factors, in addition to an increase in the aging population will result in steady growth in the APRN profession. <sup>17</sup> It is nationally estimated, however, that while the supply of primary care Nurse Practitioners is expected to increase 30 percent by 2020, the overall demand is only expected to increase by 17 percent. <sup>18</sup>

<sup>16</sup> Bureau of Labor Statistics. *Occupational Employment and Wages: Registered Nurses\**. Accessed August 15, 2015 at <http://www.bls.gov/oes/2011/may/oes291111.htm>.

<sup>17</sup> Bureau of Labor Statistics. *Occupational Outlook Handbook: Nurse Anesthetists, Nurse Midwives, and Nurse Practitioners*. Accessed August 14, 2015 at <http://www.bls.gov/ooh/healthcare/nurse-anesthetists-nurse-midwives-and-nurse-practitioners.htm>.

<sup>18</sup> HRSA. *Projecting the Supply and Demand for Primary Care Practitioners through 2020*. Accessed September 16, 2015 at <http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/primarycare/>.

## **Conclusion**

Working with data from the Missouri Board of Nursing, the Missouri Department of Health and Senior Services, the Bureau of Labor and Statistics, and the Health Resources and Services Administration, this 2015 nurse workforce analysis provides a more comprehensive, unique and dynamic picture of Missouri's nursing workforce. Each sector of Missouri's nursing workforce encompasses a variety of educational levels, skills, and specialties. In addition to occupational variety; industry and geographic location create diversity in the workforce. As such, a variety of issues come to light.

The increasing number of Missouri located APRNs listed as Family Nurse Practitioners (2,555 as compared with 2,153 in 2014) holds widespread implications for the assessment of access to primary medical care services, including the analysis of Health Professional Shortage Areas (HPSAs).<sup>4</sup> Utilizing data from the Health Resources and Services Administration (HRSA) Data Warehouse, as of September, 2015, there were 213 Primary Medical Care HPSAs (i.e. areas with shortages of primary care physicians) in Missouri. Missouri has seen an additional 20 HPSAs since December of 2014. It is estimated that approximately 30 percent of Missourians reside in these HPSAs, and an additional 351 primary care physicians are needed to provide services to these residents and end the HPSA designation.<sup>19</sup> This assessment continues to provide an indication that APRNs play a critical role in filling the gap in access to primary care services in most, if not all areas of Missouri.

One of the most intriguing findings of the 2014 assessment that holds true is the number of LPNs located in rural counties. As shown in Figure 2, Missouri's urban counties have a rate of 1 LPN per 365 residents, nearly twice the rate of rural counties (1 per 184 residents).<sup>4</sup> This is quite unique, as urban rates of health professionals are almost uniformly lower than rural rates. This could potentially be due to a number of factors, such as lower overall levels of educational attainment in rural areas, a reliance on less expensive care providers in rural areas, a lower level of specialized care settings in rural areas, or lack of opportunities for attainment of education leading to advanced licensure.<sup>8</sup>

New data from the Health Resources and Services Administration demonstrates the widespread variability in the supply and demand of LPNs and RNs throughout the United States.<sup>10</sup> While the overall national projection for LPNs and RNs is for supply to outpace demand, this projection is not uniform in all States. This variability in distribution nationally is consistent with the variability in distribution of nurses in Missouri demonstrated by this report. Particularly important to note is the dynamic nature of demand for nursing services in a time of significant changes in health care. In Missouri, the effects of changes to provider scopes of practice, changes to reimbursement or enrollment in health insurance plans, or changes to existing practice models (e.g. Accountable Care Organizations) could significantly alter the supply and demand of nurses.

---

<sup>19</sup> US Department of Health and Human Services. *HPSAs: Missouri*. Accessed August 15, 2015 at <http://datawarehouse.hrsa.gov/tools/analyzers/hpsafind.aspx>.