

Opportunity Occupations:

exploring employers'
educational preferences
for registered nurses using
online job posting data

Kyle Fee

*Regional Community Development Advisor,
Federal Reserve Bank of Cleveland*

This *A Look behind the Numbers* takes a deep dive into the registered nurse (RN) labor market, using online job posting data to gain a better understanding of how much education employers prefer when hiring. This analysis provides several insights into the RN labor market:

- Online job postings for RNs have far outpaced the postings for all other jobs since 2014.
- The level of increased online job postings for RNs varies across metro areas.
- Of the increased number of online job postings for RNs, most do not require candidates to have a bachelor's degree.
- Employer educational preferences for RNs—once trending toward more education—have been trending toward less education since 2014.
- While regional differences remain, there appears to be some convergence on employers' educational preferences for RNs.
- The type of employer often dictates the amount of education they prefer.

The preservation of multiple career paths into the registered nurse profession is vital to preserving access to this opportunity occupation for low- and moderate-income individuals while ensuring that current and future staffing needs are accommodated.

INTRODUCTION

Gaining a clearer understanding of what employers' preferences for RNs are by analyzing online job postings is a valid exercise for several reasons. First, registered nursing was identified as one of the most prevalent and highest-paying opportunity occupations¹ in a 2015 [report](#)² by the Federal Reserve Banks of Philadelphia, Cleveland, and Atlanta. Across the top 100 metro areas, RNs, on average, accounted for 8.0 percent of opportunity occupation employment at an average annual salary of \$68,000. Moreover, the report noted that employers' educational preferences for RNs in the top 100 metro areas had been steadily moving toward a bachelor's degree. In 2010, only 30.4 percent of online job postings for RNs were asking for a bachelor's degree or higher compared to 40.4 percent in 2014. This move toward more education is important because it limits the availability of decent-paying jobs for those without a four-year degree. On average, a metro area's share of opportunity occupation employment declines 2.1 percent if educational preferences for RNs are increased.

A second reason this type of analysis is useful is that it can help policymakers meet current and future workforce needs in the face of employment growth, future workforce shortages, and industry staffing trends for RNs. Recent labor market projections estimate registered nursing to have significant growth prospects and future needs. According to the Bureau of Labor Statistics (BLS), registered nursing employment is projected to grow "much faster than average," at 16 percent from 2014 to 2024. Moreover, the "[United States Registered Nurse Workforce Report Card and Shortage Forecast](#)"³ from the *American Journal of Medical Quality* notes "there will be significant RN workforce shortages throughout the country by 2030," reaching an RN deficit of almost 1 million. Anecdotally, nursing shortages are already reported in several parts of the Fourth District, which includes all of Ohio, the western third of Pennsylvania, the eastern half of Kentucky and the panhandle of West Virginia. Meanwhile, industry staffing trends are moving in favor of RNs with bachelor's degrees. In a 2010 report [brief](#),⁴ the National Academy of Medicine (formerly the Institute of Medicine) recommended that 80 percent of RNs hold at least a bachelor's degree by 2020; this suggests employers will increasingly look to hire RNs with four-year degrees.

The third reason this analysis is useful is that it addresses the problem of disconnected information regarding employment opportunities and the educational requirements necessary for particular occupations. This information disconnect is one of the main challenges

that we have found in the current educational–workforce development continuum. One example of this information disconnect is that two national data sources indicate changing and differing educational requirements for RNs. In its latest projections, the BLS changed the "typical education needed for entry" from an associate degree to a bachelor's degree, as it notes that 48.1 percent of current RNs 25 years and older hold a bachelor's degree (Table 1). The BLS profile also notes that RNs "usually take one of three education paths: a bachelor of science degree in nursing (BSN), an associate degree in nursing (ADN), or a diploma from an approved nursing program."⁵ Alternatively, the Occupational Information Network (O*Net), sponsored by the US Department of Labor/ Employment and Training Administration, indicates an associate degree is necessary, based on the results of a survey of incumbent workers and occupational experts on the required education a new hire would need to perform the job.

Table 1: Distribution of the Educational Attainment of RNs by BLS and O*Net Profiles

	BLS*	O*Net**
Less than high school diploma	0.3	NA
High school diploma or equivalent	1.2	NA
Some college, no degree	5.5	11.0
Associate degree	33.9	66.0
Bachelor's degree	48.1	23.0
Master's degree	9.0	NA
Doctoral or professional degree	2.0	NA

Source: Bureau of Labor Statistics, O*Net

*Current education level of RNs 25 years of age and older

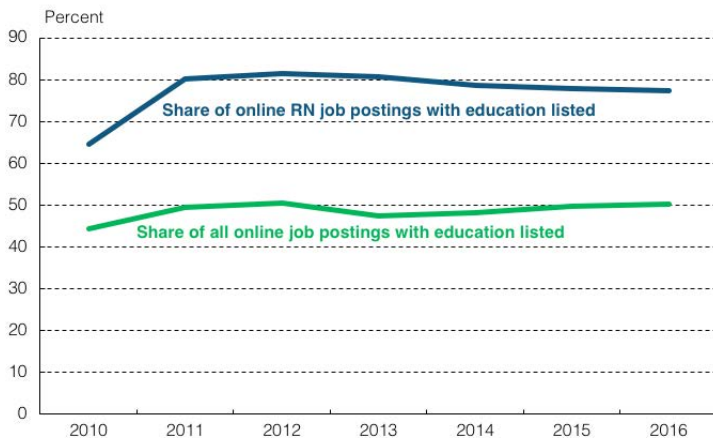
** Required education a new hire would need to perform the job

Discrepancies in recommended educational requirements are not the only example of information disconnects or gaps. Those that we have observed in the Fourth District workforce system include a lack of information about career pathways to decent-paying job opportunities for noncollege-bound youth, a lack of experiential learning opportunities for young people, a lack of high school guidance counselors, and a lack of employer–educational system relationships.⁶

DATA

Burning Glass Technologies is a company that aggregates online job postings from more than 40,000 sources and is often considered to be a provider of real-time labor market information. An array of data points can be extracted from each online job posting, but often, as with all real-time data, the information is incomplete. This analysis uses the geographic location, occupational classification, and minimum education listed to investigate employer educational preferences for RNs from 2010 to 2016. As one might expect, almost 100 percent of job postings include a geographic location and an occupational classification, but not all postings include the minimum educational data point. Figure 1 shows that online RN job postings include a minimum education level roughly 80 percent of the time, compared to 50 percent of the time for all jobs. The high percentage of postings that include education preferences indicates that one can have a certain degree of confidence in these findings. Geographically, this analysis incorporates national and metro area data to reach its conclusion.

Figure 1: Share of Online Job Postings that List Education Requirements



Source: Burning Glass Technologies

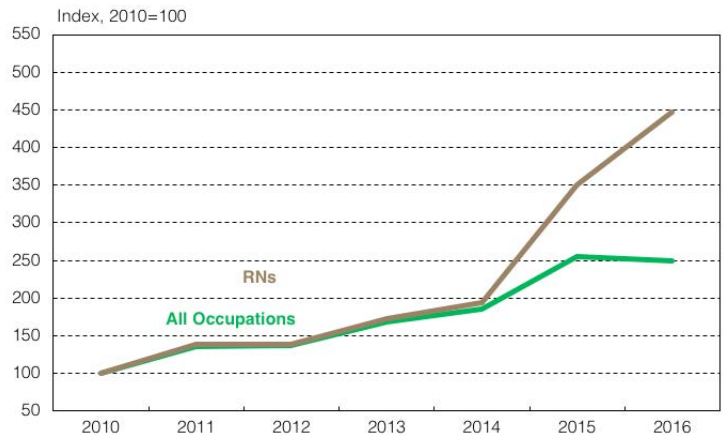
Generally, the main metric of interest is the share of online RN job postings that require a bachelor's degree or higher; we use this metric to indicate employers' educational preferences. If the share of online RN job postings that require a bachelor's degree increases, then we say employer educational preferences are increasing. Alternatively, we say employer education preferences are decreasing when the share of online RN job postings that require a bachelor's degree declines. The increase in total online RN job postings from 2014 to 2016, and the share of those increased RN job postings requiring a bachelor's degree or higher, are also of interest for this analysis.

FINDINGS

Online job postings for RNs have far outpaced the postings for all other jobs since 2014.

Figure 2 shows the growth of online job postings with a minimum education included from 2010 to 2016 for all jobs and for only RN jobs.⁷ From 2010 to 2014, listings for RNs grew at roughly the same rate as listings for all jobs. However, from 2014 to 2016, the number of listings for RNs grew by 130 percent, approximately 4 times the rate of all jobs. As a result, RN listings went from accounting for 5.0 percent of all listings in 2010 to accounting for 8.8 percent in 2016. This increase generally suggests that the demand for RNs has increased since 2014.

Figure 2: Index of Online Job Postings that Include Minimum Education Preferences, All Occupations versus Only RN Positions



Source: Burning Glass Technologies

The level of increased online job postings for RNs varies across metro areas.

Table 2 and Figure 3 show that the level of increased online job postings for RNs varies by metro area. At the high end, 4 of the 100 largest (population-based) metro areas saw the total number of online RN job postings increase by more than 300 percent—that is greater than two times the national rate (130 percent). On the opposite end of the distribution, five metro areas saw the total number of online RN job postings increase by less than 50 percent. Most Fourth District metro areas are grouped around the national rate; however, online job postings in the Pittsburgh metro area increased by only 88.8 percent. Conversely, online job postings grew in excess of 200 percent in both the Cincinnati and Youngstown metro areas. For a complete list of growth in online RN job postings by metro area, see appendix Table 1A.

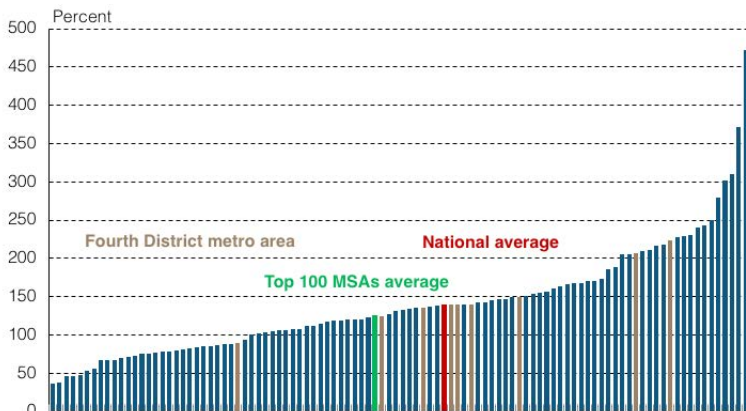
Table 2: MSAs with Greatest and Least Growth (by Percent Change) in Online RN Job Postings, 2014–2016

10 metro areas with the least growth		
Metro area	# of online job postings, 2014	% change, 2014–2016
Allentown-Bethlehem-Easton, PA-NJ	1,439	36.4
New Orleans-Metairie-Kenner, LA	2,491	37.4
Grand Rapids-Wyoming, MI	1,567	45.8
Baton Rouge, LA	917	46.3
Charleston-North Charleston-Summerville, SC	1,784	46.8
Albany-Schenectady-Troy, NY	1,669	53.6
Worcester, MA	1,572	56.2
Louisville-Jefferson County, KY-IN	3,010	66.7
Milwaukee-Waukesha-West Allis, WI	3,114	67.2
Omaha-Council Bluffs, NE-IA	2,732	67.5

10 metro areas with the most growth		
Metro area	# of online job postings, 2014	% change, 2014–2016
Lancaster, PA	331	472.5
Fayetteville-Springdale-Rogers, AR-MO	694	371.2
Bridgeport-Stamford-Norwalk, CT	1,431	309.4
New Haven-Milford, CT	976	302.2
Knoxville, TN	591	279.9
Hartford-West Hartford-East Hartford, CT	1,650	249.8
Honolulu, HI	732	243.4
Virginia Beach-Norfolk-Newport News, VA-NC	1,983	240.6
Cape Coral-Fort Myers, FL	768	230.1
Rochester, NY	1,164	228.4

Source: Burning Glass Technologies

Figure 3: Growth in Online RN Job Postings, 100 Most Populous Metro Areas 2014–2016

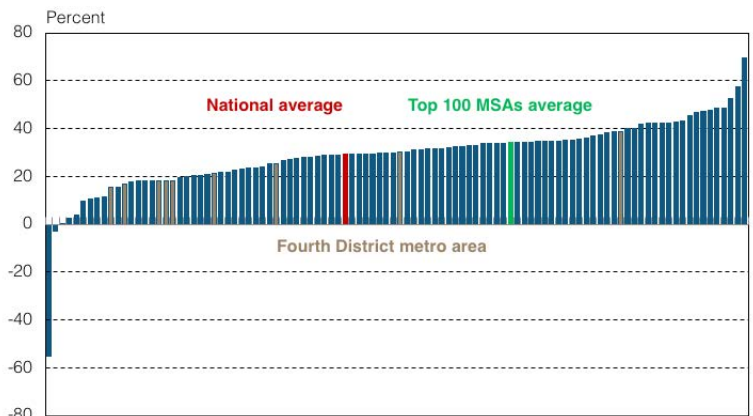


Source: Burning Glass Technologies

Of the increased number of online job postings for RNs, most do not require candidates to have a bachelor's degree.

The increase in the number of online job postings for RNs has mostly come from employers that do not require RNs to have bachelor's degree or higher. Nationally, the share of online job postings requiring a bachelor's degree or higher accounts for less than a third of the 130 percent increase in RN job listings from 2014 to 2016. Figure 4 shows that the share of increased online RN job postings attributable to employers seeking candidates with a bachelor's degree varies markedly across metro areas. The share of increased online RN job postings requiring a bachelor's degree or higher was less than the national share in all but two Fourth District metro areas: Youngstown (30.0 percent) and Pittsburgh (38.7 percent).

Figure 4: Share of Increased Online RN Job Postings Requiring a Bachelor's Degree or Higher, 100 Most Populous Metro Areas 2014–2016



Source: Burning Glass Technologies

Table 3 lists those metro areas with the highest and lowest shares of increased online RN job postings requiring a bachelor's degree or higher. In the Charlotte metro area, almost 70 percent of the 170 percent increase in online RN job postings seek a candidate with a bachelor's degree or higher. Conversely, in the New Orleans metro area, the number of online RN job postings increased by 931, but those seeking a bachelor's degree or higher actually declined by 515 (indicated by the negative number for this metric). For a complete list of shares by metro area, see appendix Table 2A.

Table 3: MSAs with Greatest and Least Share of Growth (by Percent) in Online RN Job Postings that Require a Bachelor's Degree or Higher, 2014–2016

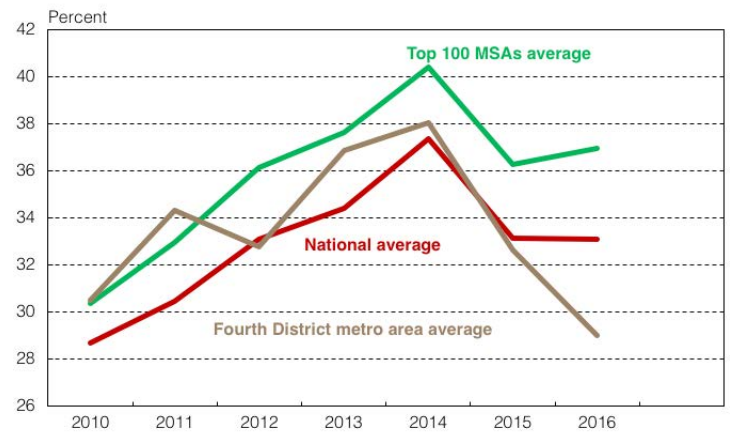
10 metro areas with the least share of growth	
Metro area	%
New Orleans-Metairie-Kenner, LA	-55.3
Oxnard-Thousand Oaks-Ventura, CA	-3.0
Providence-New Bedford-Fall River, RI-MA	0.4
Greenville-Mauldin-Easley, SC	2.6
Grand Rapids-Wyoming, MI	3.9
Charleston-North Charleston-Summerville, SC	9.5
Poughkeepsie-Newburgh-Middletown, NY	10.6
El Paso, TX	11.1
Little Rock-North Little Rock-Conway, AR	11.3
Akron, OH	15.4
10 metro areas with the greatest share of growth	
Metro area	%
Charlotte-Gastonia-Rock Hill, NC-SC	69.7
Albany-Schenectady-Troy, NY	57.6
Raleigh-Cary, NC	52.5
Portland-Vancouver-Hillsboro, OR-WA	48.7
Tucson, AZ	48.6
New York-Northern New Jersey-Long Island, NY-NJ-PA	47.6
Virginia Beach-Norfolk-Newport News, VA-NC	47.3
Syracuse, NY	46.7
Worcester, MA	45.4
Dallas-Fort Worth-Arlington, TX	43.3

Source: Burning Glass Technologies

Employer educational preferences for RNs—once trending toward more education—have been trending toward less education since 2014.

Despite the large increase in the number of online job postings for RNs, employer educational preferences for RNs has declined since 2014 (Figure 5). This is in sharp contrast to the pre-2014 trends, which saw the national share of online RN job postings requesting a bachelor's degree or higher grow from 28.6 percent in 2010 to 37.4 percent in 2014. In 2016, the percent of online RN job postings requesting a bachelor's degree or higher fell to 33.1 percent. A similar pattern is found in most Fourth District metro areas, with the exception of the Pittsburgh and Youngstown metro areas. In the Pittsburgh metro area, employer educational preferences remain elevated in 2016. Alternatively, the Youngstown metro area saw increases in employer educational preferences from 2014 to 2016, yet the share of online RN job postings seeking candidates with a bachelor's degree or higher remained below 30 percent.

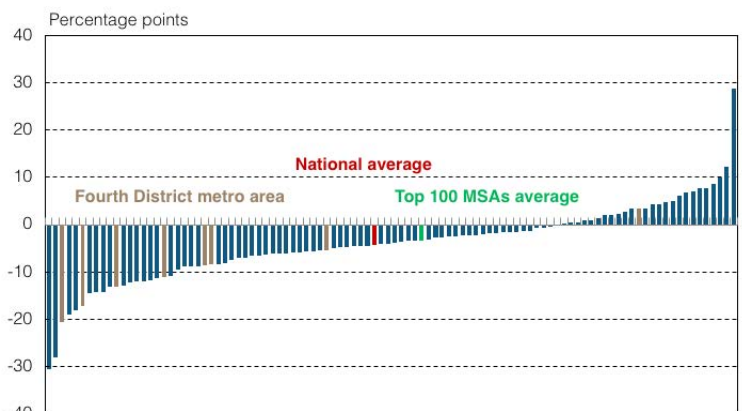
Figure 5: Percent of Online RN Job Postings Requiring a Bachelor's Degree or Higher



Source: Burning Glass Technologies

Figure 6 illustrates the change in the share of online RN job postings seeking bachelor's degrees or higher from 2014 to 2016. Figure 6 shows that, from 2014 to 2016, the change in employer educational preferences for RNs varies across metro areas. Employer educational preferences for RNs actually increased in a handful of metros, lead by the Charlotte metro area with a 28.9 percentage point increase. Conversely, the share of online RN job postings seeking bachelor's degrees or higher has declined in 75 of the 100 largest metro areas. This includes all of the Fourth District metro areas except the Youngstown metro area, where employer educational preferences continue to increase yet they remain relatively low in 2016. A full list of this data by metro area from Figure 6 can be found in appendix Table 3A.

Figure 6: Change in the Share of Online RN Job Postings Seeking Candidates with a Bachelor's Degree or Higher, 100 Most Populous Metro Areas 2014–2016

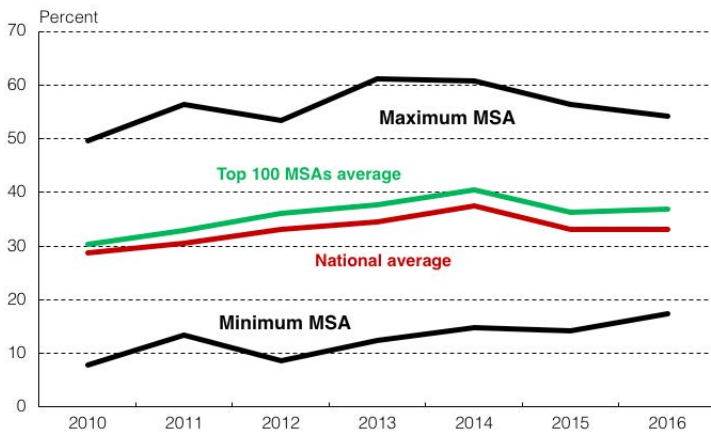


Source: Burning Glass Technologies

While regional differences remain, there appears to be some convergence on employers' educational preferences for RNs.

Figures 7 and 8 suggest employer educational preferences for RNs have been converging since 2014. Figure 7 shows that regional differences in the share of online RN postings requiring a bachelor's degree or higher have gotten closer over the years. Only a 37 percentage point difference exists between the MSA with the highest share of online RN postings requiring a bachelor's degree and the MSA with the lowest share of online RN postings requiring a bachelor's degree in 2016; the same comparison yielded a 49 percentage point spread in 2013. A full list of RN employer education preferences by metro area can be found in appendix Table 4A.

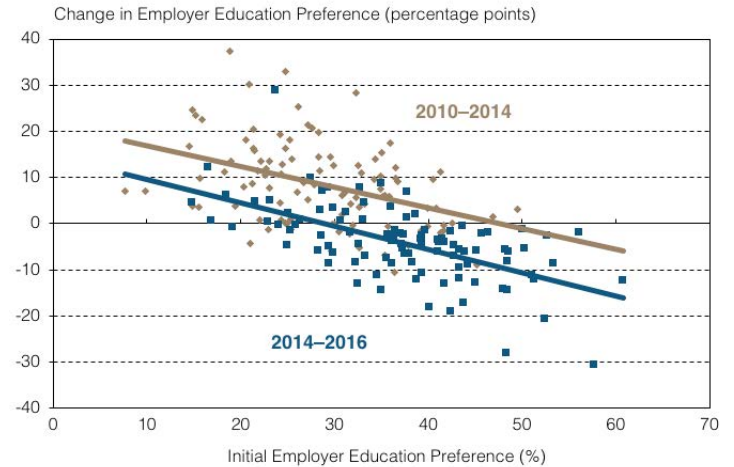
Figure 7: The Distribution of RN Employer Education Preferences by Metro Area



Source: Burning Glass Technologies

Figure 8 shows that this regional convergence across metro areas is due to two dynamics at work during two different time periods. From 2010 to 2014, metro areas with low employer education preferences tended to see those preferences increase, while metro areas with high employer education preferences remained stable or declined slightly. Conversely, from 2014 to 2016, metro areas with high employer education preferences tended to see those preferences decline, while metro areas with low employer education preferences remained stable or increased slightly. These two forces—the pulling up of low employer education preference metro areas in the first period and the pulling down of high employer education preference metro areas in the second period—create a regional convergence around employers' educational preferences for RNs.

Figure 8: Initial Employer Education Preference and Change in Employer Education Preference, 2010–2014 and 2014–2016

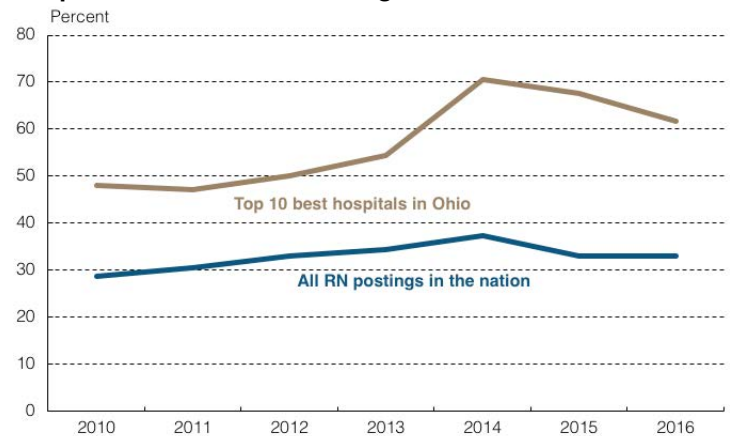


Source: Burning Glass Technologies

The type of employer often dictates the amount of education they prefer.

Using the *US News and World Report* rankings for [Best Hospitals in Ohio](#),⁸ we identify a set of top-ranked hospitals so that we can examine and compare their educational preferences for RNs with those of all RN positions. Figure 9 plots the educational requirements in online RN job postings for the 10 best hospitals in Ohio with online RN job postings for the nation. The 10 best hospitals in Ohio have higher educational preferences for RNs, compared to the nation's RN occupations in general, throughout the time period studied. This suggests that not all employer educational preferences for RNs are equal and that the type of employer matters when looking at educational preferences.

Figure 9: Employer Education Preferences for Top-Ranked Hospitals versus All RN Postings in the Nation



Source: Burning Glass Technologies

CONCLUSION

Total online job postings for RNs increased markedly from 2014 to 2016. Yet most of the increase in online RN job postings is attributable to employers who do not require their candidates to have a bachelor's degree. As a result, overall employer educational preferences for RNs with a bachelor's degree have softened recently, after increasing from 2010 to 2014. While there seems to be some regional convergence on employer educational preferences, the educational requirements for RNs are not uniform. Online job postings for Ohio's top 10 best hospitals indicate that different types of employers have different education preferences for their RN hires, as this group of hospitals tends to seek RNs with a bachelor's degrees.

This analysis shows that despite assertions that a bachelor's degree is required for employment as an RN, there is yet to be a consensus on what the educational requirements should be. Moreover, even if industry standards do shift to favor RNs with bachelor's degrees, **there may be reasons for employers to consider preserving multiple career pathways into the RN profession, both to accommodate industry staffing needs and as a source of opportunity for those who do not have a four-year degree.** The National Academies of Sciences⁹ notes that "minority and disadvantaged students utilize associate's degree programs, baccalaureate completion programs, and community colleges to enter and advance in the field of nursing."

- ¹ An "opportunity occupation" is one that is generally considered accessible to someone without a bachelor's degree and that pays at least the national annual median wage (\$35,540 in 2014), adjusted for differences in local consumption prices.
- ² Wardrip, K., Fee, K., Nelson, L., & Andreason, S. T. (2015). "Identifying Opportunity Occupations in the Nation's Largest Metropolitan Areas."
- ³ Juraschek, S. P., Zhang, X., Ranganathan, V., & Lin, V. W. (2012). "United States Registered Nurse Workforce Report Card and Shortage Forecast." *American Journal of Medical Quality*, 27(3), 241–249.
- ⁴ National Academy of Medicine. (2010). "The Future of Nursing: Focus on Education." October.
- ⁵ "How to Become a Registered Nurse" <https://www.bls.gov/oooh/healthcare/registered-nurses.htm#tab-4>
- ⁶ "Workforce Development Challenges in Ohio" "Workforce Development Listening Sessions in Pennsylvania"
- ⁷ Prior research has shown that online job postings are not representative of all job openings in the economy because employers rely on online job boards to varying degrees to identify prospective candidates.
- ⁸ The hospital must have been nationally ranked in the 12 best hospitals specialties (in which hard data primarily determine a hospital's performance) or had four or more ratings of high performing in a specialty or in the nine best hospitals procedures and conditions. <http://health.usnews.com/health-care/best-hospitals/articles/faq-how-and-why-we-rank-and-rate-hospitals>
- ⁹ National Academies of Sciences, Engineering, and Medicine. "Assessing Progress on the Institute of Medicine Report: The Future of Nursing." Washington, DC: The National Academies Press, 2016.

Table 1A: Growth in Online RN Job Postings that Include Education Preferences, 2014–2016

<u>MSA</u>	<u>%</u>
Akron, OH	139.2
Albany-Schenectady-Troy, NY	53.6
Albuquerque, NM	100.3
Allentown-Bethlehem-Easton, PA-NJ	36.4
Atlanta-Sandy Springs-Marietta, GA	216.0
Austin-Round Rock-San Marcos, TX	133.8
Bakersfield-Delano, CA	148.8
Baltimore-Towson, MD	142.0
Baton Rouge, LA	46.3
Birmingham-Hoover, AL	204.8
Boise City-Nampa, ID	153.3
Boston-Cambridge-Quincy, MA-NH	165.8
Bridgeport-Stamford-Norwalk, CT	309.4
Buffalo-Niagara Falls, NY	76.4
Cape Coral-Fort Myers, FL	230.1
Charleston-North Charleston-Summerville, SC	46.8
Charlotte-Gastonia-Rock Hill, NC-SC	169.9
Chattanooga, TN-GA	118.1
Chicago-Joliet-Naperville, IL-IN-WI	101.8
Cincinnati-Middletown, OH-KY-IN	206.1
Cleveland-Elyria-Mentor, OH	139.2
Colorado Springs, CO	75.9
Columbia, SC	137.8
Columbus, OH	140.1
Dallas-Fort Worth-Arlington, TX	84.1
Dayton, OH	124.8
Denver-Aurora-Broomfield, CO	146.2
Des Moines-West Des Moines, IA	135.0
Detroit-Warren-Livonia, MI	167.1
Durham-Chapel Hill, NC	80.9
El Paso, TX	77.8
Fayetteville-Springdale-Rogers, AR-MO	371.2
Fresno, CA	118.9
Grand Rapids-Wyoming, MI	45.8
Greensboro-High Point, NC	105.2
Greenville-Mauldin-Easley, SC	78.4
Harrisburg-Carlisle, PA	146.5
Hartford-West Hartford-East Hartford, CT	249.8
Honolulu, HI	243.4
Houston-Sugar Land-Baytown, TX	69.4
Huntsville, AL	217.3
Indianapolis-Carmel, IN	145.1
Jackson, MS	170.5
Jacksonville, FL	122.6
Kansas City, MO-KS	126.5
Knoxville, TN	279.9
Lancaster, PA	472.5
Las Vegas-Paradise, NV	82.7
Lexington-Fayette, KY	135.2
Little Rock-North Little Rock-Conway, AR	160.1
Los Angeles-Long Beach-Santa Ana, CA	163.3
Louisville-Jefferson County, KY-IN	66.7

Table 1A: Growth in Online RN Job Postings that Include Education Preferences, 2014–2016

<u>MSA</u>	<u>%</u>
Madison, WI	204.7
McAllen-Edinburg-Mission, TX	185.9
Memphis, TN-MS-AR	133.1
Miami-Fort Lauderdale-Pompano Beach, FL	107.0
Milwaukee-Waukesha-West Allis, WI	67.2
Minneapolis-St. Paul-Bloomington, MN-WI	103.6
Nashville-Davidson--Murfreesboro--Franklin, TN	105.8
New Haven-Milford, CT	302.2
New Orleans-Metairie-Kenner, LA	37.4
New York-Northern New Jersey-Long Island, NY-NJ-PA	119.9
North Port-Bradenton-Sarasota, FL	148.9
Ogden-Clearfield, UT	132.0
Oklahoma City, OK	116.8
Omaha-Council Bluffs, NE-IA	67.5
Orlando-Kissimmee-Sanford, FL	139.8
Oxnard-Thousand Oaks-Ventura, CA	73.3
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	155.9
Phoenix-Mesa-Glendale, AZ	84.6
Pittsburgh, PA	88.8
Portland-Vancouver-Hillsboro, OR-WA	187.9
Poughkeepsie-Newburgh-Middletown, NY	87.4
Providence-New Bedford-Fall River, RI-MA	142.6
Raleigh-Cary, NC	112.0
Richmond, VA	112.3
Riverside-San Bernardino-Ontario, CA	168.3
Rochester, NY	228.4
Sacramento--Arden-Arcade--Roseville, CA	210.8
Salt Lake City, UT	120.2
San Antonio-New Braunfels, TX	85.5
San Diego-Carlsbad-San Marcos, CA	209.6
San Francisco-Oakland-Fremont, CA	173.3
San Jose-Sunnyvale-Santa Clara, CA	120.6
Scranton-Wilkes-Barre, PA	114.4
Seattle-Tacoma-Bellevue, WA	86.9
Springfield, MA	74.8
St. Louis, MO-IL	106.5
Syracuse, NY	79.6
Tampa-St. Petersburg-Clearwater, FL	107.7
Toledo, OH	150.8
Trenton-Ewing, NJ	87.6
Tucson, AZ	94.0
Tulsa, OK	155.2
Virginia Beach-Norfolk-Newport News, VA-NC	240.6
Washington-Arlington-Alexandria, DC-VA-MD-WV	222.9
Wichita, KS	137.1
Winston-Salem, NC	71.1
Worcester, MA	56.2
Youngstown-Warren-Boardman, OH-PA	227.1

Table 2A: Share of Increase in Online RN Job Postings that Require a Bachelor's Degree or Higher, 2014–2016

<u>MSA</u>	<u>%</u>
Akron, OH	15.4
Albany-Schenectady-Troy, NY	57.6
Albuquerque, NM	23.2
Allentown-Bethlehem-Easton, PA-NJ	22.9
Atlanta-Sandy Springs-Marietta, GA	33.8
Austin-Round Rock-San Marcos, TX	33.5
Bakersfield-Delano, CA	24.1
Baltimore-Towson, MD	34.6
Baton Rouge, LA	32.5
Birmingham-Hoover, AL	34.4
Boise City-Nampa, ID	25.3
Boston-Cambridge-Quincy, MA-NH	34.5
Bridgeport-Stamford-Norwalk, CT	29.4
Buffalo-Niagara Falls, NY	42.2
Cape Coral-Fort Myers, FL	18.1
Charleston-North Charleston-Summerville, SC	9.5
Charlotte-Gastonia-Rock Hill, NC-SC	69.7
Chattanooga, TN-GA	27.0
Chicago-Joliet-Naperville, IL-IN-WI	33.6
Cincinnati-Middletown, OH-KY-IN	18.2
Cleveland-Elyria-Mentor, OH	17.0
Colorado Springs, CO	32.2
Columbia, SC	29.8
Columbus, OH	21.4
Dallas-Fort Worth-Arlington, TX	43.3
Dayton, OH	18.2
Denver-Aurora-Broomfield, CO	38.6
Des Moines-West Des Moines, IA	31.4
Detroit-Warren-Livonia, MI	35.9
Durham-Chapel Hill, NC	34.3
El Paso, TX	11.1
Fayetteville-Springdale-Rogers, AR-MO	20.5
Fresno, CA	40.1
Grand Rapids-Wyoming, MI	3.9
Greensboro-High Point, NC	27.6
Greenville-Mauldin-Easley, SC	2.6
Harrisburg-Carlisle, PA	31.0
Hartford-West Hartford-East Hartford, CT	31.8
Honolulu, HI	28.2
Houston-Sugar Land-Baytown, TX	28.7
Huntsville, AL	17.7
Indianapolis-Carmel, IN	20.9
Jackson, MS	35.1
Jacksonville, FL	29.8

Table 2A: Share of Increase in Online RN Job Postings that Require a Bachelor's Degree or Higher, 2014–2016

<u>MSA</u>	<u>%</u>
Kansas City, MO-KS	34.6
Knoxville, TN	15.5
Lancaster, PA	28.1
Las Vegas-Paradise, NV	29.8
Lexington-Fayette, KY	25.3
Little Rock-North Little Rock-Conway, AR	11.3
Los Angeles-Long Beach-Santa Ana, CA	31.3
Louisville-Jefferson County, KY-IN	21.9
Madison, WI	42.2
McAllen-Edinburg-Mission, TX	18.0
Memphis, TN-MS-AR	42.1
Miami-Fort Lauderdale-Pompano Beach, FL	19.7
Milwaukee-Waukesha-West Allis, WI	32.8
Minneapolis-St. Paul-Bloomington, MN-WI	18.1
Nashville-Davidson--Murfreesboro--Franklin, TN	22.6
New Haven-Milford, CT	29.2
New Orleans-Metairie-Kenner, LA	-55.3
New York-Northern New Jersey-Long Island, NY-NJ-PA	47.6
North Port-Bradenton-Sarasota, FL	37.0
Ogden-Clearfield, UT	35.5
Oklahoma City, OK	21.7
Omaha-Council Bluffs, NE-IA	26.4
Orlando-Kissimmee-Sanford, FL	38.4
Oxnard-Thousand Oaks-Ventura, CA	-3.0
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	37.2
Phoenix-Mesa-Glendale, AZ	35.1
Pittsburgh, PA	38.7
Portland-Vancouver-Hillsboro, OR-WA	48.7
Poughkeepsie-Newburgh-Middletown, NY	10.6
Providence-New Bedford-Fall River, RI-MA	0.4
Raleigh-Cary, NC	52.5
Richmond, VA	42.2
Riverside-San Bernardino-Ontario, CA	19.9
Rochester, NY	42.6
Sacramento--Arden-Arcade--Roseville, CA	28.9
Salt Lake City, UT	34.2
San Antonio-New Braunfels, TX	34.6
San Diego-Carlsbad-San Marcos, CA	29.2
San Francisco-Oakland-Fremont, CA	33.7
San Jose-Sunnyvale-Santa Clara, CA	31.3
Scranton-Wilkes-Barre, PA	30.0
Seattle-Tacoma-Bellevue, WA	42.0
Springfield, MA	31.3
St. Louis, MO-IL	28.1

Table 2A: Share of Increase in Online RN Job Postings that Require a Bachelor's Degree or Higher, 2014–2016

<u>MSA</u>	<u>%</u>
Syracuse, NY	46.7
Tampa-St. Petersburg-Clearwater, FL	20.4
Toledo, OH	18.2
Trenton-Ewing, NJ	32.7
Tucson, AZ	48.6
Tulsa, OK	23.4
Virginia Beach-Norfolk-Newport News, VA-NC	47.3
Washington-Arlington-Alexandria, DC-VA-MD-WV	40.1
Wichita, KS	29.4
Winston-Salem, NC	28.9
Worcester, MA	45.4
Youngstown-Warren-Boardman, OH-PA	30.0

Table 3A: Share of Change in Number of Online RN Job Postings that Require a Bachelor's Degree or Higher and Change in Employer Educational Preferences for a Bachelor's Degree or Higher, 2014–2016

	Share of change in number of online RN job postings that require a bachelor's degree or higher, 2014–2016 (%)	Change in employer educational preferences for a bachelor's degree or higher, 2014–2016 (percentage points)
<u>MSA</u>		
Akron, OH	15.4	-11.2
Albany-Schenectady-Troy, NY	57.6	6.9
Albuquerque, NM	23.2	-0.4
Allentown-Bethlehem-Easton, PA-NJ	22.9	-4.4
Atlanta-Sandy Springs-Marietta, GA	33.8	-2.2
Austin-Round Rock-San Marcos, TX	33.5	-5.6
Bakersfield-Delano, CA	24.1	-14.3
Baltimore-Towson, MD	34.6	-4.2
Baton Rouge, LA	32.5	0.5
Birmingham-Hoover, AL	34.4	0.8
Boise City-Nampa, ID	25.3	-4.4
Boston-Cambridge-Quincy, MA-NH	34.5	-4.2
Bridgeport-Stamford-Norwalk, CT	29.4	-6.5
Buffalo-Niagara Falls, NY	42.2	-0.7
Cape Coral-Fort Myers, FL	18.1	-4.8
Charleston-North Charleston-Summerville, SC	9.5	-6.0
Charlotte-Gastonia-Rock Hill, NC-SC	69.7	28.9
Chattanooga, TN-GA	27.0	-5.6
Chicago-Joliet-Naperville, IL-IN-WI	33.6	-5.8
Cincinnati-Middletown, OH-KY-IN	18.2	-17.2
Cleveland-Elyria-Mentor, OH	17.0	-20.6
Colorado Springs, CO	32.2	-12.3
Columbia, SC	29.8	4.8
Columbus, OH	21.4	-8.6
Dallas-Fort Worth-Arlington, TX	43.3	2.1
Dayton, OH	18.2	-13.1
Denver-Aurora-Broomfield, CO	38.6	-8.8
Des Moines-West Des Moines, IA	31.4	-11.3
Detroit-Warren-Livonia, MI	35.9	-3.5
Durham-Chapel Hill, NC	34.3	5.0
El Paso, TX	11.1	-12.1
Fayetteville-Springdale-Rogers, AR-MO	20.5	4.4
Fresno, CA	40.1	1.3
Grand Rapids-Wyoming, MI	3.9	-12.9
Greensboro-High Point, NC	27.6	-12.1
Greenville-Mauldin-Easley, SC	2.6	-13.1
Harrisburg-Carlisle, PA	31.0	-3.2
Hartford-West Hartford-East Hartford, CT	31.8	-8.9
Honolulu, HI	28.2	-6.7
Houston-Sugar Land-Baytown, TX	28.7	-8.1
Huntsville, AL	17.7	0.5

Table 3A: Share of Change in Number of Online RN Job Postings that Require a Bachelor's Degree or Higher and Change in Employer Educational Preferences for a Bachelor's Degree or Higher, 2014–2016

	Share of change in number of online RN job postings that require a bachelor's degree or higher, 2014–2016 (%)	Change in employer educational preferences for a bachelor's degree or higher, 2014–2016 (percentage points)
<u>MSA</u>		
Indianapolis-Carmel, IN	20.9	-5.1
Jackson, MS	35.1	3.3
Jacksonville, FL	29.8	-7.1
Kansas City, MO-KS	34.6	-2.7
Knoxville, TN	15.5	-14.4
Lancaster, PA	28.1	-8.5
Las Vegas-Paradise, NV	29.8	2.1
Lexington-Fayette, KY	25.3	-0.3
Little Rock-North Little Rock-Conway, AR	11.3	-19.2
Los Angeles-Long Beach-Santa Ana, CA	31.3	-6.1
Louisville-Jefferson County, KY-IN	21.9	-2.7
Madison, WI	42.2	9.9
McAllen-Edinburg-Mission, TX	18.0	-0.8
Memphis, TN-MS-AR	42.1	3.4
Miami-Fort Lauderdale-Pompano Beach, FL	19.7	-7.1
Milwaukee-Waukesha-West Allis, WI	32.8	-1.5
Minneapolis-St. Paul-Bloomington, MN-WI	18.1	-10.8
Nashville-Davidson--Murfreesboro--Franklin, TN	22.6	-1.4
New Haven-Milford, CT	29.2	-14.5
New Orleans-Metairie-Kenner, LA	-55.3	-30.7
New York-Northern New Jersey-Long Island, NY-NJ-PA	47.6	-1.4
North Port-Bradenton-Sarasota, FL	37.0	12.2
Ogden-Clearfield, UT	35.5	2.4
Oklahoma City, OK	21.7	-7.5
Omaha-Council Bluffs, NE-IA	26.4	-3.9
Orlando-Kissimmee-Sanford, FL	38.4	-5.8
Oxnard-Thousand Oaks-Ventura, CA	-3.0	-18.3
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	37.2	-1.6
Phoenix-Mesa-Glendale, AZ	35.1	-6.2
Pittsburgh, PA	38.7	-5.5
Portland-Vancouver-Hillsboro, OR-WA	48.7	-2.6
Poughkeepsie-Newburgh-Middletown, NY	10.6	-8.8
Providence-New Bedford-Fall River, RI-MA	0.4	-28.2
Raleigh-Cary, NC	52.5	-1.9
Richmond, VA	42.2	7.1
Riverside-San Bernardino-Ontario, CA	19.9	-6.3
Rochester, NY	42.6	-2.2
Sacramento--Arden-Arcade--Roseville, CA	28.9	-1.9
Salt Lake City, UT	34.2	-3.7
San Antonio-New Braunfels, TX	34.6	2.8
San Diego-Carlsbad-San Marcos, CA	29.2	-9.6

Table 3A: Share of Change in Number of Online RN Job Postings that Require a Bachelor's Degree or Higher and Change in Employer Educational Preferences for a Bachelor's Degree or Higher, 2014–2016

	Share of change in number of online RN job postings that require a bachelor's degree or higher, 2014–2016 (%)	Change in employer educational preferences for a bachelor's degree or higher, 2014–2016 (percentage points)
<u>MSA</u>		
San Francisco-Oakland-Fremont, CA	33.7	-2.4
San Jose-Sunnyvale-Santa Clara, CA	31.3	-2.4
Scranton-Wilkes-Barre, PA	30.0	6.1
Seattle-Tacoma-Bellevue, WA	42.0	-2.1
Springfield, MA	31.3	-3.4
St. Louis, MO-IL	28.1	0.9
Syracuse, NY	46.7	7.7
Tampa-St. Petersburg-Clearwater, FL	20.4	-11.9
Toledo, OH	18.2	-8.5
Trenton-Ewing, NJ	32.7	-4.7
Tucson, AZ	48.6	7.7
Tulsa, OK	23.4	0.3
Virginia Beach-Norfolk-Newport News, VA-NC	47.3	8.7
Washington-Arlington-Alexandria, DC-VA-MD-WV	40.1	-1.7
Wichita, KS	29.4	-4.5
Winston-Salem, NC	28.9	-6.2
Worcester, MA	45.4	4.4
Youngstown-Warren-Boardman, OH-PA	30.0	3.4

Table 4A: Share of Online RN Jobs Postings Requiring a Bachelor's Degree or Higher

MSA	2010	2011	2012	2013	2014	2015	2016
Akron, OH	22.7	27.6	36.0	39.1	34.6	31.7	23.4
Albany-Schenectady-Troy, NY	39.3	41.7	49.7	40.2	37.8	35.0	44.7
Albuquerque, NM	25.4	24.1	30.5	31.7	24.1	20.7	23.7
Allentown-Bethlehem-Easton, PA-NJ	14.8	20.3	20.9	24.6	39.3	40.4	34.9
Atlanta-Sandy Springs-Marietta, GA	30.9	27.7	31.8	32.7	37.1	35.7	34.8
Austin-Round Rock-San Marcos, TX	24.2	32.7	34.3	42.5	43.4	30.8	37.7
Bakersfield-Delano, CA	28.3	31.9	37.0	35.1	48.0	35.1	33.7
Baltimore-Towson, MD	35.8	33.8	38.1	40.7	41.8	36.9	37.6
Baton Rouge, LA	23.1	29.8	26.6	31.5	30.8	29.8	31.3
Birmingham-Hoover, AL	22.6	30.9	34.7	20.6	33.1	39.7	34.0
Boise City-Nampa, ID	30.8	27.5	35.9	38.0	32.7	28.4	28.2
Boston-Cambridge-Quincy, MA-NH	41.6	41.2	40.8	45.7	41.2	40.3	37.0
Bridgeport-Stamford-Norwalk, CT	32.3	34.5	36.7	37.8	38.0	31.3	31.5
Buffalo-Niagara Falls, NY	34.3	32.5	37.4	37.3	43.7	35.3	43.1
Cape Coral-Fort Myers, FL	24.8	24.1	21.7	27.7	25.0	17.4	20.2
Charleston-North Charleston-Summerville, SC	20.3	20.1	31.3	25.6	28.3	26.6	22.3
Charlotte-Gastonia-Rock Hill, NC-SC	29.7	22.5	21.0	24.4	23.8	41.9	52.7
Chattanooga, TN-GA	24.4	24.8	25.4	35.1	37.3	35.7	31.7
Chicago-Joliet-Naperville, IL-IN-WI	34.9	35.2	38.5	45.6	45.2	36.8	39.3
Cincinnati-Middletown, OH-KY-IN	32.9	34.0	36.3	41.7	43.8	36.4	26.6
Cleveland-Elyria-Mentor, OH	41.3	41.5	41.8	45.3	52.4	48.9	31.8
Colorado Springs, CO	32.3	38.3	45.7	49.7	60.8	55.6	48.5
Columbia, SC	22.9	22.3	23.1	23.5	21.5	23.0	26.3
Columbus, OH	32.6	32.2	36.7	35.1	36.1	34.2	27.6
Dallas-Fort Worth-Arlington, TX	20.6	30.9	33.2	34.6	38.7	37.6	40.7
Dayton, OH	21.4	26.3	34.2	40.9	41.8	32.1	28.7
Denver-Aurora-Broomfield, CO	35.9	37.8	44.5	50.7	53.4	49.4	44.6
Des Moines-West Des Moines, IA	20.9	27.6	31.2	38.3	51.1	42.1	39.8
Detroit-Warren-Livonia, MI	35.4	33.5	32.4	35.7	41.5	42.6	38.0
Durham-Chapel Hill, NC	19.4	17.0	18.1	16.3	23.2	27.3	28.2
El Paso, TX	15.2	27.6	28.5	29.0	38.8	27.0	26.7
Fayetteville-Springdale-Rogers, AR-MO	7.7	16.0	8.6	17.3	14.8	14.3	19.3
Fresno, CA	21.4	24.3	35.2	38.6	37.8	34.1	39.0
Grand Rapids-Wyoming, MI	32.6	46.5	44.2	42.5	45.1	36.2	32.1
Greensboro-High Point, NC	26.1	25.1	45.3	61.1	51.3	43.7	39.2
Greenville-Mauldin-Easley, SC	18.9	20.1	24.3	29.4	32.5	23.8	19.4
Harrisburg-Carlisle, PA	27.9	30.3	35.2	37.4	36.4	26.9	33.2
Hartford-West Hartford-East Hartford, CT	40.9	43.5	45.6	40.9	44.3	38.8	35.4
Honolulu, HI	31.1	20.9	31.6	30.9	37.6	38.8	30.9
Houston-Sugar Land-Baytown, TX	27.1	36.9	41.2	40.7	48.5	44.2	40.4
Huntsville, AL	9.8	16.5	13.7	12.4	16.9	15.3	17.4
Indianapolis-Carmel, IN	29.7	35.0	33.3	33.5	29.5	22.8	24.4
Jackson, MS	21.3	24.6	24.3	20.2	29.9	23.9	33.2
Jacksonville, FL	28.3	25.2	23.8	28.1	42.7	29.9	35.6
Kansas City, MO-KS	25.4	26.6	33.7	39.1	39.4	36.3	36.7
Knoxville, TN	35.7	41.7	40.5	38.2	35.0	20.0	20.6
Lancaster, PA	15.9	23.6	33.2	41.4	38.4	22.9	29.9
Las Vegas-Paradise, NV	24.3	18.5	24.5	21.4	25.1	31.3	27.3
Lexington-Fayette, KY	36.5	43.9	42.6	35.4	25.9	23.1	25.6
Little Rock-North Little Rock-Conway, AR	29.9	26.8	32.7	31.9	42.4	26.0	23.3
Los Angeles-Long Beach-Santa Ana, CA	35.2	40.2	37.1	39.2	41.1	34.1	35.0
Louisville-Jefferson County, KY-IN	35.4	33.3	31.7	33.8	28.7	20.5	26.0
Madison, WI	32.6	33.2	29.2	31.1	27.5	32.6	37.3
McAllen-Edinburg-Mission, TX	15.6	13.4	20.0	15.9	19.2	17.8	18.4
Memphis, TN-MS-AR	31.8	33.9	40.6	30.8	36.0	41.1	39.5
Miami-Fort Lauderdale-Pompano Beach, FL	21.8	21.8	29.0	26.7	33.3	25.4	26.3
Milwaukee-Waukesha-West Allis, WI	23.0	27.0	23.6	26.1	36.5	29.5	35.0
Minneapolis-St. Paul-Bloomington, MN-WI	41.3	40.2	42.4	40.7	39.4	33.2	28.6
Nashville-Davidson--Murfreesboro--Franklin, TN	15.7	17.2	22.6	20.4	25.4	22.3	24.0
NATION	28.7	30.5	33.1	34.4	37.4	33.2	33.1
New Haven-Milford, CT	34.4	33.6	34.9	52.5	48.5	45.7	34.0
New Orleans-Metairie-Kenner, LA	24.8	29.3	27.7	34.7	57.7	40.8	26.9
New York-Northern New Jersey-Long Island, NY-NJ-PA	40.5	49.2	53.3	53.2	50.1	47.8	48.8
North Port-Bradenton-Sarasota, FL	21.0	20.0	13.4	15.0	16.6	18.7	28.8

Table 4A: Share of Online RN Jobs Postings Requiring a Bachelor's Degree or Higher

MSA	2010	2011	2012	2013	2014	2015	2016
Ogden-Clearfield, UT	14.6	22.0	15.7	19.2	31.3	40.5	33.7
Oklahoma City, OK	26.7	22.0	29.8	31.5	35.6	25.1	28.1
Omaha-Council Bluffs, NE-IA	45.2	56.4	42.3	38.1	36.2	31.1	32.2
Orlando-Kissimmee-Sanford, FL	27.7	32.5	38.0	35.2	48.3	44.1	42.5
Oxnard-Thousand Oaks-Ventura, CA	41.6	49.5	46.0	41.1	40.2	24.8	21.9
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	28.4	29.7	40.7	40.6	39.7	37.5	38.2
Phoenix-Mesa-Glendale, AZ	36.5	38.2	34.8	46.8	48.6	49.5	42.4
Pittsburgh, PA	35.0	35.6	31.5	46.0	50.4	31.5	44.9
Portland-Vancouver-Hillsboro, OR-WA	49.6	50.3	50.8	46.2	52.7	46.0	50.1
Poughkeepsie-Newburgh-Middletown, NY	18.2	25.5	22.1	21.7	29.4	24.9	20.6
Providence-New Bedford-Fall River, RI-MA	46.9	33.7	38.1	41.1	48.4	33.3	20.2
Raleigh-Cary, NC	18.9	17.8	36.2	46.8	56.2	56.3	54.2
Richmond, VA	30.5	30.7	34.6	30.8	28.7	37.5	35.8
Riverside-San Bernardino-Ontario, CA	30.0	34.4	28.0	28.8	29.9	23.8	23.7
Rochester, NY	36.7	34.2	39.9	48.7	45.7	43.8	43.5
Sacramento--Arden-Arcade--Roseville, CA	32.0	34.1	42.8	41.9	31.7	24.3	29.8
Salt Lake City, UT	24.8	25.8	24.1	25.7	41.0	40.3	37.3
San Antonio-New Braunfels, TX	24.2	26.5	25.3	24.9	28.6	23.9	31.3
San Diego-Carlsbad-San Marcos, CA	40.0	46.9	50.3	49.5	43.3	32.5	33.8
San Francisco-Oakland-Fremont, CA	33.2	35.6	44.7	39.7	37.4	29.9	35.1
San Jose-Sunnyvale-Santa Clara, CA	22.1	26.4	30.6	36.4	35.7	31.7	33.3
Scranton-Wilkes-Barre, PA	14.8	23.9	19.4	14.2	18.5	20.7	24.7
Seattle-Tacoma-Bellevue, WA	36.6	40.8	44.8	47.7	46.4	46.9	44.3
Springfield, MA	39.9	37.4	32.1	33.4	39.3	40.1	35.9
St. Louis, MO-IL	25.4	24.6	27.4	30.1	26.4	19.1	27.3
Syracuse, NY	31.6	20.1	25.4	24.4	29.4	34.7	37.0
Tampa-St. Petersburg-Clearwater, FL	25.2	31.6	34.4	38.0	43.3	33.4	31.4
Toledo, OH	27.2	32.5	17.9	27.5	32.3	27.4	23.8
Top 100	30.4	33.0	36.1	37.6	40.4	36.3	37.0
Trenton-Ewing, NJ	42.6	33.2	46.2	43.3	42.7	39.9	38.0
Tucson, AZ	26.0	25.1	19.8	23.4	32.7	41.0	40.4
Tulsa, OK	22.1	36.2	22.6	16.8	22.9	21.8	23.2
Virginia Beach-Norfolk-Newport News, VA-NC	24.4	30.8	34.9	38.2	35.0	24.6	43.7
Washington-Arlington-Alexandria, DC-VA-MD-WV	34.9	39.5	37.3	38.7	42.5	42.1	40.8
Wichita, KS	21.4	27.1	35.5	34.8	37.2	36.0	32.7
Winston-Salem, NC	29.5	21.9	32.4	60.7	43.9	32.1	37.7
Worcester, MA	37.9	33.4	38.3	32.7	33.2	30.6	37.6
Youngstown-Warren-Boardman, OH-PA	25.0	35.5	18.0	20.8	25.1	28.5	28.5