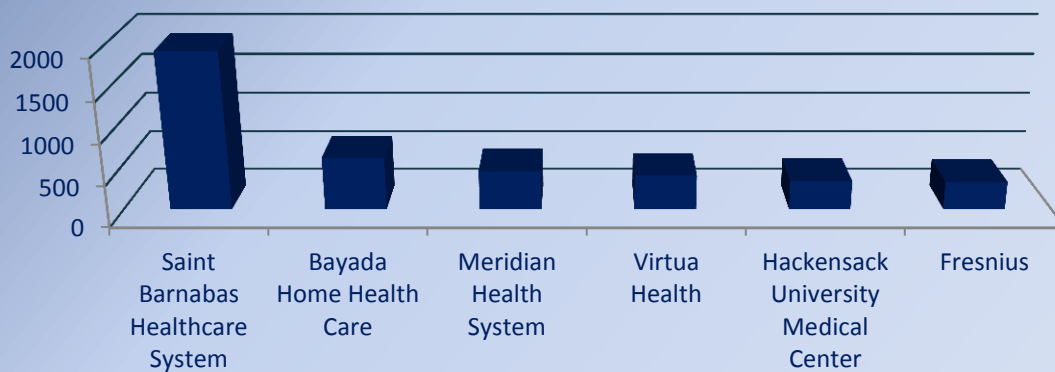




New Jersey Nursing Demand Data Report 2015

Top Nursing Employers



October 3, 2016

NEW JERSEY REGISTERED NURSE DEMAND DATA 2015

Data Summary and Historical Trend Analysis



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Introduction

Rapid changes in the healthcare landscape have created uncertain workforce projections. With the recession beginning in 2007, the demand for nurses has been unpredictable. Coupled with this is the Affordable Care Act, enacted in 2010, which has created a shift from an acute care to a primary care focus. It is anticipated that the outpatient settings will grow more rapidly to include both primary care and home health settings, specifically. Registered Nurses (RNs) will be expected to serve as case managers with strong skills which will be in high demand (Spetz, 2014). In addition, the role of RNs as care managers will deliver to care to the 150 million adults with one or more chronic conditions (Bodenheimer & Bauer, 2016). Growth in employment for nurses is expected to continue. Both the Health Resource Service Administration (HRSA) data and the Bureau of Labor Statistics (BLS) estimate growth through 2025 between 19 to 21 percent (HRSA, 2014; BLS, 2013). This is due to the following factors: 1) an increase in chronic conditions among the patient population, 2) a demand for services from the baby boomers as they live longer 3) an increase in the aging population, 4) a change in economic conditions, 5) new delivery models, 6) changes in healthcare reimbursement and 7) a demand within certain health settings (Auerbach, Buerhaus, & Staiger, 2015). Therefore, projections in the demand for healthcare providers, specifically RNs are important to prevent supply and demand issues going forward.

Based on the national trends and the need to monitor and prepare the workforce, the New Jersey Collaborating Center for Nursing has determined that using real time demand data is an important first step in evaluating the New Jersey landscape. While survey data for a specific industry is important, the limited response rate of surveys and the delays in obtaining primary data in real-time, do not make these methods a first tier approach. Quality data are a prerequisite for effective workforce planning and policy making for the nursing workforce. Health care workforce forecasting models provide a means for making future projections, which can be valuable in quantifying the supply, distribution, and demand of nurses and is critical to designing programs and policies that will ensure access to care and an effective health care system (Bienemy, C, 2015).

HRSA has created a model for projecting nursing workforce supply and demand. The 3 model components include: 1) supply of nurses, 2) demand for healthcare services, and 3) staffing ratios (converting demand for healthcare services to the number of nurses need to provide services). The HRSA model allows states to input their own supply data to obtain supply and demand estimates and tests several assumptions 1) status quo, 2) low graduation rates, 3) high graduation rates, 4) early retirement and 5) late retirement. In using this modeling for NJ that the predictions reveal that NJ would have an excess of 20,900 RNs by 2020. This data however does not include emerging roles and changes anticipated in the healthcare delivery.

There are other demand models that have been used nationally as well. In the most recent modeling by Auerbach, Buerhaus and Staiger (2015) their results show that future workforce projections are much closer to meeting requirements than previously estimated.

The HRSA model does not account for the specific types of nurses are needed (*i.e.*, what marketplace and how the demand is distributed across regions and counties). Therefore using real time data will provide us with trends and help drill down more effectively into the details needed to prepare an adequate workforce.

Demand data to determine workforce trends in real time is important for predicting the job market. At such the NJCCN is using Labor Insight™ and Job Pulse™ designed by Burning Glass to draw on a comprehensive database of real time demand. Labor Insight draws on a comprehensive database of real-time demand data on a national, state, and regional level. This database can track and analyze employer hiring activities by industry, occupation, education, and skills to help provide direction. Data is obtained from online job postings from up to 40,000 sources and mine and code data from each posting describing skills, education and experience. O*Net is the nation's primary source of occupational information and is developed under the sponsorship of the US Department of Labor/Employment and Training Administration. The O*Net-SOC is used to standardize the approach to postings for this data report.

Why Use Burning Glass Job Data?

Online job advertisement data is now viewed as a real-time source to explore the characteristics of the dynamic labor market. These **demand** data are cost-effective and provide the ability to improve the accuracy of forecasts within the labor market and supplemental estimates of demand within detailed healthcare occupations such as nursing (Carnevale, A. P., Jayasundera, T., & Repnikov, D. 2014). It can show the relative demand for different types of skills and levels of education. The real-time nature of job ads data also allows for the early detection of emerging healthcare demand trends, which gives job seekers, employers, researchers, educators, and policymakers a forward-looking analytical tool (Carnevale, A. P., Jayasundera, T., & Repnikov, D. 2014).

Burning Glass Technologies (BGT) is one of the leading providers of labor market analytics. Using online job advertisement data BGT provides real-time insight into the demands of the market for researchers, policy makers, educators and employers. It uses a flexible model to aggregate job advertisement information from different web sources into one interactive comprehensive database. Each ad is broken down (analyzed) for specific elements (e.g., job title, education requirements, experience, skills, etc.) and is cleaned to eliminate duplicate job ads (Carnevale, A. P., Jayasundera, T., & Repnikov, D. 2014).

Limitations of the Database

There are several limitations of BGT data. A major limitation is that online job advertisements are only partially representative of the labor market and the demand for labor. Current approaches to advertising also include newspapers, career fairs, and social networking (American Psychology Association {APA}, 2015). Limitations also include only one job advertisement used to indicate a need to hire multiple nurses for the same position. Duplicate postings are common and may be missed even though BGT uses a de-duplication algorithm for each 60 day timeframe. Lastly, because new web sources of online job ads are continuously added by BGT samples of job advertisements from different time periods are incomparable (APA, 2015). And so, BGT data cannot be used to study longitudinal changes in the online labor market (APA, 2015)

This database will eliminate duplicates within a 60 day timeframe, however, it should be noted that if a job is not filled and reposted it will be a duplicate and cannot be screened out. Since O*NET-SOC (Standard Occupational Classification) is used as the primary coding process the classifications include: 291141.00-and have only Acute Care Nurses (291141.01) and Critical Care Nurses (291141.03) as a special code for RNs. Therefore, there are some limitations to breaking down the codes into smaller defined areas to some degree.

Methods

The NJCCN used data mining to determine the demand for Registered Nurses (RNs) in the state of New Jersey inclusive of January 2015 through December 2015. The purpose of this report is to provide educators, researchers, policy makers, and administrations with data that can facilitate them with making timely decisions that result in better outcomes for job seekers and employers. We included all job postings for RNs excluding nurse practitioners and clinical nurse specialists. The job postings were identified by county and represent the top employers that are in demand. We compared the 2015 job postings to previous years (2007-2014). In addition, current data for 2015 in terms of the number of postings, concentration, average time to fill and average salary are provided.

Inclusion Criteria

Full-time or part-time positions and require a NJ license.

O*Net-SOC taxonomy was used to standardize the occupation-specific indicators.

See Appendix A for the list of filters that were applied to the Burning Glass Labor Insight data.

Exclusion Criteria

The job ads were reviewed to eliminate any per diem positions, travelers, and temporary positions such as substitute school nurses or postings that had job openings outside of New Jersey.

Data Cleaning Process

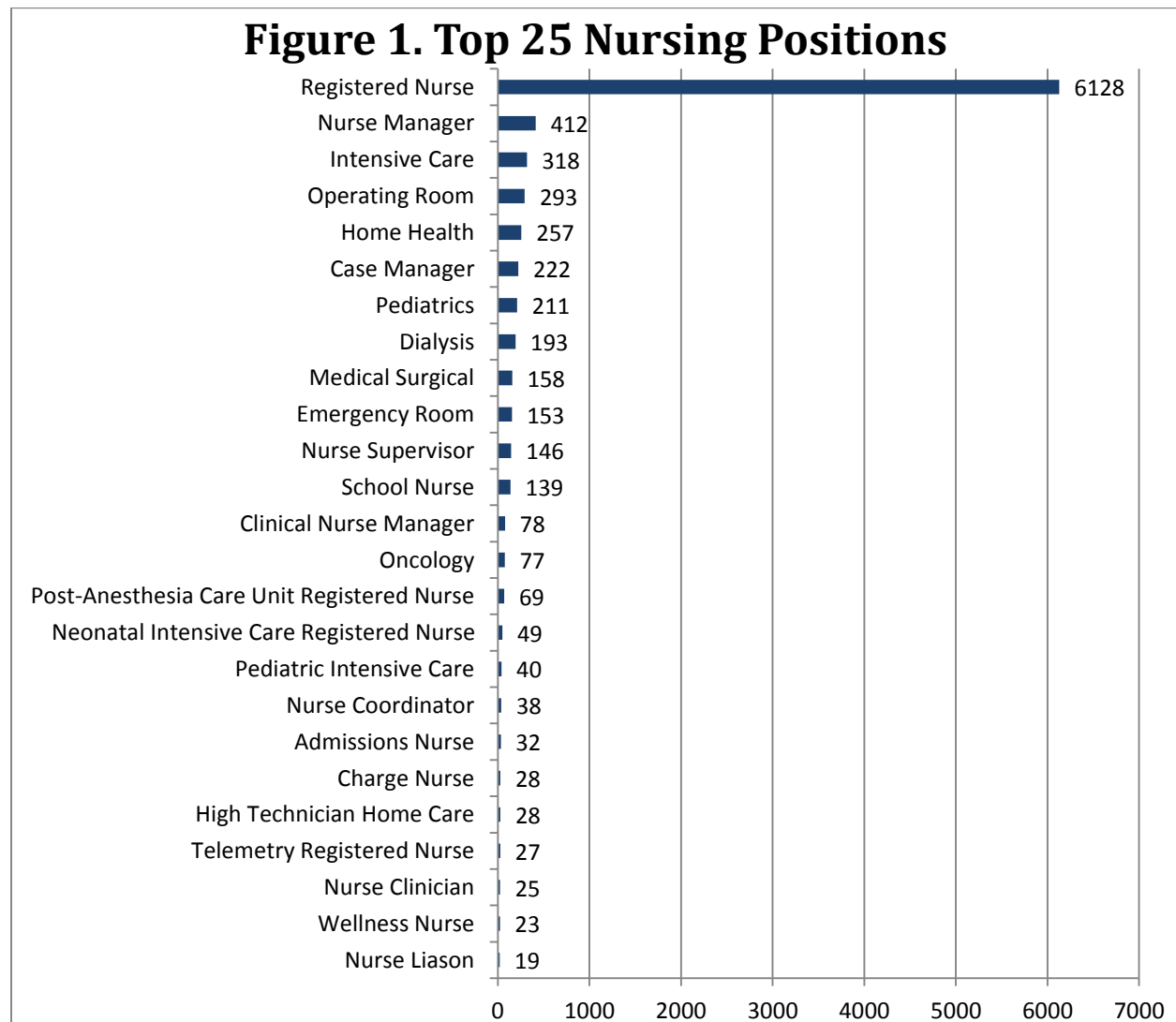
The database was cleaned using several methods. Each job ad was reviewed twice to determine if the ad met the inclusion criteria by two different reviewers. Once completed a scan of the employer identified and/or the job titles were re-reviewed to determine if they fit the inclusion criteria before the data was finalized.

Recommendations

- Create a supply and demand model for NJ by 2017
- Develop an institute quarterly trending of healthcare personnel (RN, LPN, APN, HHA, CAN) to include the following:
 - Top employers
 - Number of job postings by county
 - Education, salary, time to fill by Metropolitan Statistical Area (MSA)
- Conduct intermittent demand surveys on a rotational basis to identify and validate trends
- Disseminate data to key stakeholders inclusive but not limited to employers, regulatory bodies, policymakers and academe.
- Develop demand snapshots for various healthcare settings and roles

Nursing Positions in Highest Demand

The following graph identifies the top 25 nursing positions that were in most demand in New Jersey between January 1, 2015 and December 31, 2015. There were 9,547 RN job postings during this time period. 9,163 RNs were employed in one of the top 25 most common positions. Of these, 6,128 positions were under a generic RN posting, and the remaining 3,419 postings were classified based on either job titled or the job settings. 384 nurses were employed in a position that was not within the top 25, and are therefore not represented in (Figure 1).

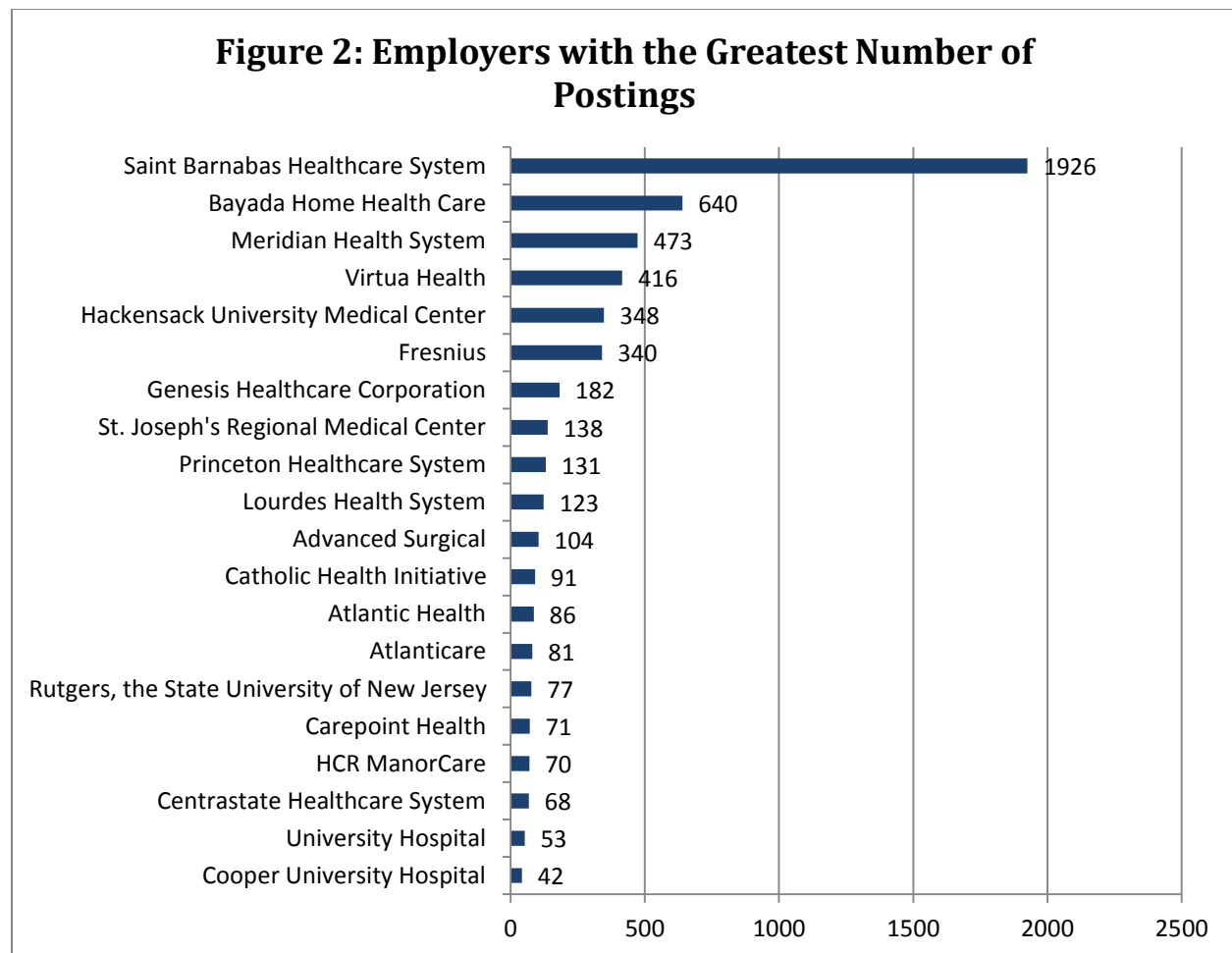


(Source: Burning Glass Technologies. "Labor Insight Real-Time Labor Market Information Tool." <http://burning-glass.com>. 2016)

Front-line leadership positions as well as positions requiring specialty skills and education are at the top of this list.

Nursing Employers with the Greatest Numbers of Postings

The following graph shows the companies that place the greatest number of job postings in New Jersey. Greater numbers of postings may reflect a high rate of turnover or a high demand for employees. The employers at the top of this list are primarily healthcare systems.



(Source: Burning Glass Technologies. "Labor Insight Real-Time Labor Market Information Tool." <http://burning-glass.com>. 2016)

Job Postings by County

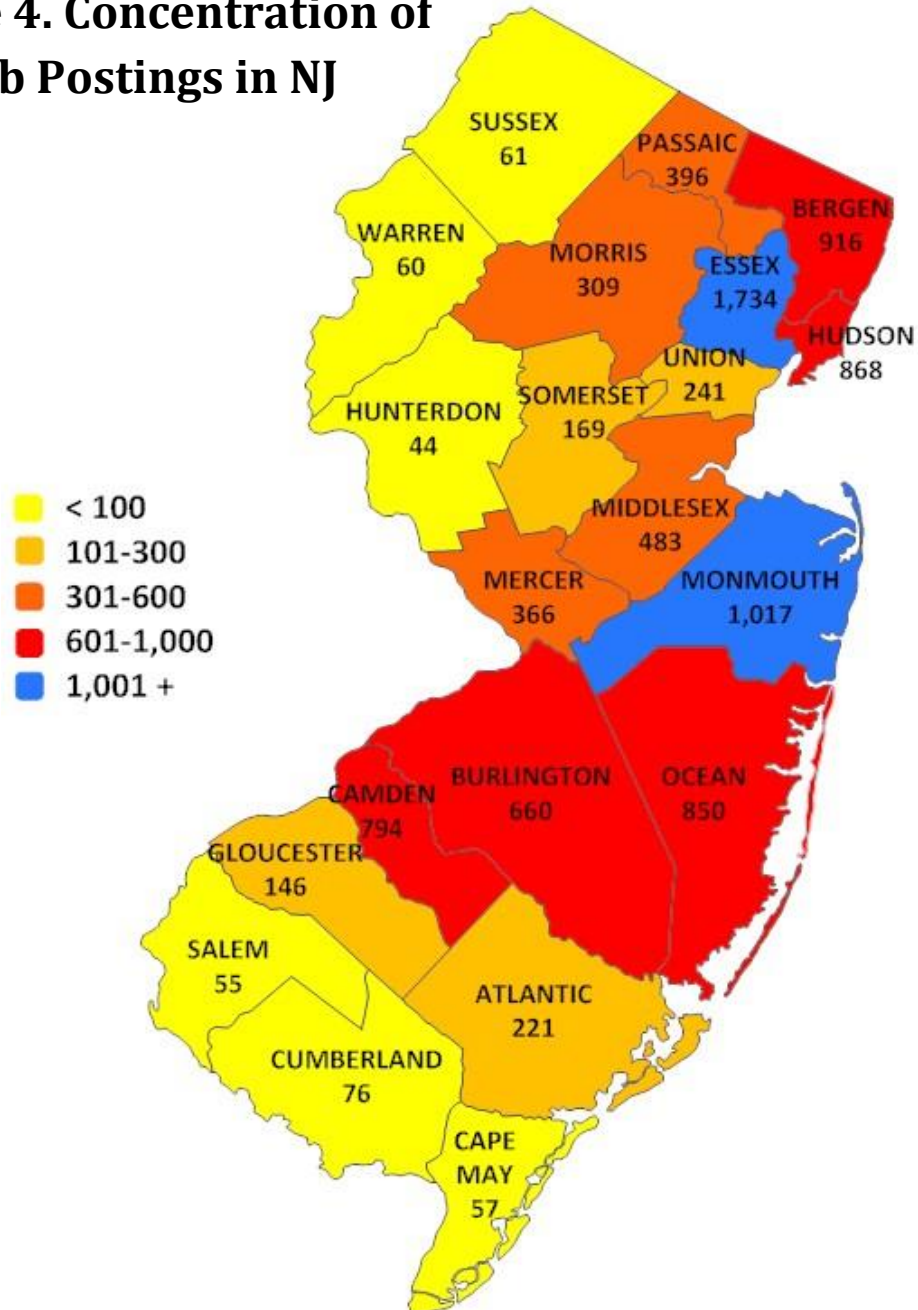
Jan. 01, 2015 - Dec. 31, 2015 (Data not available after Sep. 10, 2016)

There were 9,547 postings available with the current filters applied.

There were 24 unspecified or unclassified postings.

The New Jersey counties with the highest concentration of job opportunities are Essex (n=1,734) and Monmouth (n=1,017).

**Figure 4. Concentration of
Job Postings in NJ**

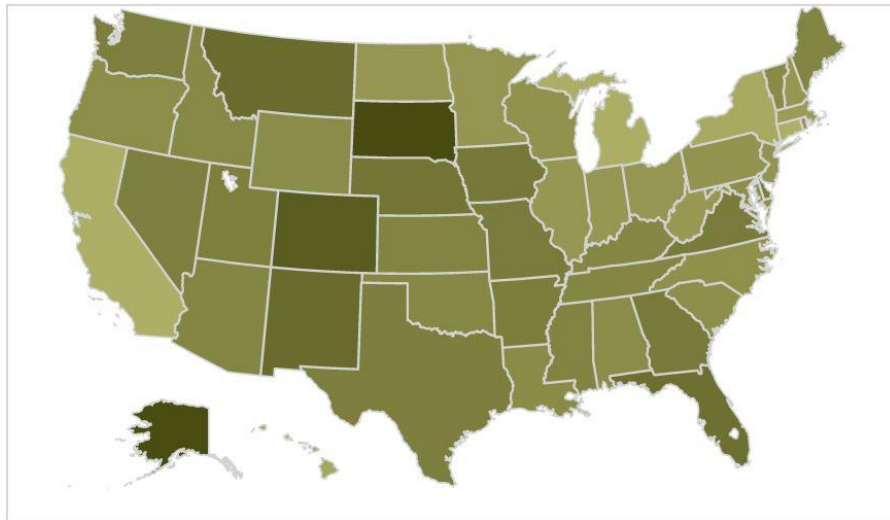


(Source: Burning Glass Technologies. "Labor Insight Real-Time Labor Market Information Tool." <http://burning-glass.com>. 2016)

Demand Data Comparison

The following tables and figures show demand, employment and concentration of registered nurses across the United States from January 1, 2015 through December 31, 2015.

Figure 5. Nationwide RN Demand



*Darker shades indicate higher RN demand.

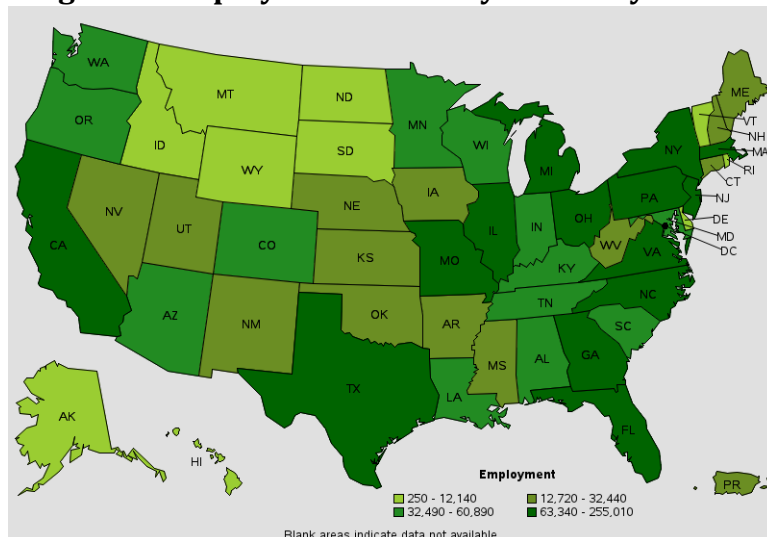
(Source: Burning Glass Technologies. "Labor Insight Real-Time Labor Market Information Tool." <http://burning-glass.com>. 2016)

The demand for nursing employees by state is identified here by the ratio of job postings per 10,000 employed persons. When compared to the rest of the country, New Jersey has an average level of demand for nursing positions, with a ratio of 18.2 job postings per 10,000 employed persons. The states with the highest demand are South Dakota (53.88), Alaska (53.53) and Colorado (45.66). The states with the lowest demand are New York (8.03), California (5.46) and Michigan (5.22).

In New Jersey, there was a 2% change in employment between 2014-2015 for the top nursing positions. This is concurrent with the national average.

Demand Data Comparison

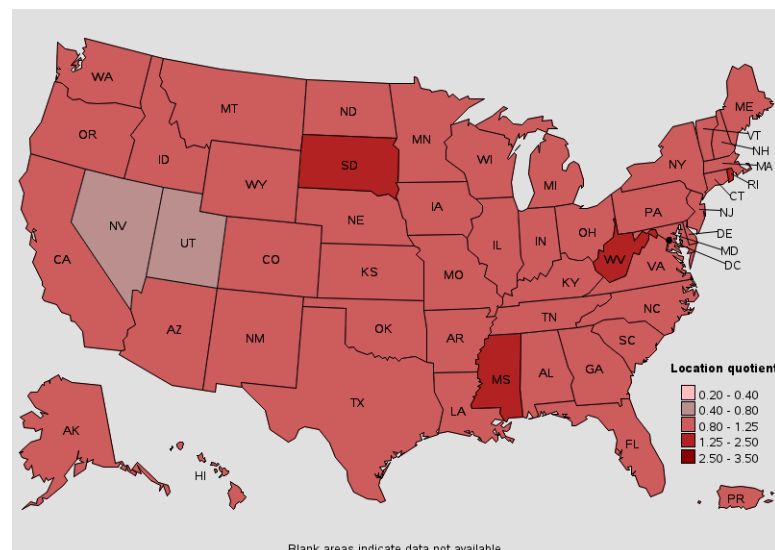
Figure 6. Employment of RNs by State May 2015



(Bureau of Labor Statistics, 2015)

(Figure 6) shows the concentration of nurses in each state. New Jersey is shown to belong to the bracket of states with the largest nursing workforce. This map shows raw numbers, rather than a ratio of nurses to total population. It therefore follows that more densely populated states, such as New Jersey, would have a commensurately greater number of nurses.

Figure 7. Location Quotient of RNs by State May 2015



(Figure 7) shows the location quotient of RNs. **The location quotient is the average concentration of RNs in New Jersey compared to the rest of the country.** A location quotient greater than one indicates that there is a higher share of employment than average, and a location quotient less than one indicated that there is a lower concentration of RNs in the state than the national average.

The location quotient of RNs in New Jersey is 1.01.

(Bureau of Labor Statistics, 2015)

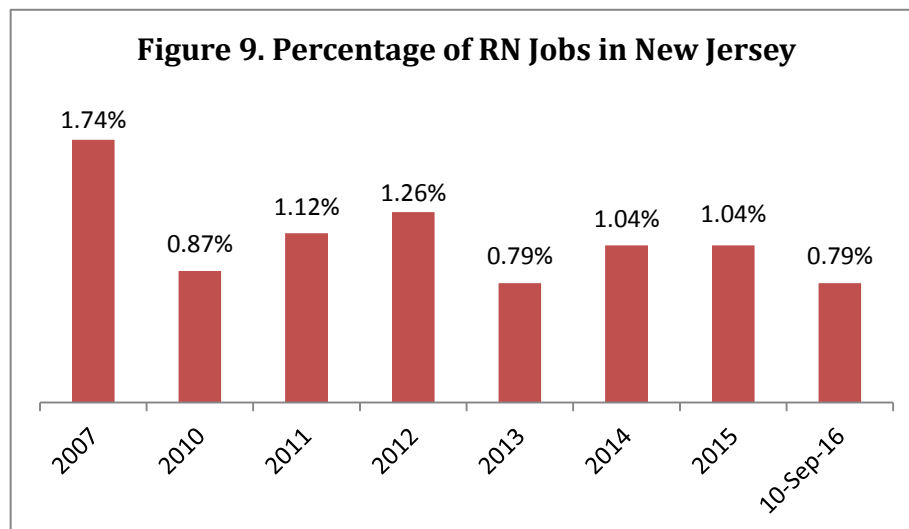
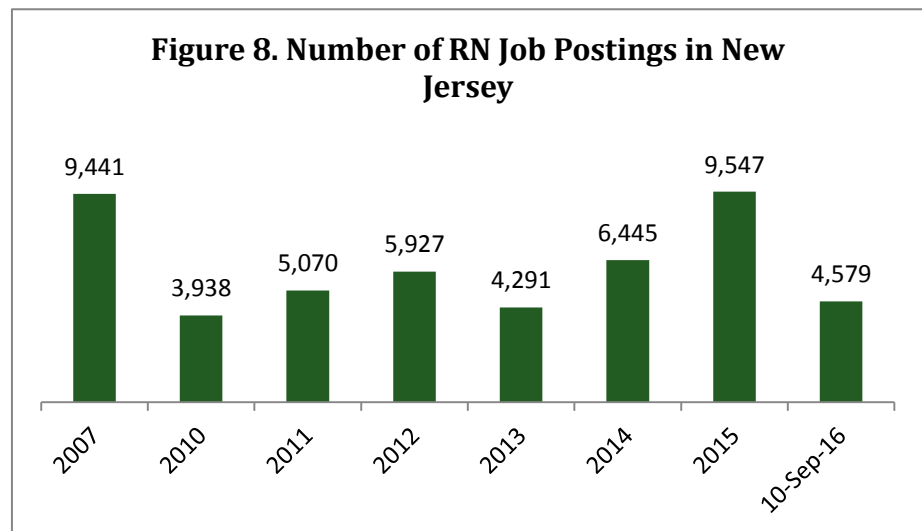
Relative Growth of RN Demand

The number of job postings at any given time provides a basis for establishing relative demand for registered nurses. Variations in demand can be due to external factors, such as the introduction of new technologies or new job boards. Because of these external variables, the data above is not necessarily indicative of an annual average or a continuous trend over time, but rather reflects benchmarks of fluctuation in demand.

Another way to examine relative growth in RN demand is to compare it to the relative demand of the healthcare industry as a whole. Between 2010 and 2015, there was a 112% increase in the prevalence of RN job postings, but healthcare related job postings only increased by approximately 84%.

(Figure 8) shows the number of RN job postings in New Jersey on an annual basis. 2007 is displayed as a pre-recession baseline. The recession began in 2008, so the ensuing trend should be viewed in that context.

(Source: Burning Glass Technologies. "Labor Insight Real-Time Labor Market Information Tool." <http://burning-glass.com>. 2016)



(Figure 9) shows the percentage of RN job postings in New Jersey relative to the total number of job postings for all industries. According to the chart, the 2010-2015 period saw a relatively flat trend.

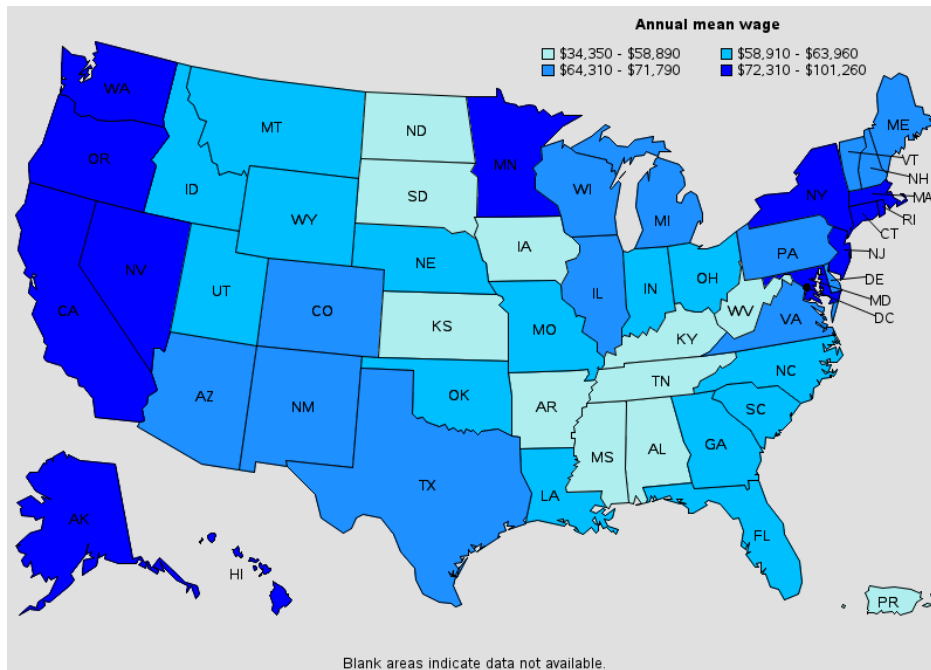
(Source: Burning Glass Technologies. "Labor Insight Real-Time Labor Market Information Tool." <http://burning-glass.com>. 2016)

These reports from Burning Glass Labor Insight show data for 2007, 2010, 2011, 2012, 2013, 2014, 2015, and year to date. Any active time period filters have not been applied. Percentages shown are out of the total number of postings for your selected location. Please also note that these results reflect point-in-time data and are subject to change as improvements are made to our aggregation and reporting methodologies. Burning Glass does not recommend use of this data for time series reporting. There are 9,547 postings available with the current filters applied. There are 0 unspecified or unclassified postings.

Wage Data Comparison

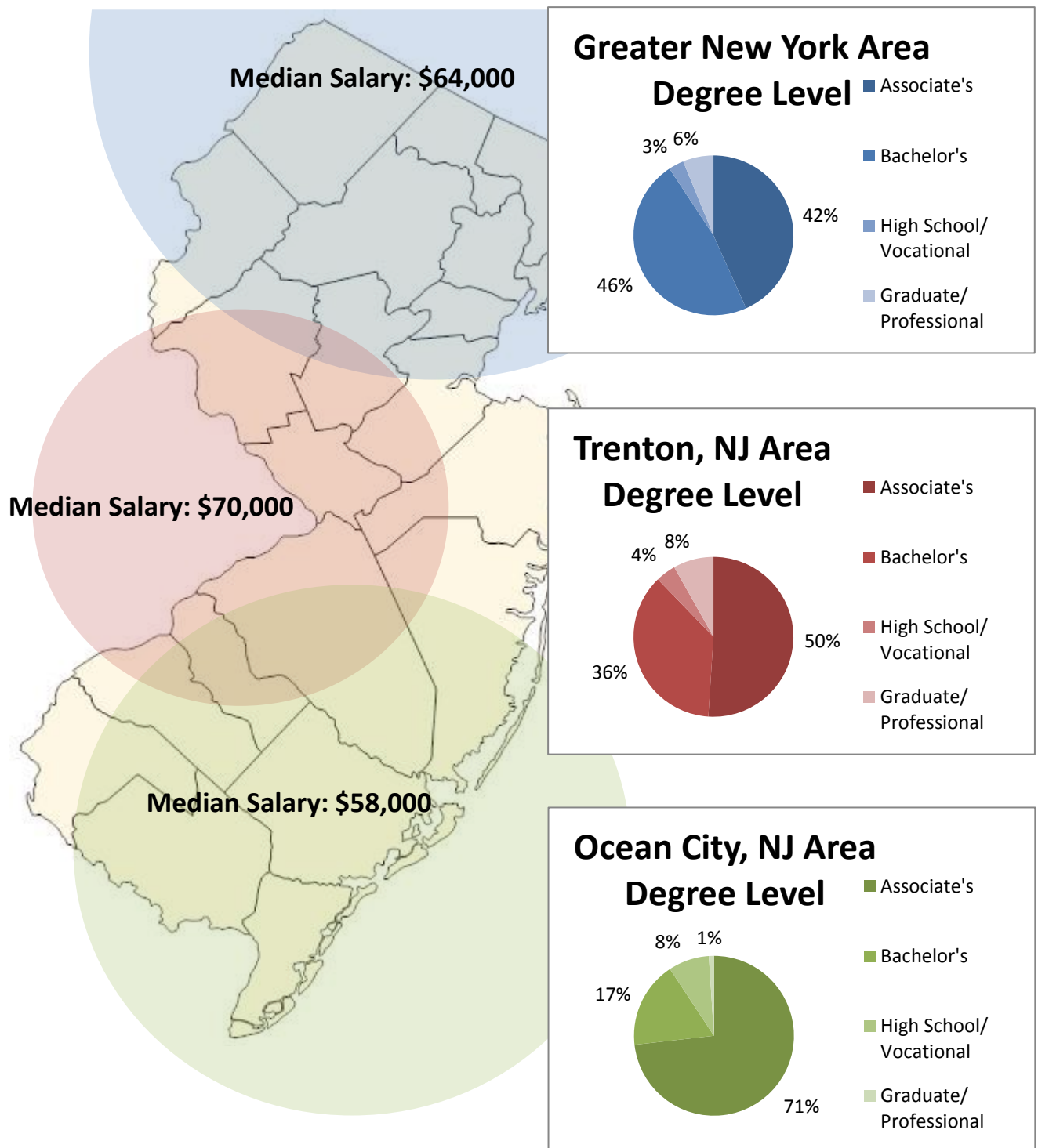
Figure 10. Annual Mean Wage of RNs by State, May 2015

(Figure 10) shows that the annual mean wage of RNs in New Jersey is in the highest pay bracket of RNs nationwide, with RN's making an average annual salary of \$72,310-\$101,260.



(Bureau of Labor Statistics, 2015)

Figure 11. Education and Salary Distribution Across New Jersey



(Source: Burning Glass Technologies "JobPulse." <http://jobpulse.burning-glass.com>. 2016)

Education and Salary Analysis

(Figure 11) shows median salaries and the breakdown of education levels among RNs according to their metropolitan statistical area (MSA). A metropolitan statistical area is an economically interdependent region in and around a highly populated urban center. The figure shows a higher educational level for RNs in the Greater New York Area, and a lower education level for RNs in the southern portion of the state. New Jersey salary levels are highest in the central part of the state.

This data provides a snapshot of salary and education data, but the data's accuracy may be affected by the following limitations:

- Some job postings list a high school or vocational degree as the minimum acceptable level of education. It is impossible to attain RN certification without higher education, so high school is not an accurate requirement, and may reflect a lack of understanding on the part of hiring authority.
- The data may include some postings for Licensed Practical Nurses (LPNs) and Advanced Practice Nurses (APNs). At this time, there is no way to view details of the dataset or apply more specific filters.

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Acknowledgement

This report was respectfully submitted to:

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Appendix A

The following is a list of the filters that were applied to the Burning Glass Labor Insight report on top titles within the nursing field:

Jan. 1, 2015 - Dec. 31, 2015 AND (State : New Jersey) AND ((SOC : Registered Nurses (29-1141)) AND (Title with : nurs)) AND (Job Type : Permanent OR Job Type : Temporary OR Job Type : Not listed) AND (Source : Employer sites OR Source : Job boards OR Source : Free job boards) AND NOT (Title with : per diem OR Title with : travel OR Title with : prn OR Title with : relocate OR Title with : agency OR Title with : LPN OR Title with : travel RN OR Title with : pd OR Title with : contract OR Title with : months OR Title with : travel nurse OR Title with : travel assignments OR Title with : staffing agencies OR Title with : week assignments OR Title with : assignments OR Title with : NY License OR Title with : traveling OR Title with : Michigan OR Title with : "double your wages" OR Title with : "Nurse Practitioner" OR Title with : "Advanced Practice Nurse" OR Title with : "Clinical Nurse Specialist" OR Title with : "Jesuit Visit Nurse" OR Title with : "Jesuit Area" OR Title with : "Advanced Practice Nurse II" OR Title with : "Animal Care Nurse" OR Title with : "Nationwide Telesolutions Nurse Specialist" OR Employer with : airforce OR Employer with : NY OR Employer with : Nurses 24 OR Employer with : New York-Presbyterian Hospital OR Employer with : Voyage OR Employer with : psa healthcare OR Employer with : NursesRx OR Employer with : AMN Healthcare OR Keyword(s) : Connecticut OR Keyword(s) : traveller OR Keyword(s) : N/A OR Keyword(s) : NY State RN License OR Keyword(s) : weeks OR Keyword(s) : duration OR Keyword(s) : Michigan OR Keyword(s) : "per diem" OR Keyword(s) : travel OR Keyword(s) : relocate OR Keyword(s) : agency OR Keyword(s) : contract OR Keyword(s) : "travel nurse" OR Keyword(s) : "travel assignments" OR Keyword(s) : "staffing agencies" OR Keyword(s) : NY license OR Keyword(s) : traveling OR Keyword(s) : "NewYork-Presbyterian/NewYork-Presbyterian/Columbia University Medical Center " OR Keyword(s) : "NewYork-Presbyterian/NewYork-Presbyterian/Weill Cornell Medical Center " OR Keyword(s) : "New York-Presbyterian" OR Keyword(s) : "double your wages" OR Keyword(s) : Voyage OR Keyword(s) : "AMN Healthcare" OR Keyword(s) : California OR Keyword(s) : Presbyterian Medical Center OR Keyword(s) : NY Blood Bank OR Keyword(s) : Phlebotomist OR Keyword(s) : St. Camillus OR Keyword(s) : Summer Camp OR Keyword(s) : Substitute OR Keyword(s) : Band Camp OR Keyword(s) : "Nurse Practitioner" OR Keyword(s) : "Advanced Practice Nurse" OR Keyword(s) : "Clinical Nurse Specialist" OR Keyword(s) : "San Joaquin Community Hospital" OR Keyword(s) : "nurse extern")*



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