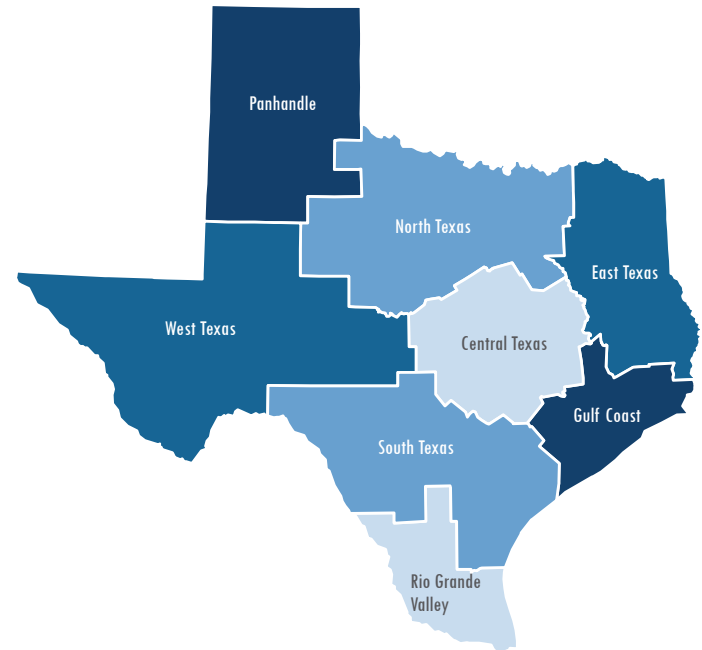


Hospitals are the largest employer of nurses in Texas. In 2013, 65.5% of the 196,571 actively practicing registered nurses (RNs) in Texas worked in hospitals, including 47.7% of advanced practice registered nurses (APRNs). 22.8% of the 75,258 licensed vocational nurses (LVNs) worked in hospitals.

With the passing of House Bill 3126 from the 78th Regular Legislative Session, the Texas Center for Nursing Workforce Studies (TCNWS) was established and charged with collecting and analyzing data on demographic, educational, and employment trends of nursing professionals in Texas. Since 2004, TCNWS has administered the Hospital Nurse Staffing Survey (HNSS) on a biennial basis primarily to assess the size and effects of the nursing shortage across the state. Data from this survey are also instrumental in developing projections for the number of nurses needed in Texas now and in the future. The purpose of the HNSS is to determine how the nursing shortage has affected nursing vacancy and turnover rates at Texas hospitals and which methods hospitals used to overcome nursing shortages.

Please note that the eight HNSS regions were recoded



between the 2012 and 2014 surveys. Twenty-one counties were recoded into different regions, and in the 2014 survey these counties contained 19 hospitals.

Survey Development

As in prior years, the TCNWS established a taskforce of hospital industry experts to assist in the development and implementation of the 2014 HNSS. It was a goal of the TCNWS for the taskforce to be comprised of people from across the state in order to ensure that every region would be represented. The HNSS taskforce (see Appendix A) was involved in revising the survey instrument to ensure questions were applicable to hospitals of all sizes and across all regions and that the survey was user-friendly. The taskforce was also involved in promoting the 2014 HNSS to the hospitals in their respective regions in order to encourage participation.

The 2014 HNSS survey instrument was similar to that of previous years, though some changes were

adopted. Questions related to nursing staff retention and recruitment strategies were added to this iteration of the survey as well as a question on the consequences the hospital has experienced as a result of an inadequate supply of nursing personnel. New questions related to hiring practices and the attributes most often sought when hiring RN staff were also added to the survey. This version of the HNSS also included additional questions in the section on transition to practice in order to gain a better understanding of the variations in these programs.

The 2014 HNSS survey instrument and its operational definitions can be found in Appendices C and D, respectively.

Data Collection

The 2014 HNSS was administered to 619 hospitals in Texas. These included Texas Department of State Health Services-operated hospitals as well as hospitals linked to academic institutions. Military hospitals were not surveyed. The hospitals surveyed included for-profit, public, and non-profit facilities. The facilities surveyed were general acute care, psychiatric, special, and rehabilitation hospitals.

Survey materials were first distributed by mail on March 21, 2014. The materials were addressed to the Chief Nursing Officer (CNO) of each hospital. A link to the active survey was sent out by email on March 31, 2014. Hospitals were strongly encouraged to complete the survey online; however, faxed and mailed submissions were also accepted.

The survey was hosted by Qualtrics, an online survey software. The initial survey deadline was April 30, 2014 but was extended through June 13, 2014.

To increase survey response rate, follow-up was conducted in two ways: email and telephone inquiries for non-respondents. Calls were made by TCNWS staff throughout the months of April and May 2014 to encourage hospital participation. Hospitals that started but did not complete a survey were also contacted. During this period, taskforce members also sent out emails and made phone calls to

the CNOs of the hospitals in their region explaining the importance of submitting their data. Additionally, the Texas Hospital Association sent out alerts reminding hospitals to complete the survey.

428 hospitals responded to the 2014 HNSS. The overall response rate was 69.1% in 2014 compared to 61.9% in 2012. Response rates by region ranged from 60.9% in the Gulf Coast region to 84.1% in the Panhandle.

Responding hospitals were compared to non-responding hospitals on two variables: geographic region and bed size. The regional location of each responding hospital was compared to the overall distribution of hospitals across the state in order to determine whether there was a geographically representative sample. Respondents and non-respondents were compared based on hospital size. Hospitals' numbers of licensed beds* were recoded into size categories and analyzed to determine if the sample was representative based on hospital size. Based on our findings, respondents to the 2014 HNSS were representative of Texas hospitals in regard to region ($\chi^2(1, N = 428) = 4.6, p = 0.7$) and bed size ($\chi^2(4, N = 428) = 3.3, p = 0.5$).

*Because beds in state hospitals are not technically licensed, calculations use state hospitals' bed capacities.

Data Analysis

All data were analyzed using SPSS (version 20). Variables on the 2014 HNSS were analyzed by HNSS region and county designation, with reports specific to rural and critical access hospitals and State Hospitals as well. For a list of the regions and county designations, please see Appendix B. All 2014 HNSS data were reviewed and notable inconsistencies were excluded from analyses.

Hospital Characteristics

Frequency counts were conducted for each variable reported in the Hospital Characteristics report. These frequencies were analyzed by region, county designation, and hospital bed-size. Attention was also given to the number of hospitals with Magnet, Pathway to Excellence, and Designated Trauma Center status.

Vacancy and Turnover

The 2014 HNSS asked respondents to provide the total number of occupied and vacant RN positions in their facility during the week of January 19th-January 25th, 2014, one of the year's peak occupancy times. These numbers were used to calculate vacancy rates as described in the 2014 HNSS Vacancy and Turnover Report. This report describes two methods for calculating vacancy rates: position vacancy rate and facility vacancy rate. The position vacancy rate describes the proportion of all FTE positions that are vacant across a group of responding hospitals, whereas the facility vacancy rate is calculated for each facility. Vacancy rates were calculated by nurse type and across HNSS regions and geographic designations.



In order to calculate turnover rates, respondents provided their number of occupied full-time and part-time RN positions at two points in the year (1/1/2013 and 12/31/2013) and these numbers were averaged during analysis. Turnover rates were calculated for each facility and by each nurse type by dividing the number of reported employee separations during this period by the sum of average full-time and part-time RNs. The median facility turnover rate was reported for the state and for each region.

Methods of Interim Staffing

The HNSS asked hospitals about their needs for interim staffing and the methods they use to fill these needs. Hospitals reported the hours and cost of interim staffing for calendar year 2013. Only hospitals that reported both cost and hours for each method were included in this analysis. Outliers were not included in the analysis.

For types of interim staffing methods used, frequency counts were conducted to show the number of hospitals that reported using each type of interim staffing method. Hospitals were asked to provide hours and costs of each interim staffing method. Total hours and costs were calculated by taking the sum of hours and costs by each method. Cost per hour was calculated by taking the total cost divided by the total hours for each method. Average hourly cost was determined by dividing the total hours of each staffing type by the total cost of this staffing type. Average hourly cost is presented by region and statewide.

Recruitment and Retention

Respondents were asked four questions directly related to employee recruitment for RN positions. First, hospitals were asked to indicate how long it took their organization to fill nursing vacancies by specialty area. Second, they were asked where they recruited - in Texas, in other states, or internationally. Third, hospitals responding that they recruited outside of Texas were then asked why they did so. Fourth, hospitals were asked about strategies they used to recruit and retain nurses.

Frequency counts and analysis by region were conducted for this report.

Hospital Staffing

Data in the Hospital Staffing report pertain to number of nurses employed in the state, a breakdown of the effects of the recent economic recession on the Texas nursing shortage,¹ and a consideration of hospital practices with respect to the hiring of newly licensed RN positions.

Frequency counts were used to demonstrate the magnitude of changes statewide, by region, and by geographic designation. Inductive coding was used to analyze open-ended free response questions.

Transition to Practice Programs for Newly Licensed RNs

Responding to a recent initiative to increase orientation programs for newly licensed RN graduates,² the 2014 HNSS expanded the questions on transition to practice programs. Hospitals were asked if they had a transition to practice program, to describe the model of the program, indicate whether it was an employment or non-employment model, report the length in weeks, and identify outcomes related to the program.

This analysis used frequency counts to describe the extent to which transition to practice programs exist in Texas hospitals.

Rural and Critical Access Hospitals and State Hospitals

Additionally, the 2014 HNSS dataset was analyzed taking into account two important subsets of Texas hospitals: rural hospitals and state hospitals. Rural hospitals were further categorized as critical access hospitals (CAHs) or non-critical access rural hospitals. CAHs are located in mostly rural areas and receive federal funding to ensure that populations have local delivery of health care. Rural hospitals are those additional facilities that do not receive the additional federal funding that CAHs receive but that are either outside of a metropolitan statistical area, have 100 or fewer beds, or 4,000 or fewer admissions. State hospitals are predominantly inpatient mental health facilities (with the exception of the Texas Center for Infectious Disease) that are operated using public funds and controlled by an agency of state government. These two categories are of special interest given their public funding mechanisms and provision of service to at-need populations.

Analyses of these two categories of hospitals were conducted using the variables of interest described above and provide for comparisons between CAHs or state hospitals and Texas hospitals at-large.

¹Staiger, D., Auerbach, D., & Buerhaus, P. (2012). Registered nurse labor supply and the recession - are we in a bubble? *New England journal of medicine*, 366(16), 1463-1465.

²Institute of Medicine, Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing. (2011). *The future of nursing: Leading change, advancing health*. Retrieved from The National Academies Press website: http://books.nap.edu/openbook.php?record_id=12956

Conclusion

The design and methods of the TCNWS' Hospital Nursing Staffing Survey continue to improve. The 2014 survey expanded questions related to recruitment and retention of nurses as well as questions related to transition to practice, while achieving the highest HNSS response rate yet. These advances serve as evidence that the HNSS aids TCNWS' goals of assessing the size and effects of the nursing shortage in Texas.