



The Hospital Nurse Staffing Survey (HNSS) assesses the size and effects of the nursing shortage in hospitals, Texas’ largest employer of nurses. During the spring of 2016, the TCNWS administered the HNSS to 666 Texas hospitals. These included for-profit, nonprofit, public, and Texas Department of State Health Services-operated hospitals, as well as hospitals linked to academic institutions; military hospitals were not surveyed. The facilities surveyed were general acute care, psychiatric, special, and rehabilitation hospitals. 345 (51.8%) hospitals responded to the survey.

This report presents the findings of the 2016 HNSS related to position vacancies and staff turnover at Texas hospitals. The vacancy rates reported herein measure the percentage of positions that were vacant over a one week period during one of the year’s peak occupancy times (1/18/2016-1/24/2016). The turnover rates measure the frequency of staff separations, both voluntary and involuntary, over a one year period (1/1/2015-12/31/2015). Nurse vacancy and turnover rates are among the key measures for assessing a nursing workforce shortage, the severity of the shortage, and changes in the nursing labor market over time. High vacancy and turnover rates can lead to negative outcomes that can affect quality of care such as losing experienced staff and increasing the workload and stress levels of existing staff.<sup>1</sup> High vacancy and turnover is also costly to hospitals due to the high cost associated with overtime or the use of agency nurses to fill vacant positions as well as the cost associated with recruiting qualified nurses.

<sup>1</sup>American Association of Colleges of Nursing, “Nursing Shortage Fact Sheet”, 2012, <http://www.aacn.nche.edu/media-relations/NrsgShortageFS.pdf>

## Methods of Calculation

This vacancy and turnover report provides the position vacancy rate and the median facility vacancy rate for each of the nurse types. TCNWS has chosen to report both methods in order to compare our data to work being done by other entities across the state and country. The two methods for calculating vacancy rates describe two different considerations: the position vacancy rate describes the proportion of all full-time equivalent (FTE) positions that are vacant across all responding hospitals, whereas the median facility vacancy rate provides the midpoint of vacancy rates among all hospitals, regardless of hospital or staff size.

In this report, the **regional position vacancy rate** was calculated by taking the sum of all vacant direct patient care RN FTE positions in each region, dividing it by the total of all FTE positions, occupied or vacant, in each region and multiplying by 100.

**Regional position vacancy rate =**

$$\frac{\text{(Sum of vacant FTE positions being recruited, on hold or frozen in a region)}}{\text{(Sum of occupied and vacant FTE positions in a region)}} \times 100$$

This was also done for the **statewide position vacancy rate**. FTE positions are defined as the total number of

occupied and vacant FTE positions in the hospital. Vacant FTE positions are defined as the total number of FTE positions that were vacant in the hospital regardless of whether they were being actively recruited or were on hold or frozen.

**Statewide position vacancy rate =**

$$\frac{\text{(Sum of vacant FTE positions being recruited, on hold or frozen across the state)}}{\text{(Sum of occupied and vacant FTE positions across the state)}} \times 100$$

The **facility vacancy rate** was calculated by dividing the number of vacant FTE positions in a hospital by the total number of FTE positions (occupied and vacant) in that hospital and multiplying by 100. Some researchers prefer median value over mean values because medians are less sensitive to outliers. This is because 50% of hospitals have a turnover rate that is less than the median value and the other 50% of hospitals have a turnover rate higher than the median value.

**Facility vacancy rate =**

$$\frac{\text{(Sum of vacant FTEs being recruited, on hold or frozen in a facility)}}{\text{(Sum of occupied and vacant FTE positions in a facility)}} \times 100$$

When the vacancy rate is calculated for each individual hospital, the median facility vacancy rate represents the median value for all hospitals.

The **facility turnover rate** was calculated by dividing the total number of separations by the average number of employees (both full-time and part-time) the hospital had during the reporting period. That number was then multiplied by 100. The survey instrument asked hospitals to provide the number of full and part-time

positions at two points (1/1/2015 and 12/31/15) and the numbers provided were then averaged to calculate the average number of employees.

**Facility turnover rate =**

$$\frac{\text{Total Number of Separations}}{(\text{Average \# Full-time} + \text{Average \# Part-time}) \times 100}$$

The median facility turnover rate represents the median value across all hospitals.

## Registered Nurses (RNs), Licensed Vocational Nurses (LVNs), and Nurse Aides (NAs)

### Vacancy Rates

Table 1 presents the total number of occupied and vacant FTE positions in Texas by nurse type and the resulting position vacancy rate for each.

**Table 1. Number of occupied and vacant FTE positions in Texas by nurse type**

	n	Total Occupied FTE Positions	Total Vacant FTE Positions	Statewide Position Vacancy Rate	Number of Hospitals that Reported Zero Vacancies
All RNs	290	51,743.8	5,637.3	9.8%	63
First-year RNs*	171	5,203.8	598.2	10.3%	108
LVNs	223	3,247.1	290.5	8.2%	154
NAs	261	12,685.6	1,212.41	8.7%	110

\*First-year RNs are included in "All RNs" totals; Note: n=number of hospitals in Texas that reported each nurse type

- RNs were the most numerous nurse type in Texas hospitals and also had the highest position vacancy rate.

**Table 2. Position vacancy rates in Texas by region and nurse type**

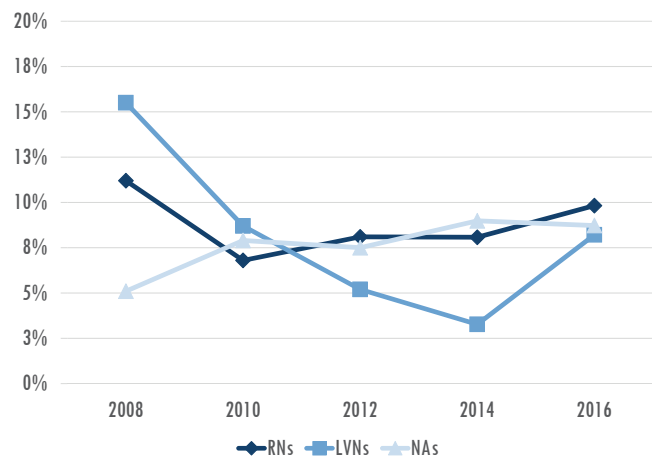
	Panhandle	Rio Grande Valley	North Texas	East Texas	Gulf Coast	Central Texas	South Texas	West Texas
RNs	8.5%	11.6%	8.0%	9.5%	11.5%	10.6%	14.6%	9.3%
First-year RNs	35.8%	12.6%	5.9%	0.8%	18.6%	15.5%	9.0%	9.4%
LVNs	13.5%	5.5%	4.6%	10.2%	5.5%	8.1%	9.0%	18.7%
NAs	22.0%	8.5%	7.0%	8.1%	12.3%	10.6%	7.9%	6.3%

The position vacancy rates in Table 2 represent the total percentage of vacancies for a position across a region.

- The RN vacancy rate was highest in the Rio Grande Valley (11.6%) and lowest in North Texas (8.0%).
- The LVN vacancy rate was highest in West Texas (18.7%), and lowest in North Texas (4.6%).

Figure 1 represents the position vacancy rates for Texas from 2008-2016 for RNs, LVNs, and NAs.

**Figure 1. Position vacancy rates for RNs, LVNs, and NAs, 2008-2016**



- Vacancy rates for RNs and NAs have remained relatively steady since 2010, while rates for LVNs more than doubled from 2014 to 2016.

Table 3 presents the percent of hospitals experiencing various levels of vacancy for the different nurse types.

- The majority of hospitals experienced zero vacancy for LVNs and first-year RNs.

**Table 3. Vacancy rate categories for all hospitals by staff type**

	n	Vacancy Rate Categories				
		0%	≥0% and <25%	≥25% and <50%	≥50% and <75%	≥75%
RNs	290	21.7%	67.9%	8.3%	2.1%	0.0%
First-year RNs	171	63.2%	15.2%	8.8%	4.7%	8.2%
LVNs	223	69.1%	24.7%	3.1%	2.7%	0.4%
NAs	261	42.1%	49.0%	5.7%	2.7%	0.4%

Note: n=number of hospitals in Texas that reported each nurse type

- Among all RN and NA positions, most facilities experience vacancy rates greater than 0% but less than 25%.

### Turnover Rates

The numbers in Table 4 represent the median facility turnover rate in Texas by region and nurse type among hospitals that reported an average number of employees and the total number of separations for the reporting period. These numbers represent the middle value when turnover is calculated for each individual hospital facility. The median value is reported because it is less sensitive to outliers than the mean.

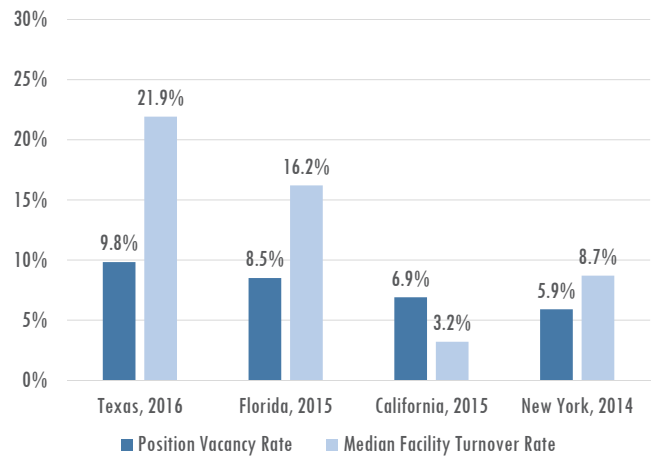
- Statewide, turnover rates were highest among NAs, followed by RNs, but turnover rates varied widely by region.

**Table 4. Median facility turnover rates in Texas by region and nurse type**

	n	Texas	Panhandle	Rio Grande Valley	North Texas	East Texas	Gulf Coast	Central Texas	South Texas	West Texas
RNs	259	21.9%	16.1%	21.0%	21.1%	21.5%	21.9%	22.7%	25.5%	30.1%
First-year RNs	175	13.8%	29.8%	16.5%	18.4%	0.0%	4.1%	16.0%	8.5%	4.4%
LVNs	211	16.7%	18.9%	8.3%	16.7%	28.6%	0.0%	20.0%	10.2%	22.2%
NAs	233	28.6%	26.7%	29.8%	31.6%	42.0%	19.8%	29.3%	23.7%	25.8%

Figure 2 compares Texas vacancy and turnover rates to those of California, Florida, and New York, three states that have updated vacancy and turnover rates since 2014.

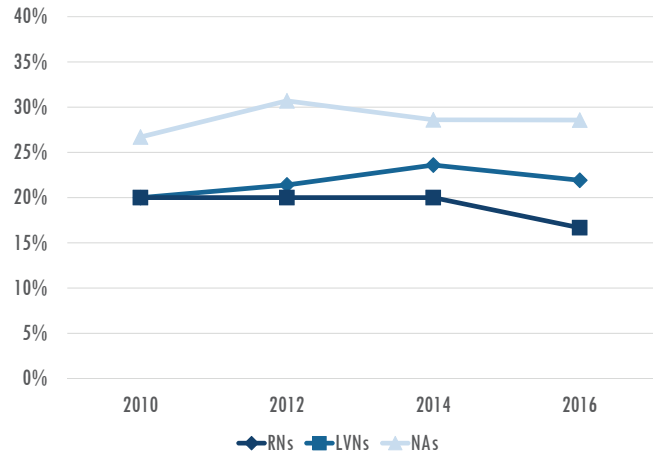
**Figure 2. RN vacancy and turnover rates by state and year**



- As in 2014, Texas continues to have higher vacancy and turnover rates than other states.

Figure 3 shows that median facility turnover rates for RNs and NAs have remained fairly stable over the past four HNSS measurements.

**Figure 3. Median facility turnover rates for RNs, LVNs, and NAs, 2010-2016**



# Advanced Practice Registered Nurses (APRNs)

## Vacancy Rates

Table 5 presents the total number of occupied and vacant FTE positions in Texas by APRN type and the resulting position vacancy rate for each.

**Table 5. Number of occupied and vacant FTE positions in Texas by APRN type**

	n	Total Occupied FTE Positions	Total Vacant FTE Positions	Statewide Position Vacancy Rate	Number of Hospitals that Reported Zero Vacancies
NPs	117	1,169.5	232.6	16.6%	75
CNSs	30	113.4	17.6	13.4%	20
CRNAs	27	228.4	33.3	12.7%	18
CNMs	4	31.8	1.4	4.2%	3

Note: n=number of hospitals in Texas that reported each nurse type

- Nurse practitioners (NPs) were the most numerous APRN type in Texas hospitals and also had the highest position vacancy rate.

The position vacancy rates in Table 6 represent the total percentage of vacancies for a position across a region.

Figure 4 represents the position vacancy rates for Texas from 2008-2016 for APRN types.

- Rates for all APRN types except CNMs increased from 2014 to 2016.

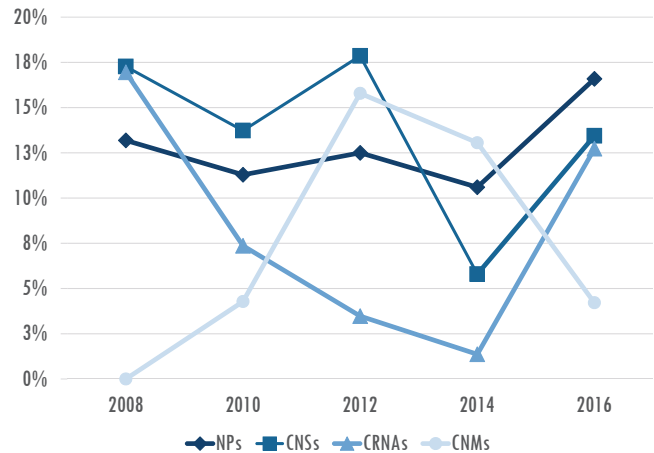
Table 7 presents the percent of agencies experiencing various levels of vacancy for the different APRN types.

- The majority of hospitals experienced zero vacancy for all APRN types.
- 20.5% of hospitals with NP positions reported NP vacancy rates of 25% or higher.

**Table 6. Position vacancy rates in Texas by region and APRN type**

	Panhandle	Rio Grande Valley	North Texas	East Texas	Gulf Coast	Central Texas	South Texas	West Texas
NPs	15.6%	32.7%	16.9%	12.7%	18.6%	10.0%	7.9%	14.8%
CNSs	-	-	18.6%	0.0%	6.1%	0.0%	0.0%	0.0%
CRNAs	57.1%	-	13.0%	11.2%	16.0%	8.3%	0.0%	0.0%
CNMs	-	-	5.9%	0.0%	0.0%	-	0.0%	-

**Figure 4. Position vacancy rates for APRNs, 2008-2016**



**Table 7. Vacancy rate categories for all hospitals by APRN type**

n	Vacancy Rate Categories				
	0%	>0% and <25%	≥25% and <50%	≥50% and <75%	≥75%
NPs	64.1%	15.4%	6.8%	10.3%	3.4%
CNSs	66.7%	16.7%	0.0%	10.0%	6.7%
CRNAs	66.7%	22.2%	0.0%	11.1%	0.0%
CNMs	75.0%	25.0%	0.0%	0.0%	0.0%

Note: n=number of hospitals in Texas that reported each nurse type

## Turnover Rates

The numbers in Table 8 represent the median facility turnover rate in Texas by region and APRN type among hospitals with APRN FTE positions of each type.

- The median facility turnover rate in Texas was 0% for all APRN types but CNMs, but only 2 hospitals reported turnover rates for CNMs.



**Table 8. Median facility turnover rates in Texas by region and APRN type**

	n	Texas	Panhandle	Rio Grande Valley	North Texas	East Texas	Gulf Coast	Central Texas	South Texas	West Texas
NPs	113	0.0%	0.0%	0.0%	0.0%	5.7%	0.0%	0.0%	0.0%	0.0%
CNSs	27	0.0%	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CRNAs	23	0.0%	0.0%	-	16.6%	0.0%	0.0%	0.0%	0.0%	0.0%
CNMs	2	6.9%	-	-	13.8%	0.0%	-	-	-	-

## Conclusion

Overall, the position vacancy rate for RNs in Texas was 9.8%, for LVNs was 8.2%, and for NAs was 8.7%. The majority of hospitals experienced vacancy rates of less than 25% for RNs, LVNs, and NAs, and zero vacancy for all APRN types. Vacancy rates for RNs and NAs have remained relatively steady since 2010, while rates for LVNs more than doubled from 2014 to 2016. Vacancy

rates for all APRN types except CNMs increased from 2014 to 2016.

The median facility turnover rate among RN positions was 21.9%, among LVN positions was 16.7% and among NAs was 28.6%. Median turnover was 0% for all APRN types except CNMs.

## TCNWS Advisory Committee Recommendations

Vacancy and turnover rates for RNs and LVNs increased between 2014 and 2016, and Texas continues to have higher vacancy and turnover rates than other states with comparable populations. High vacancy and turnover rates can lead to negative outcomes that affect quality of care, such as losing experienced staff and increasing the workload and stress levels of existing staff.<sup>2</sup> High vacancy and turnover is also costly to hospitals due to the high cost associated with overtime and recruiting qualified nurses. In order to decrease vacancy and turnover hospitals need to identify factors influencing recruitment and retention of nurses. Employers of nurses should invite practicing nurses' input to decrease vacancy and turnover rates for nurses in the workplace. Some of these strategies could include the following:

- Continue to improve work environment, including:
  - Care delivery models
  - Institute flexible work schedules and part-time or per diem work. 87.8% of responding

hospitals used shift differentials and 56.8% used flexible scheduling and job sharing as retention strategies for full-time employees. Other creative work schedules could include seasonal employment (e.g., working winters with summers off), overlapping shifts, and self-scheduling.

- Continue to support endeavors to increase funding levels as well as provide resources such as mentors/preceptors and clinical space to nursing programs in order to increase capacity to admit and graduate nursing students.
- Explore a wide range of compensation models that align experience, workload, and positive patient outcomes.
- Develop and support health promotion and return-to-work programs (after an employee injury or illness).

<sup>2</sup> American Association of Colleges of Nursing. (2012). Nursing shortage fact sheet. <http://www.aacn.nche.edu/media-relations/NrsgShortageFS.pdf>

