The Texas Governmental Public Health Nurse Staffing Survey (TGPHNSS) assesses nurse staffing and related issues in Texas governmental public health agencies. In the spring of 2019, the Texas Center for Nursing Workforce Studies (TCNWS) administered the TGPHNSS to 80 public health agencies in Texas. This included local health departments, public health service regions, and Department of State Health Services (DSHS) and Health and Human Services (HHS) central offices in Austin. DSHS and HHS central office programs will be referred to as state offices. A total of 51 agencies participated for a final response rate of 63.8%.

Vacancy and turnover rates are among the key measures for assessing nurse staffing adequacy. The Institute of Medicine (IOM) has asserted that vacancy rates "are widely accepted as evidence of supply shortages of RNs" and can be used to estimate current and future nursing shortages.[1] Vacancy rates indicate the ability of an organization to recruit and fill nursing positions and turnover rates indicate the ability of the organization to retain its current employees.[2,3] This report features the results of the 2019 TGPHNSS nurse vacancy and turnover in Texas governmental public health agencies. It includes statewide vacancy and turnover rates as well as vacancy and turnover by region, geographic designation, and agency type.

[1]IOM (Institute of Medicine). (2011). The Future of nursing: Leading change, advancing health. Washington, DC: The National Academies Press.

[2]Rondeau, K.V., Williams, E.S., & Wagar, T.H. (2008). Turnover and vacancy rates for registered nurses: Do local labor market factors matter?. Health Care Management Review, 33(1), 69-78.

[3]Hayes, L., O'Brien-Pallas, L., Duffield, C., Shamian, J., Buchan, J., Hughes, F., Laschinger, K.S., & North, N. (2012). Nurse turnover: A literature review – An update. International Journal of Nursing Studies, 49(7), 887-905.

## Vacancy Rates - Statewide

Table 1 displays vacancy data for all governmental public health agencies that responded to the survey. In the current study, position vacancy rates and median agency vacancy rates were assessed for January 25, 2019. The position vacancy rate describes the proportion of all full-time equivalent (FTE) positions that are vacant across all responding agencies, whereas the median agency vacancy rate provides the midpoint of vacancy rates among all agencies, regardless of agency or staff size. The methods for calculating both types of vacancy rates are described in the Design and Methods section.

- For the 40 agencies that reported employment information for RNs, 26 (65.0%) of those agencies had a 0% vacancy rate.

- Of the 29 agencies that reported employment information for LVNs, 19 (65.5%) of those agencies had a 0% vacancy rate.

- 10 agencies reported vacancy information on APRN positions, and 7 (70.0%) of those agencies had a 0% vacancy rate.

Figure 1 represents the position vacancy rates for Texas from 2013-2019 by nursing staff type.

### Table 1. Statewide vacancy rates among responding agencies by nurse type, 2019
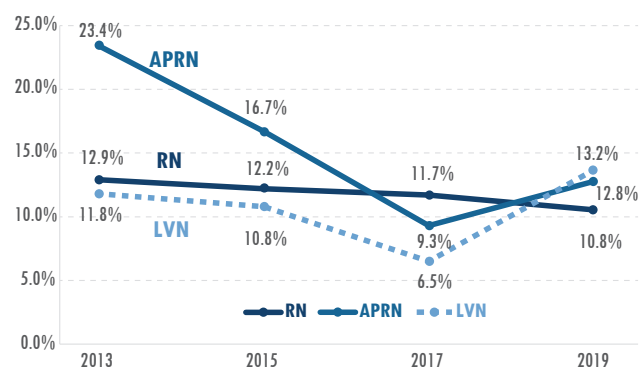
| | n | Occupied FTE positions | Vacant FTE positions | Statewide position vacancy rate | Statewide median agency vacancy rate | % of agencies that reported zero vacancies |
|---|---|---|---|---|---|---|
| RNs | 40 | 330.0 | 40 | 10.8% | 0% | 65.0% |
| APRNs | 10 | 20.5 | 3 | 12.8% | 0% | 70.0% |
| LVNs | 29 | 145.0 | 22 | 13.2% | 0% | 65.5% |

Note: n=number of agencies in Texas that reported FTE positions for each nurse type. Agencies with inconsistent staffing data were excluded from these calculations.

### Figure 1. Position vacancy rates by nurse type, 2013 - 2019



Legend: RN, APRN, LVN

Data points: APRN: 23.4% (2013), 16.7% (2015), 9.3% (2017), 12.8% (2019); RN: 12.9% (2013), 12.2% (2015), 11.7% (2017), 10.8% (2019); LVN: 11.8% (2013), 10.8% (2015), 6.5% (2017), 13.2% (2019)

- Overall, the statewide position vacancy rate was lowest for RN positions (10.8%) and highest for LVN positions (13.2%).
- The position vacancy rate for RNs was 10.8%, slightly lower than reported for 2017 (11.7%).
- 10 agencies reported vacancy information for APRNs. The total APRN position vacancy rate among those agencies was 12.8%. There were only 3.0 total vacant APRN positions and 20.5 occupied APRN positions among responding agencies.

Table 2 shows median public health agency vacancy rates, which represent the middle value among all position vacancy rates calculated for each individual agencies. The median agency vacancy rate gives a sense of how widespread an issue staff vacancy is.

- Statewide median agency vacancy rates were 0% for RNs, LVNs and APRNs.

**Table 2. Public health agency vacancy rate descriptive statistics**

| | n | Minimum | 25th Percentile | Median | 75th Percentile | Maximum | Mean |
|---|---|---|---|---|---|---|---|
| RNs | 40 | 0% | 0% | 0% | 12.1% | 33.3% | 5.9% |
| APRN | 10 | 0% | 0% | 0% | 9.1% | 100% | 17.6% |
| LVNs | 29 | 0% | 0% | 0% | 14.3% | 50.0% | 8.1% |

Note: n=number of agencies in Texas that reported each nursing staff type

## Vacancy Rates - Agency Types

Figure 2 and Table 3 show position vacancy rates by the different types of responding governmental public health agencies.
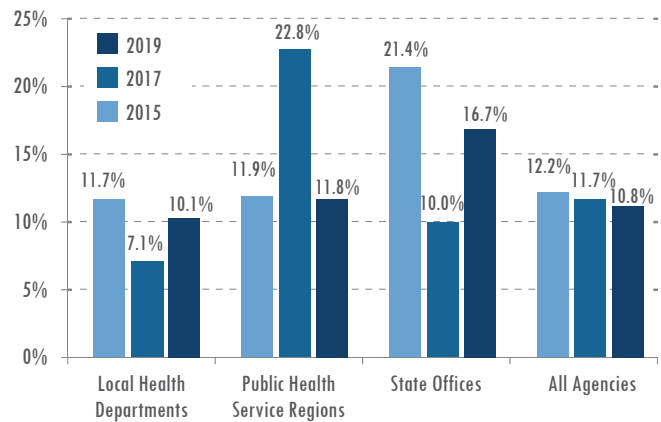
- The highest position vacancy rate for RNs (16.7%) was found among state offices. The highest reported vacancy rate in 2017 (22.8%) was found in DSHS public health service regions.
- Among local health departments, the position vacancy rate for RNs was 10.1%.

**Figure 2. RN position vacancy rate by agency type, 2015 - 2019**



- 95.1% of APRNs were employed by local health departments.
- Approximately 27.4% (38.4% in 2017) of local health departments surveyed reported employing APRNs. Among these local health departments, the position vacancy rate was 13.3%.

## Vacancy Rates - Metropolitan Areas/Border Designation

As shown in Table 4, nurse position vacancy rates in responding governmental public health agencies varied by geographic designation. Position vacancy rates for nurses were higher among agencies in Non-metropolitan counties compared to agencies in metropolitan counties which is in contrast to what was reported in 2017.

**Table 4. Nurse position vacancy rates in responding agencies by metropolitan/border designation, 2019**

| | Metropolitan | | Non-Metropolitan | | Border | | Non-Border | |
|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % |
| RNs | 33 | 11.1% | 7 | 0% | 5 | 9.1% | 35 | 11.0% |
| APRNs | 6 | 10.3% | 4 | 25.0% | 0 | 0% | 10 | 12.8% |
| LVNs | 21 | 14.3% | 8 | 5.0% | 2 | 15.4% | 27 | 13.0% |

Note: n= number of agencies in Texas that reported FTE positions for each nurse type. Agencies that report zero nurse positions for a nurse type were excluded from the calculations. %= Position vacancy rate.

**Table 3. Position vacancy rates in responding agencies by agency type, 2019**

| | Local Health Departments | | Public Health Service Regions | | State Offices | | Statewide | |
|---|---|---|---|---|---|---|---|---|
| | Number of Agencies | Position Vacancy Rate | Number of Agencies | Position Vacancy Rate | Number of Agencies | Position Vacancy Rate | Number of Agencies | Position Vacancy Rate |
| RNs | 29 | 10.1% | 8 | 11.8% | 3 | 16.7% | 40 | 10.8% |
| APRNs | 9 | 13.3% | 1 | 0% | 0 | - | 10 | 12.8% |
| LVNs | 26 | 13.1% | 3 | 14.3% | 0 | - | 29 | 13.2% |

Note: Agencies that reported zero nurse positions for a nurse type were excluded from the vacancy rate calculation.

## Vacancy Rates - Regions

RN and LVN position vacancy rates were also analyzed by region. Figures 3 and 4 display RN and LVN position vacancy rates by region, respectively.

- The Panhandle reported the lowest RN position vacancy rate (0.0%) followed by West Texas (6.9%).

- North Texas again had the highest RN vacancy rate at 16.9%, reporting 13.6% in 2017.

- The Rio Grande Valley had the highest vacancy rate among LVN positions (21.1%).

- 2 regions had zero vacancies among their LVN positions.

- Agencies in West Texas reported employing LVNs but did not provide sufficient information to calculate a vacancy rate.
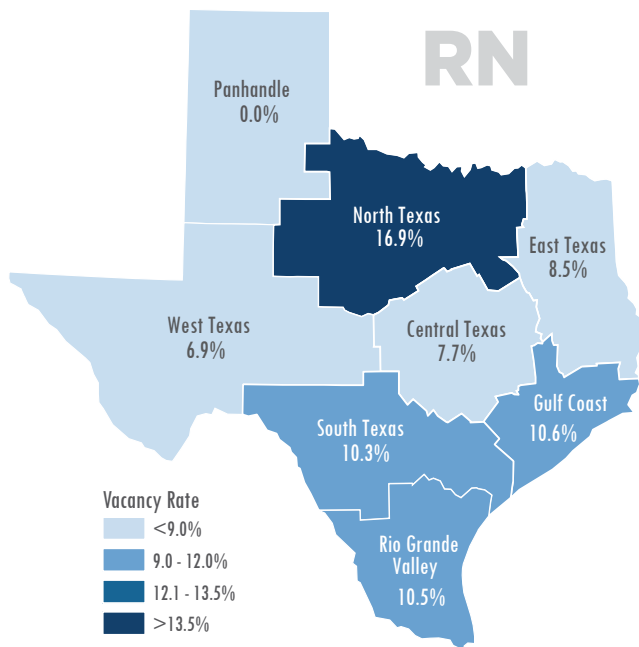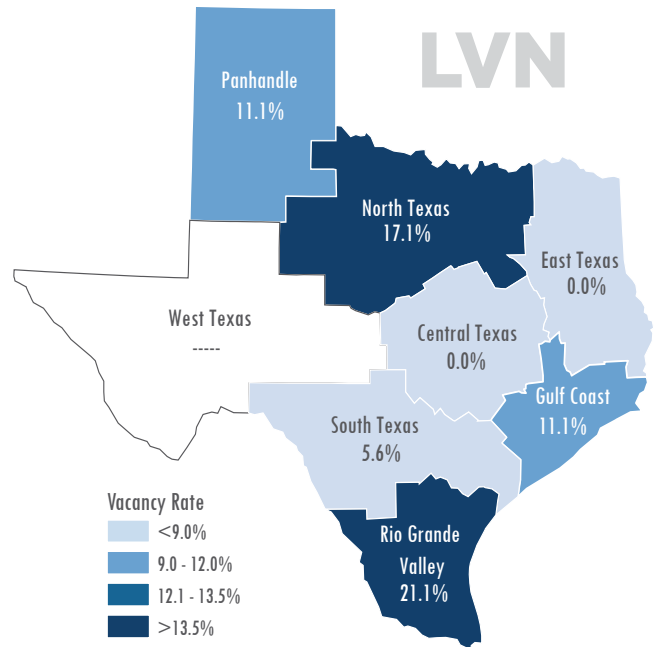
**Figure 4. LVN position vacancy rate by region, 2019**



**Figure 3. RN position vacancy rate by region, 2019**

## Turnover Rates - Statewide

Table 5 displays the total average headcount for 2018, total number of separations, and median agency turnover rate for RNs, LVNs, and APRNs in responding governmental public health agencies. Turnover rates were assessed for the calendar year of 2018 (January 1, 2018 to December 31, 2018).

Table 6 shows median turnover rates, which represent the middle value among all turnover rates calculated for each agency. The median value is reported because it is less sensitive to outliers than the mean.

- Of the 32 agencies that provided turnover information for RNs, 15 of those agencies had a 0% turnover rate (46.6%).
- 26 agencies reported turnover information for LVNs, and 17 (65.4%) of those agencies had a 0% turnover rate.
- 7 agencies reported turnover information for APRN positions, and 5 (71.4%) of those agencies had a 0% turnover rate.
- The statewide median turnover rate was 13.8% for RNs, 0% for APRNs and 0% for LVNs.

**Table 6. Agency turnover rate descriptive statistics**

|  | n | Minimum | 25th Percentile | Median | 75th Percentile | Maximum | Mean |
|---|---|---|---|---|---|---|---|
| RNs | 32 | 0% | 0% | 13.8% | 24.8% | 100% | 17.0% |
| APRN | 7 | 0% | 0% | 0% | 50.0% | 200% | 42.9% |
| LVNs | 26 | 0% | 0% | 0% | 22.2% | 100% | 16.1% |

Note: n=number of agencies in Texas that reported each nursing staff type
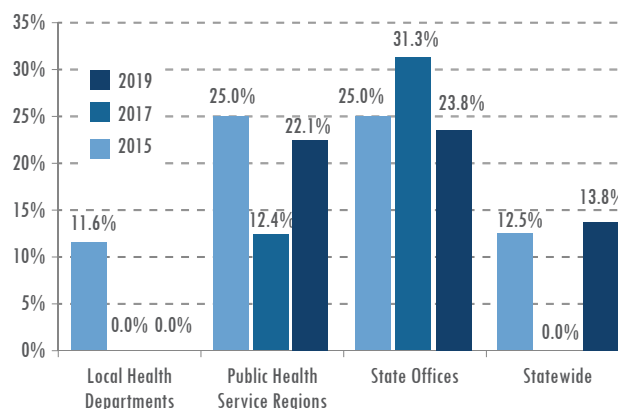
## Turnover Rates - Agency Types

Table 7 shows median turnover rates for each nurse type by the different types of responding governmental public health agencies.

- The median turnover rate for RNs was lowest among the 22 responding local health department (0.0%) and highest for the state offices (n=2, 23.8%). Public health service regions reported 22.1% (n=8) median turnover rate.
- The median turnover rate among local health departments was also 0% for LVNs and APRNs.

No state offices reported employing LVNs or APRNs, so they were excluded from this analysis.

**Figure 5. Median RN turnover rate by agency type, 2015, 2017, 2019**



**Table 5. Headcount and separations in responding agencies by nurse type, 2018**

|  | n | Average Headcount 01/01/18 — 12/31/18 | Number of Separations 01/01/18 — 12/31/18 | Median Agency Turnover Rate | Number of Agencies that Reported Zero Separations |
|---|---|---|---|---|---|
| RNs | 32 | 239.5 | 45 | 13.8% | 15 |
| APRNs | 7 | 10 | 3 | 0% | 5 |
| LVNs | 26 | 136 | 18 | 0% | 17 |

Note: n=number of agencies in Texas that reported both head counts and number of separations for each nurse type.

**Table 7. Turnover rates in responding agencies by agency type, 2019**

|  | Local Health Department | | | Public Health Service Region | | | State Offices | | | Statewide | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | n | Mean Turnover Rate | Median Turnover Rate | n | Mean Turnover Rate | Median Turnover Rate | n | Mean Turnover Rate | Median Turnover Rate | n | Mean Turnover Rate | Median Turnover Rate |
| RNs | 22 | 12.9% | 0% | 8 | 26.6% | 22.1% | 2 | 23.8% | 23.8% | 32 | 17.0% | 13.8% |
| APRNs | 6 | 50.0% | 0% | 1 | 0% | 0% | 0 | - | - | 7 | 42.9% | 0% |
| LVNs | 23 | 12.7% | 0% | 3 | 42.2% | 33.3% | 0 | - | - | 26 | 16.1% | 0% |

Note: Agencies that reported zero nurse positions for a nurse type were excluded from the turnover rate calculation.

## Turnover Rates - Metropolitan Status/Border Status

Figures 6 and 7 display the median turnover rate for each nurse type by border and metropolitan counties.

- The median turnover rate for RN positions was higher among agencies in metropolitan counties (n=27, 18.2%) than non-metropolitan counties (n=5, 0%).

- Among agencies located in border counties (n=4), the median turnover rate for RNs was 16.7%, compared to a median turnover rate of 7.1% among agencies in non-border counties (n=28).

- For APRNs, the median turnover rate was 0.0% for non-border counties.

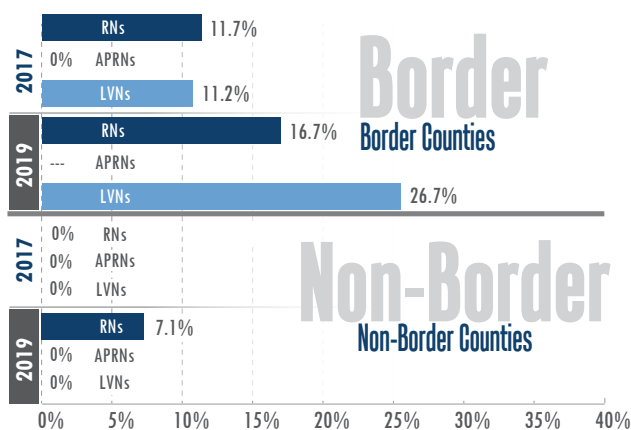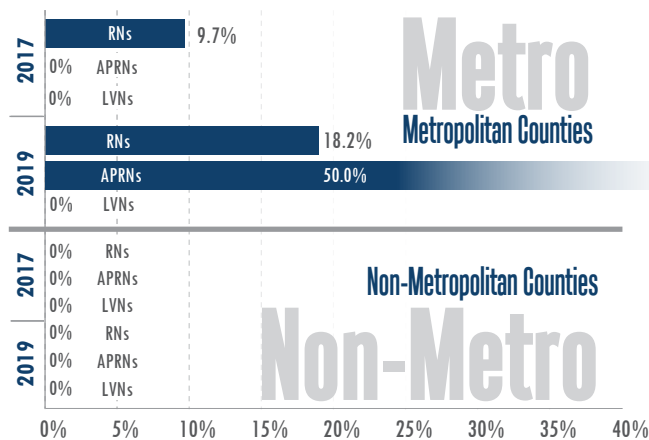### Figure 6. Median turnover rate by border classification



### Figure 7. Median turnover by metropolitan status



## Turnover Rates - Public Health Service Regions

In Figure 8, median RN turnover rates are displayed by region. Agencies in three regions of Texas reported a 0% median turnover rate for RNs (North Texas, Panhandle and South Texas).

- The Rio Grande Valley again reported the highest median turnover rate for LVNs and RNs at 13.3% and 31.8%, respectively.

- Agencies in West Texas reported employing LVNs but did not provide sufficient information to calculate a turnover rate.

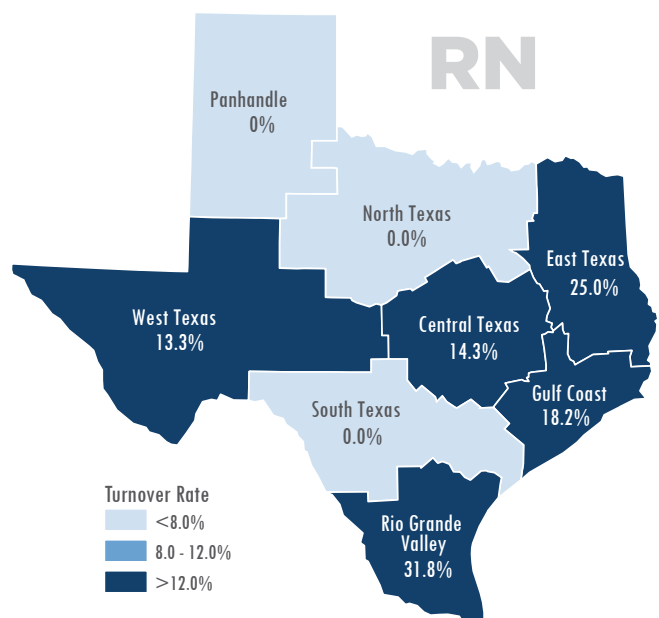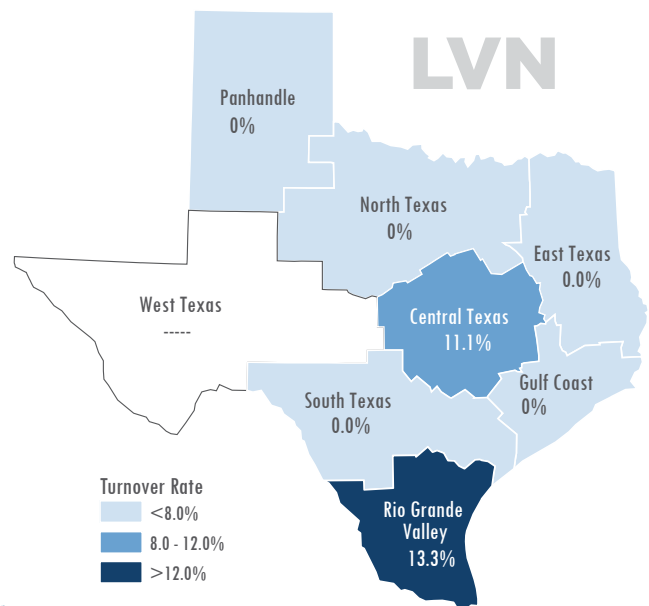### Figure 8. RN median turnover rate by region



### Figure 9. LVN median turnover rate by region

## Conclusion

The statewide position vacancy rate was 10.8% for RNs, 13.2% for LVNs and 12.8% for APRNs. This was a decrease for RNs from 2017.

When comparing vacancy rates by agency type, state offices reported the highest vacancy rates for RNs (16.7%). Regionally, the Panhandle reported the lowest position vacancy rate (0%) and North Texas reported the highest for RNs (16.9%).

In 2019, the statewide median turnover rate was 13.8% for RNs and 0% for LVNs and APRN positions, indicating that at least half of responding agencies for LVN and APRNs did not have any staff turnover during the reporting period. By agency type, the median turnover rate for RNs was lowest among the 22 responding local health departments (0.0%). State offices had the highest median turnover rate (n=2, 23.8%). For RNs, agencies in three regions of Texas (Panhandle, North Texas, South Texas) reported a 0% median turnover rate with the Rio Grande Valley reporting the highest at 31.8%.