

Nebraska's Multi-Regional Nursing Workforce Model

Technical Report & Main Findings 2017

For More Information Contact:

Ann Oertwich, Ph.D., RN. Executive Director, Nebraska Center for Nursing
ann.oertwich@nebraska.gov / 402-471-0317

Craig Moore, Ph.D. Consultant
craiglmoore@hotmail.com

Jacci Reznicek, MSN, RN, ANP-BC, DHHS Nurse Consultant
jacci.reznicek@nebraska.gov / 402-471-4360

Kathy Hoebelheinrich, MSN, APRN-NP, ANP-BC, BC-ADM, CDE DHHS Nurse Consultant
Kathy.Hoebelheinrich@nebraska.gov / 402-471-6443

Juan-Paulo Ramírez, Ph.D. Independent Consultant, Nebraska Center for Nursing
juan.ramirez@nebraska.gov / 402-217-3872

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EXECUTIVE SUMMARY

The Nebraska Center for Nursing (CFN) received funding from the Nebraska Board of Nursing to develop a nursing workforce model. The Nursing Workforce Model will be used to predict nursing workforce supply and demand for Registered Nurses (RNs), Advanced Practice Registered Nurses (APRNs), and Licensed Practical Nurses (LPNs) until the year 2025. While nursing workforce models are commonly generated by using statewide workforce data and demographic projections, the Nebraska nursing workforce model uses a multiregional approach using the nine (9) economic development regions developed by the Nebraska Department of Labor. These economic regions enable a more detailed, accurate, and realistic analysis about the geographic, demographic, and workforce differences that exist across the State of Nebraska, especially in rural/frontier areas vs. metropolitan areas (see Appendix). The model works to dynamically identify supply and demand for RNs, APRNs, and LPNs at both the regional and statewide levels, and to identify gaps (shortage or surplus) over time.

An important advantage of the Nebraska nursing workforce model is that it can **simulate** changes in nursing demand based on, for example, the addition of new beds in an existing health care facility or new hospital for any year of the model. The model dynamically adjusts the need for new nurses in a particular region by projecting the additional demand over time. In addition, if graduation rates change for any year, those changes can be reflected in the model, adjusting the supply of nurses. Also, if the utilization rate of nurses changes for any setting by type of nurses, they can be adjusted to meet actual utilization demand. With this dynamic approach to adjust for local, regional, state, or national conditions, the model is a **policy tool** that will allow nurses in leadership positions, policymakers, and stakeholders to anticipate detailed changes in the nursing workforce over time and by specific geographic areas.

The Nebraska Center for Nursing contracted with private consultant Dr. Craig Moore who created the first multiregional nursing workforce model for the State of Louisiana in 2013. Board members of the Nebraska Center for Nursing met in 2016 with Dr. Cynthia Bienemy, Director of the Louisiana Center for Nursing, and who contracted Dr. Moore, to learn more about the details of the nursing workforce model and ways Nebraska could gain access to a similar model. Dr. Juan-Paulo Ramírez, independent consultant with the Nebraska Center for

Nursing met several times during 2016 with Dr. Moore to identify key variables from the nursing workforce and demographic datasets needed to develop the Nebraska Multiregional Nursing Workforce Model. Dr. Ann Oertwich, Director of the Nebraska Center of Nursing facilitated resources from the Nebraska Board of Nursing to contract with Dr. Moore towards developing a nursing workforce model for Nebraska. Finally, in November 2017, the Nebraska Center for Nursing received the multiregional nursing workforce model. Main findings of the analysis are identified in this report.

In summary, the Nebraska Multi-Regional Nurse Workforce Model is a computer based, user friendly set of programs designed to forecast the supply of and demand for nursing in nine different regions across Nebraska. There are actually three separate models: one for Registered Nurses, one for Advanced Practice Nurses, and one for Licensed Practical Nurses. Each uses an identical set of "healthcare settings" to break down the employment of nurses. Each of the three models use the same set of regions across the state. Each uses the same method of analysis to forecast the supply of and demand for nurses until 2025. The three models use the same format, design, and user commands.

NURSING SUPPLY AND DEMAND FORECAST

MAJOR FINDINGS¹

REGISTERED NURSES (RNS)

- 58 percent of RNs are employed in Nebraska hospitals.
- 2 percent of RNs in Nebraska are unemployed.
- A **statewide shortage** for RNs is expected to continue from 2017 through 2025.
- 2017 shows a shortage of full-time equivalent (FTE) RNs (20,739 supply) compared to demand (23,531) in all regions.

ADVANCED PRACTICE REGISTERED NURSES (APRNS)

- 49 percent of APRNs are employed in Nebraska hospitals.
- 30 percent of APRNs are employed in Ambulatory Care.
- The demand for APRNs (FTEs) in 2017 was estimated at 1,876, with a supply of 1,498, leaving a gap of 378 FTEs.
- A **statewide shortage** for APRNs is expected to continue from 2017 through 2025.
- The most severe APRN shortages will be experienced in the following regions: Central, Northeast, Omaha, and Lincoln.

LICENSED PRACTICAL NURSES (LPNS)

- 44 percent of LPNs are employed in long-term care facilities.
- The LPN ratio of nurses to patients is much higher in Sandhills and Southeast regions than in other economic regions of the State.
- There will be a **shortage of LPNs through 2025** in all Nebraska economic regions.

¹ Changes in health care policy/health care reform, patient care delivery, nurse intensity, or population shift will affect demand for RNs, APRNs, and LPNs

THE NEBRASKA MULTI-REGIONAL NURSING WORKFORCE MODEL

The Nebraska Multi-regional Nursing Workforce Model is a policy tool that forecast the supply and demand for **registered nurses** (RNs), **advanced practice registered nurses** (APRNs), and **licensed practical nurses** (LPNs), through the year 2025, both at the state level, and at the regional level. Nebraska's nine economic development regions developed by the Nebraska Department of Labor were used for forecasting at the regional level. Nursing shortages and surpluses are identified from 2017 through 2025 for each type of nurse and by region using the following formula:

$$\text{Shortage or Surplus of Nurses} = \text{Demand for Nurses} - \text{Supply of Nurses}$$

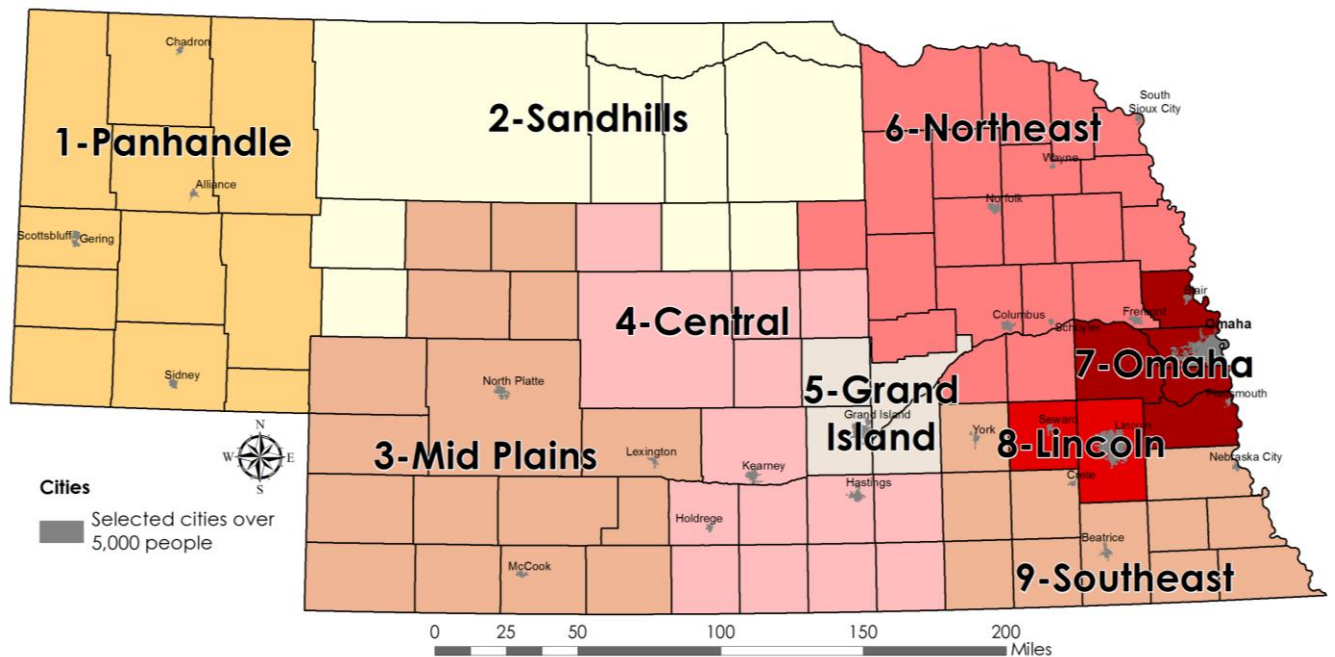
Changes in health care policy/health care reform, patient care delivery, nurse intensity, technological advances, or population change will affect demand for RNs, APRNs, and LPNs. As the population projections from 2017 to 2025 are based on the 2010 U.S. Census, it is expected that baseline data from the 2020 Census will provide even better estimates of the supply and demand of nurses in each of the nine economic regions. As the nursing model is dynamic in essence, some of these demographic changes can already be simulated through changes in nursing utilization intensity and graduation rates.

REGIONAL DEFINITIONS

The nine regions that have been selected for analyzing nursing in the state are the same regions that the Department of Labor has defined for their economic regions. This is helpful because it allows data in the model to be compared with Department of Labor data for the same geographic markets. There are three regions that contain Metropolitan Statistical Areas and each has one county that is considered "urban": Omaha (Douglas County), Lincoln (Lancaster County), and Grand Island (Hall County). The population groupings by age and gender are broken out separately for them for each of these urban counties.

This is because healthcare follows a different pattern in urban areas. Residents are more likely to seek care at an emergency room or urgent care center and often do not have a regular primary care physician. In suburban and rural areas, residents are more likely to see the same doctor who is more familiar with their medical history. This results in early diagnosis and fewer hospitalizations. Thus a lower demand for nurses than in urban communities. A map and definition of each region based on counties is shown below.

Nine Regions for the Nursing Workforce Model – State of Nebraska:

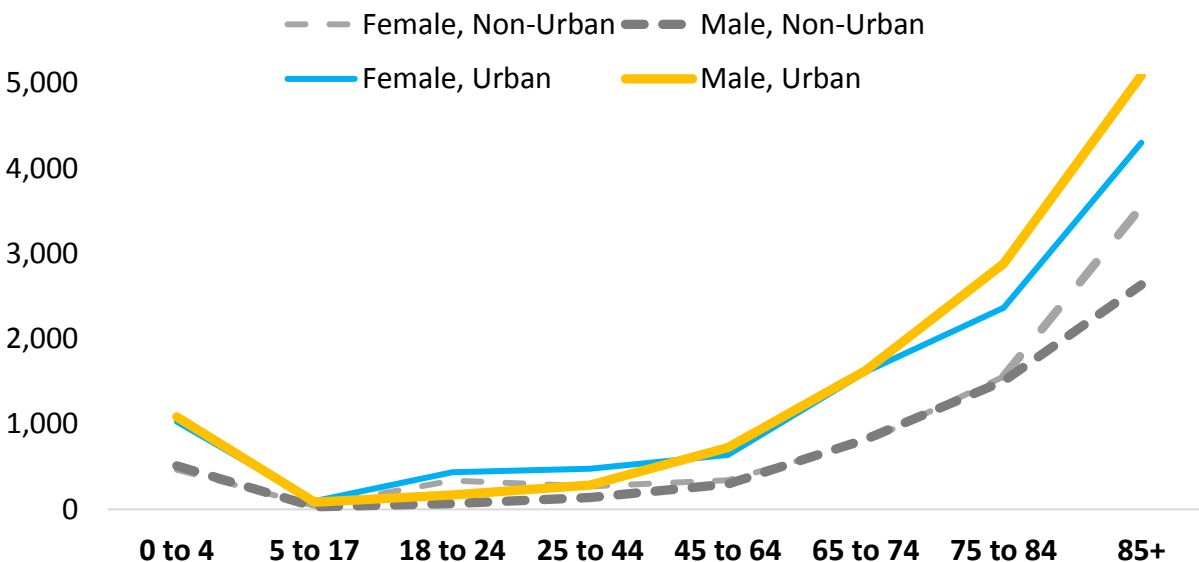


Region	Counties
1. Panhandle	Banner, Box Butte, Cheyenne, Dawes, Deuel, Garden, Kimball, Morrill, Scotts Bluff, Sheridan, Sioux
2. Sandhills	Arthur, Boyd, Brown, Cherry, Garfield, Grant, Holt, Keya Paha, Loup, Rock
3. Mid Plains	Chase, Dawson, Dundy, Frontier, Furnas, Gosper, Hayes, Hitchcock, Hooker, Keith, Lincoln, Logan, McPherson, Perkins, Red Willow, Thomas
4. Central	Adams, Blaine, Buffalo, Clay, Custer, Franklin, Greeley, Harlan, Kearney, Nuckolls, Phelps, Sherman, Valley, Webster
5. Grand Island	Hall, Hamilton, Howard, Merrick
6. Northeast	Antelope, Boone, Burt, Butler, Cedar, Colfax, Cuming, Dakota, Dixon, Dodge, Knox, Madison, Nance, Pierce, Platte, Polk, Stanton, Thurston, Wayne, Wheeler
7. Omaha	Cass, Douglas, Sarpy, Saunders, Washington
8. Lincoln	Lancaster, Seward
9. Southeast	Fillmore, Gage, Jefferson, Johnson, Nemaha, Otoe, Pawnee, Richardson, Saline, Thayer, York

DEMOGRAPHICS DRIVES THE DEMAND FOR NURSING

Estimating the demand for nurses starts with demographic analysis. The data used are the official population figures published by the state government based on data from the U.S. decennial census. The population forecasts for each county are broken down into groups by age, gender and whether the county is urban or rural. Each of these population clusters has a demand factor based on studies done by various national healthcare organizations. Actuarial data shows that the older one gets, the more healthcare they likely need and the pattern of demand for males and females vary during most of their lives because of child bearing and other factors. This is evident from the following graph showing the inpatient days by age and gender for urban and non-urban communities.

Inpatient Days, By Age and Gender, Urban/Non-Urban Population



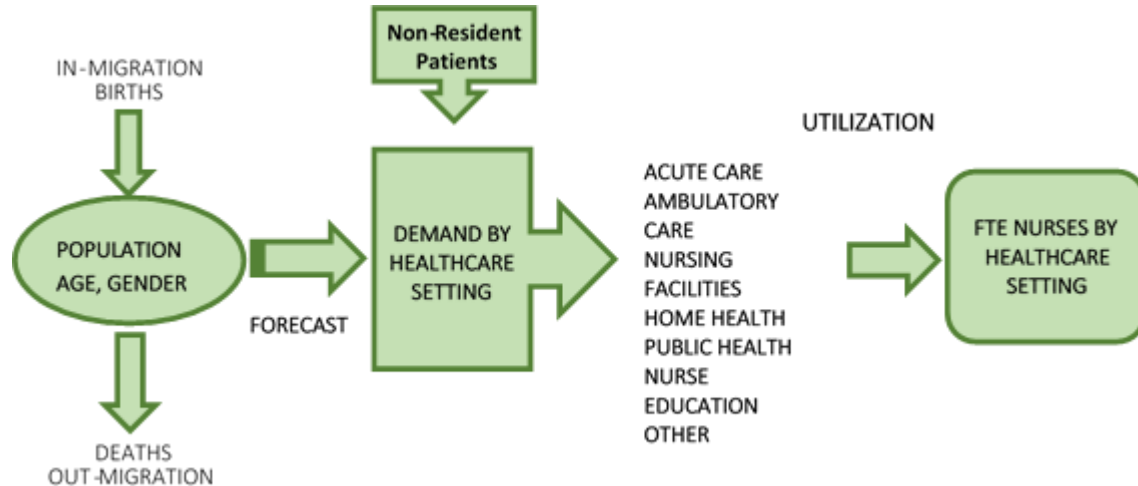
Each of the three models associates the demand for nurses with each population group based on **age**, **gender**, and degree of **urbanization** in each region to a set of healthcare settings where nurses are employed.

HEALTHCARE SETTINGS

Healthcare settings breakdown the employment of nurses by where they work. The demand for each type of nurse is estimated in each of the following healthcare settings. A brief description and the units used to measure demand are shown below:

Setting	Description	Units Used
Inpatient Care	Hospitals where acute care is provided.	Patient days
Ambulatory Care	Clinics, urgent care, doctors' offices	Visits per day
Nursing Facilities	Both long-term and sub-acute care	Resident days
Home Health	In home care by any nurse	Visits per day
Public Health	Public Health and Community Health	Nurses per 10,000
Nursing Education	Nurses teaching in schools of nursing	Nurses per 10,000
Other	Nurses working in public schools, prisons, insurance companies, etc.	Nurses per 10,000

Each model forecasts the demand for nurses that will be needed in each of these settings by each population cluster. These estimates are then added together to determine the total demand for that type of nurse in each future year in each region. The regional demand is also aggregated to the state level by healthcare setting. The flowchart below shows the elements used in estimating the demand for nurses.



Another factor that is considered is the care of patients who come from outside the region. These are designated as non-resident patients (exports) because the payment for their care comes from outside the region's economy. In some regions this is not a factor, but in several regions, it is a major factor that must be accounted for because it has a significant impact on the demand for nurses.

FORECASTING THE DEMAND FOR NURSING

There are two ways that the demand for nursing in each model is estimated. The first is based on national benchmarks that reflect what people in various age and gender groups consume in urban and non-urban settings. The heart of the process involves the application of a set of demand factors for each healthcare setting with each age² and gender group. The following table shows what these factors look like for Inpatient Care.³

² The age categories are based on the Health Resources Service Administration's (HRSA) national model.

³ The demand factors in the following tables were estimated by HRSA from a variety of sources including the American Hospital Association, Nation Inpatient Sample, National Ambulatory Medical Care Survey, National Nursing Home Survey, and Medical Expenditure Panel Survey in cooperation with the Census Bureau. They were originally published in the HRSA Nursing Demand Model: Updated Technical Report.

Inpatient Days per 1,000 People, Per Year				
	Female		Male	
Age	Urban	Non-Urban	Urban	Non-Urban
0-4	1,030	466	1,084	509
5-17	97	42	84	30
18-24	435	337	168	68
25-44	477	271	287	137
45-64	637	343	726	296
65-74	1,614	791	1,627	820
75-84	2,366	1,559	2,883	1,504

The first step is to divide the number of people in each population group in the regional population projections by 1,000 and multiply by the factor in the table to estimate the number of patient days required.

Example: a region has 5,000 females living in an urban county who are between 45 and 64. Patient days required each year equals $5,000/1,000$ times 1,614 or 8,070.

If you add the results for every age and gender population group in a region together, it equals the total annual number of patient days needed for the entire regional population.

The next step is to divide the number of FTE nurses working in inpatient care in the region based on the 2016 licensure data by the number of patient days divided by 1,000. This indicates how many nurses are employed per 1,000 patient days in the region

Example: a region requires 27,800 patient days a year for its total population. There are also 1,000 patient days for serving patients outside the region. It now employs 500 FTE RNs in inpatient care. So, $500 / ((27800+1000)/1000) = 17.36$ FTE RNs per 1000 patient days. The next step is to look at the projected population by age and gender in each future year and, by applying the figures in the table, solve for the number of patient days that will be demanded in the future.

The final step is to just multiply the number of nurses per 1,000 patient days based on the current utilization by the projected number of patient days in the region in each year divided by 1,000. Thus, one has a projected number of nurses demanded for inpatient care in each year for the region.

Example: in 2022 the number of estimated patient days based on demographic projections has grown to 33,000 and patient days for patients from outside the regions has grown to 2,000. So, the number of FTE nurses required is $((33,000+2,000)/1000)$ times 17.36 which equals 608 FTE nurses that will be needed.

This same approach is used in the other healthcare settings. The units of measurement are different, but the approach is identical. The following tables show the demand factors for each population group in the remaining settings.

Ambulatory Visits, Per Year 1,000 People Per Year				
	Female		Male	
Age	Urban	Non-Urban	Urban	Non-Urban
0-4	4,510	3,849	5,020	4,624
5-17	2,236	1,650	2,300	1,712
18-24	2,743	2,044	1,151	886
25-44	3,685	2,249	2,017	1,697
45-64	5,046	3,391	3,741	2,566
65-74	7,961	4,945	6,403	5,350
75-84	8,031	7,088	8,072	5,662
85+	7,516	8,093	9,716	5,361

Residents in Nursing Homes Per 1,000 People				
	Female		Male	
Age	Urban	Non-Urban	Urban	Non-Urban
0-44	0.5	0.2	0.6	0.2
45-64	1.9	1.2	2.4	0.9
65-74	11.5	5.1	9.7	3.5
75-84	44.9	22.3	30.5	13.9
85+	222.9	123.5	112.2	40.2

Home Health Visits per 1,000 People				
	Female		Male	
Age	Urban	Non-Urban	Urban	Non-Urban
0-17	379	211	512	824
18-44	881	1,048	424	278
45-64	1,898	519	815	2,834
65-74	6,185	6,426	2,675	5,247
75-84	13,895	11,063	6,179	11,818
85+	25,093	24,665	15,238	21,705

Figures for Public Health and Community Health, Nursing Education, and Other non-health care jobs are estimated per 10,000 people in the region based on 2016 licensure data.

ADJUSTMENTS BASED ON UTILIZATION

The second approach to estimating demand is based on actual utilization data from hospitals around the state. This is not only an important adjustment to demand, but a way of judging how different any one region is from the norm. When the number of FTE nurses is projected based on the demographic projections of each region, the demand factors in the tables above are used. These are based on national norms. When the number of FTE nurses demanded in each healthcare setting is determined, the utilization data from actual Nebraska institutions are used. Thus, the figures you see in the forecast of demand for nurses is based on actual state data. But, by looking in each healthcare setting tab, you can also see what the norm is based on national standards and compare it with what is happening in Nebraska in each region!

For example, the demand for inpatient days in the Lincoln model based on resident regional population using the national demand factors is 218,145. But the actual number of patient days in the Lincoln region is 185,944. There are also almost 12,000 inpatient days devoted to treating patients from outside the region as well. So, what does this mean? It suggests that some of the patients that one would expect to be hospitalized in Lincoln are being treated elsewhere. The Omaha region, however, shows a much higher actual number of patient days demanded than one would expect in that region based on the national norm for its population. Thus, it is likely that the lower than expected number of patient days in Lincoln is being shifted to Omaha. The two sets of figures, expected demand and actual utilization, provides a picture of inter-regional demand... a mosaic if you will... that taken at the state level starts to show where patients from each region are actually treated.

THE SUPPLY OF NURSES

The supply of nurses can be thought of as a stock and flow model. There is a current stock of nurses working in each region across the major healthcare settings. Based on their age, the number of nurses is converted to FTE nursing units. Each year some nurses retire or reduce their hours of work as they age. This causes an outflow of FTEs from the stock of nurses available in the region's workforce. But, there is also a new crop of nurses joining the workforce each year. This is an inflow of FTEs to the stock of nurses. Most of these are newly licensed nurses who are recent graduates of nursing programs. There are, however, some nurses who move in or out of a region for personal reasons or are recruited that have to be considered.

ESTIMATING THE SUPPLY OF NURSING

The first step in estimating the future supply of nursing resources in any region is to examine the licensure data. The key variables are the age of each nurse and the average number of hours they work each week. The average number of hours worked each week for each age group in single years is divided by 40 hours per week. This results in a percent of full-time nursing that is multiplied times

the number of nurses in that age group to estimate how many FTEs are available. Prior to age 60 there isn't much of a decrease in average hours worked, but in later years this figure drops.

For Example: Suppose there are 80 nurses working in a particular region who are all 65 years old. The average number of hours they work per week is 30. Dividing by 40 hours, we find that these nurses, on average, work 75% of full-time. Therefore, the number of FTEs available is 60. This calculation is made for each age group and the resulting FTEs are added for ages 20 to 75 to find the total FTEs available.

The number of nurses in each age group is then moved up or aged one year. The percent of full-time work for that age is then multiplied times the number of nurses and these are added up to find the total FTEs projected for the next year. This is done out to 2025 and can be seen on the Master Supply Sheet in each regional model. The total FTEs for each year is then transferred to the top row of the table in the Supply and Demand tab labeled "Workforce".

Below this line is a figure for "New Grads". The number placed in the first cell of this line is based on the average number of nurses in recent age groups... usually between 24 and 27 years old. In each subsequent year, this number is added to the previous number of new nurses, but a 15% attrition rate is applied.

The next line is available for adding new recruits into the region if there are any. Often, this line is used when there is a shortfall in supply to see how many additional FTE nurses would have to be recruited to fill the gap. More about this later.

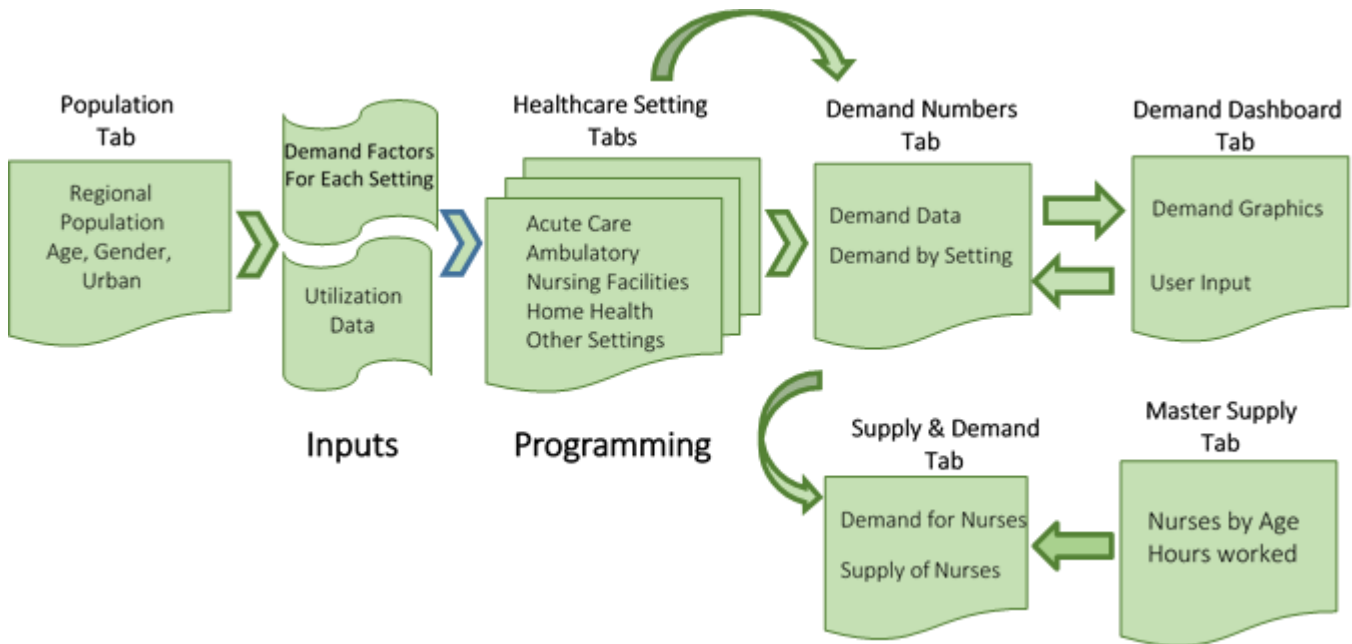
When added together, the Workforce, New Grads, and Recruits equal the supply of FTE nurses in the region in each year.

BALANCING SUPPLY AND DEMAND

The demand for FTE nurses in each healthcare setting in each year is transferred to the table on the Demand Numbers tab. This table breaks down demand in each year in detail including any patients from outside the region (exports). The totals across the bottom of this table show the nurse FTEs that will be required in each year.

The figures from the bottom of the table on the Demand Numbers table are also transferred to the Supply and Demand table in the line below the total supply of nurses. Demand is then subtracted from Supply to see if there is a shortage or a surplus in each year. The Supply and Demand numbers from the table are used to make the charts that are shown below the table.

The demand figures from the table on the Demand Numbers tab are also shown in the graphs on the Demand Dashboard tab of the model.



CRITICAL ACCESS HOSPITALS

Nebraska has many regions with very low population density. The number of people who need healthcare is not large enough to sustain the demand for all types of care and so medical personnel in these regions must be prepared for a wide variety of medical emergencies, illnesses, and treatments. In effect, acting as an urgent care center for part of the region. Demand can fluctuate greatly. Meeting this challenge, is a network of Critical Access Hospitals throughout the state. They are smaller in size and operate differently than other hospitals because they are the first place patients come for care and the treatment they need is unpredictable. When the service area of a hospital has a larger number

of patients, it can anticipate the pattern of treatment that can be expected. Nurses can be on one service and specialize and staffing patterns are relatively stable. But in the Critical Access Hospital, a nurse deals with every type of care and treatment as well as some clerical tasks such as patient registration. Patients are often stabilized and transported to larger regional medical centers. These same patients may be returned for sub-acute care or therapy following their acute care at a regional medical center.

As a result, Critical Access Hospitals must always have a minimum staff on hand to be prepared for variations in demand. The nurses working there need a wider variety of skills. The demand for nursing is not as sensitive to demographics in the region. The age and gender groups in these rural areas are not large enough, given the size of the total population, to provide a stable picture of demand.

This can be seen when a comparison is made between the national benchmarks for inpatient care and ambulatory care and the actual utilization of nurses in these facilities. The number of nurses per patient is much greater because minimum staffing is necessary. The silver lining to this is that patients get high quality care and more attention than in a larger facility. The downside is that it costs more to maintain this system, but there is no effective alternative if patients are going to have access to healthcare in rural areas.

What this means for the models of the nurse workforce is that the utilization factors are much greater than normal. Part of this is due to Critical Access Hospitals being engaged in ambulatory care and sub-acute care that in a larger setting would be done in a rehabilitation facility or nursing home. The hours are not separated out at this point. The models provide an accurate picture of the demand across the entire region, but the breakdown of the need for nurses in each healthcare setting is less accurate because Critical Access Hospitals provide such a broad range of services.

SIMULATION AND SENSITIVITY ANALYSIS

All the graphs that show demand or supply in every regional model shift as the user changes the basic assumptions underlying supply and demand. On the demand side, the user can change the Utilization Ratios on the Demand Dashboard to see the impact of increasing or decreasing the number of nurses per 1,000 patient days in regional acute care hospitals. Demand is also affected

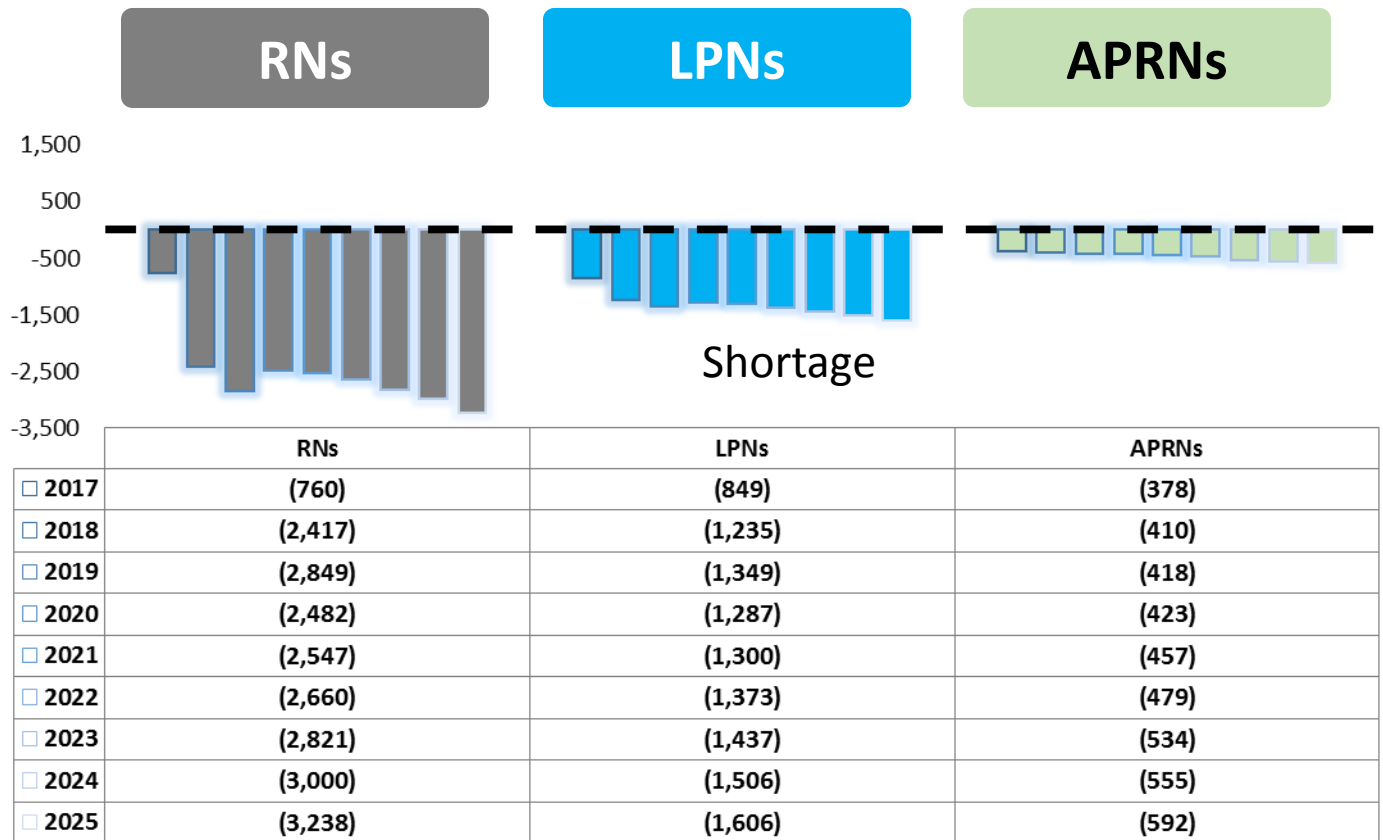
by entering anticipated new beds in any future year associated with plans to open new acute care facilities. Finally, the user can also see the impact on the demand for nursing in the region if the level of patients from outside the region changes (exports).

Sensitivity analysis can also be done with supply. For instance, suppose there is a growing shortage of nurses in the region over time. One could keep increasing the number of new grads or the number of recruits to see by how much they would have to grow to alleviate that shortage.

RESULTS

NEBRASKA NURSING SUPPLY & DEMAND FORECAST

☞ The nursing shortage will deepen from 2017 through 2025 for all type of nurses:

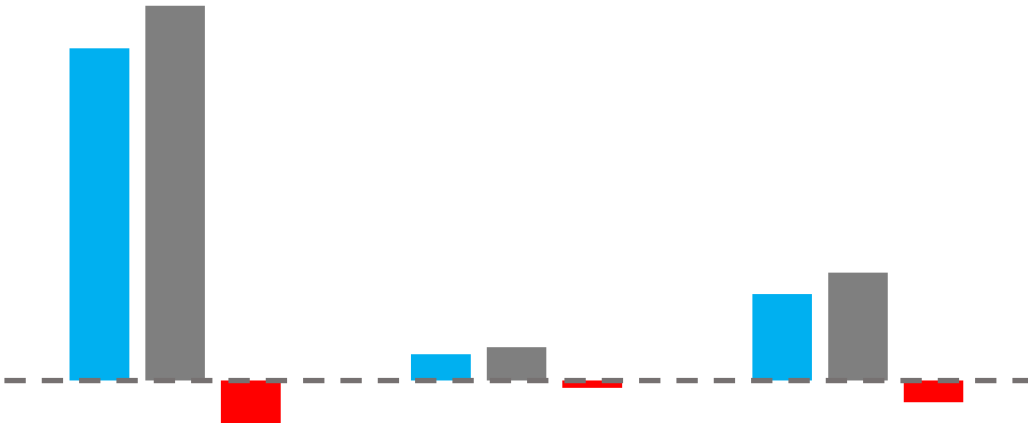


☞ All nursing types are experiencing shortages that will be increased over the following years.

☞ By 2025, a nursing shortage of **5,435** FTE nurses is expected.

	2017	2018	2019	2020	2021	2022	2023	2024	2025
RNs	-760	-2,417	-2,849	-2,482	-2,547	-2,660	-2,821	-3,000	-3,238
APRNs	-849	-410	-1,349	-1,287	-1,300	-1,373	-1,437	-1,506	-1,606
LPNs	-378	-1,235	-418	-423	-457	-479	-534	-555	-592
Total Nursing Shortage	-1,986	-4,062	-4,616	-4,191	-4,304	-4,511	-4,792	-5,062	-5,435

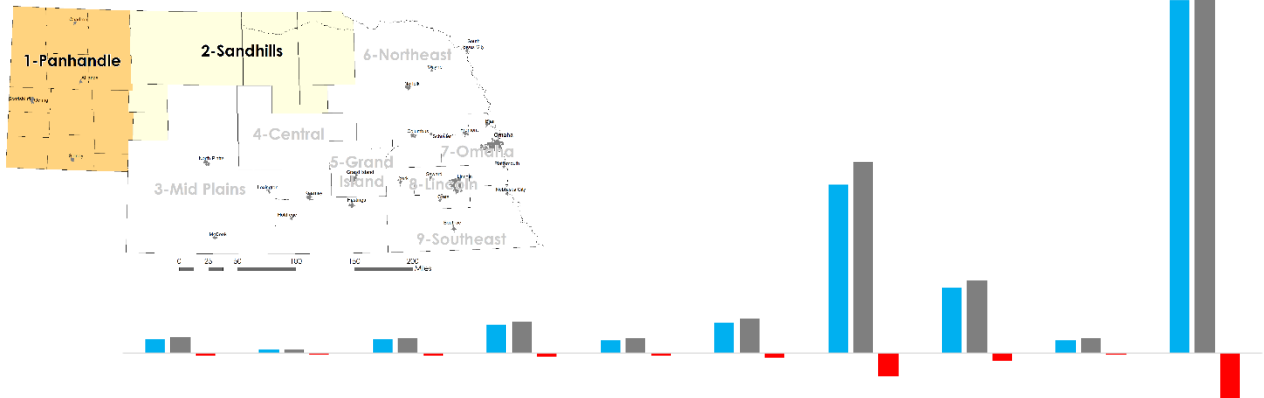
☞ 2018 shows a significant shortage ("gap") of nurses statewide:



	RNs	APRNs	LPNs
Supply	18,901	1,490	4,913
Demand	21,318	1,900	6,147
GAP	(2,417)	(410)	(1,235)

RN WORKFORCE 2018 BY REGION (FTES)

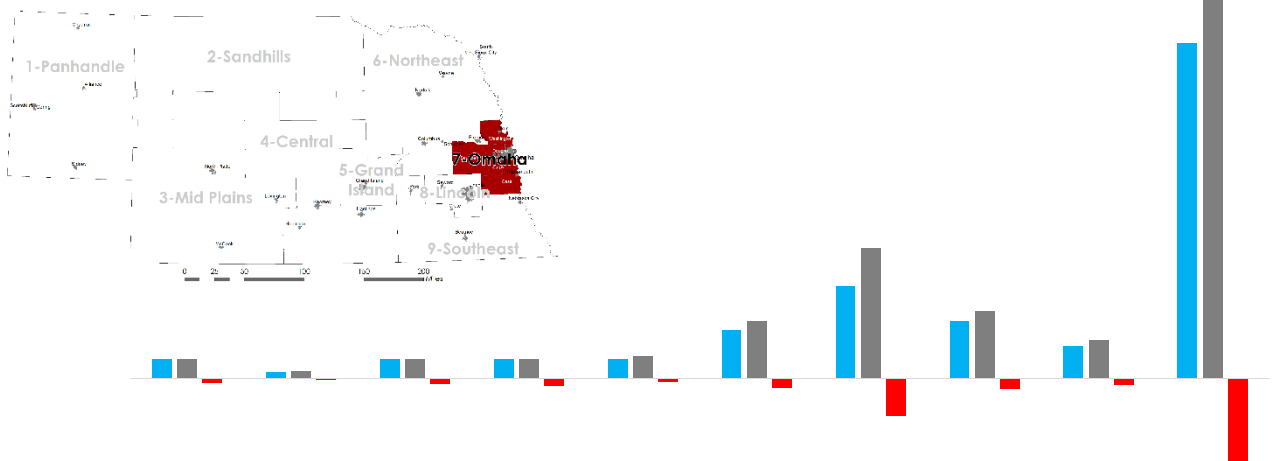
☞ The Panhandle and Sandhills Regions have the highest proportion of unmet demand for RNs.



	Panhandle	Sandhills	Mid Plains	Central	Grand Island	Northeast	Omaha	Lincoln	Southeast	State Total
■ Supply	747	201	748	1,532	695	1,672	9,048	3,530	727	18,901
■ Demand	871	232	847	1,698	800	1,878	10,245	3,940	807	21,318
■ GAP	(124)	(31)	(99)	(166)	(104)	(206)	(1,197)	(409)	(80)	(2,417)

LPN Workforce 2018 by Region (FTEs)

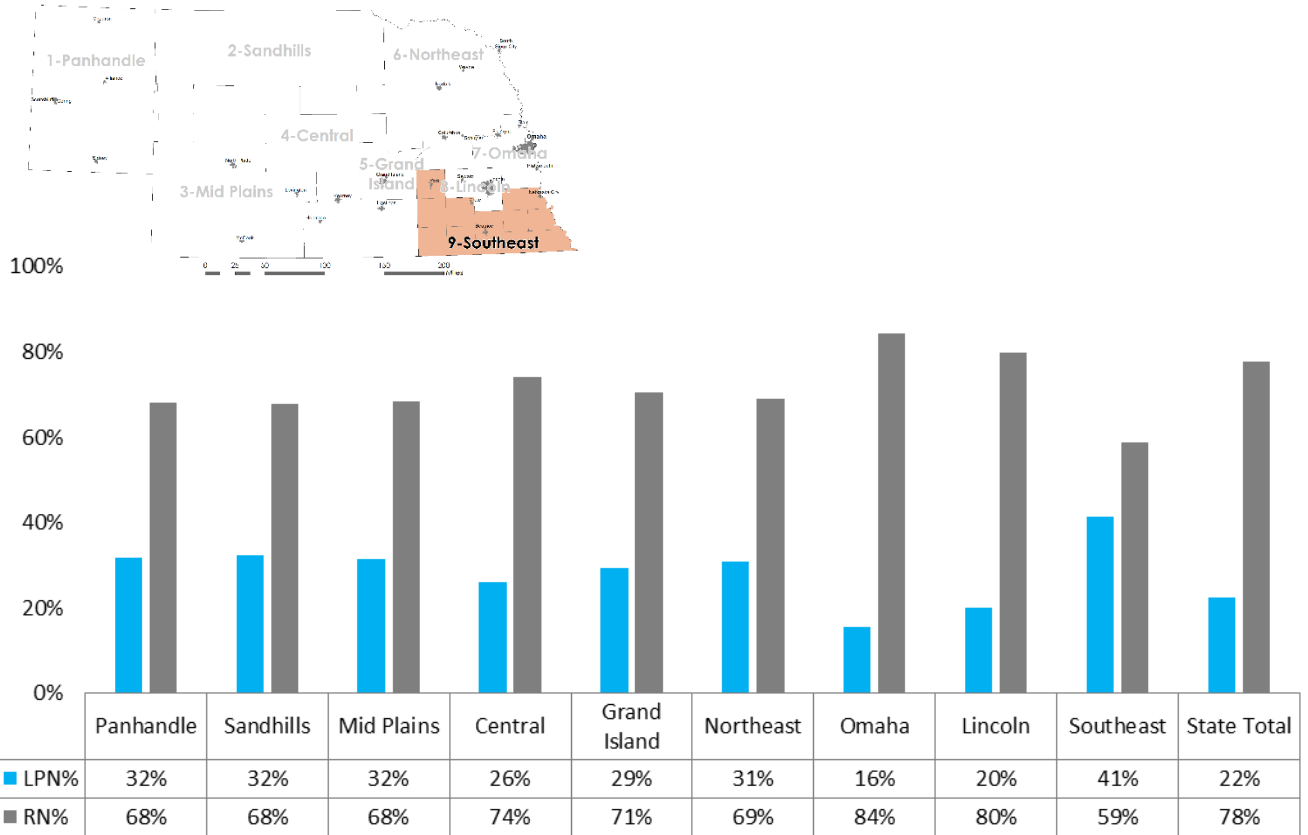
☞ The Omaha Region has the highest proportion of unmet demand for LPNs.



	Panhandle	Sandhills	Mid Plains	Central	Grand Island	Northeast	Omaha	Lincoln	Southeast	State Total
■ Supply	344	92	316	487	280	711	1362	843	477	4913
■ Demand	406	111	390	595	332	843	1906	995	568	6147
■ GAP	-62	-19	-74	-108	-52	-132	-544	-152	-92	-1235

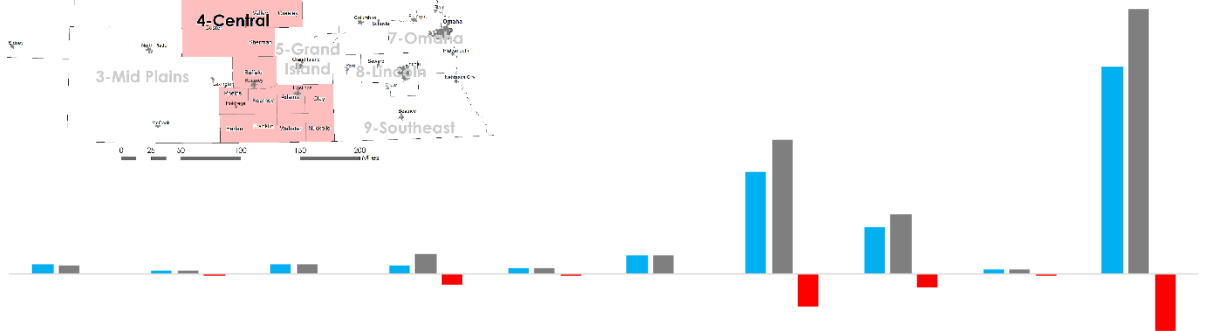
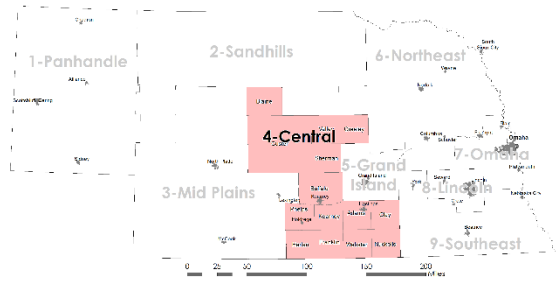
NEBRASKA STATEWIDE NURSE WORKFORCE (FTES). DEMAND PROPORTION FOR RNS AND LPNS BY REGION

☞ There is a higher demand for LPNs in proportion to the demand for RNs in the Southeast Region.



APRN WORKFORCE 2018 BY REGION (FTES)

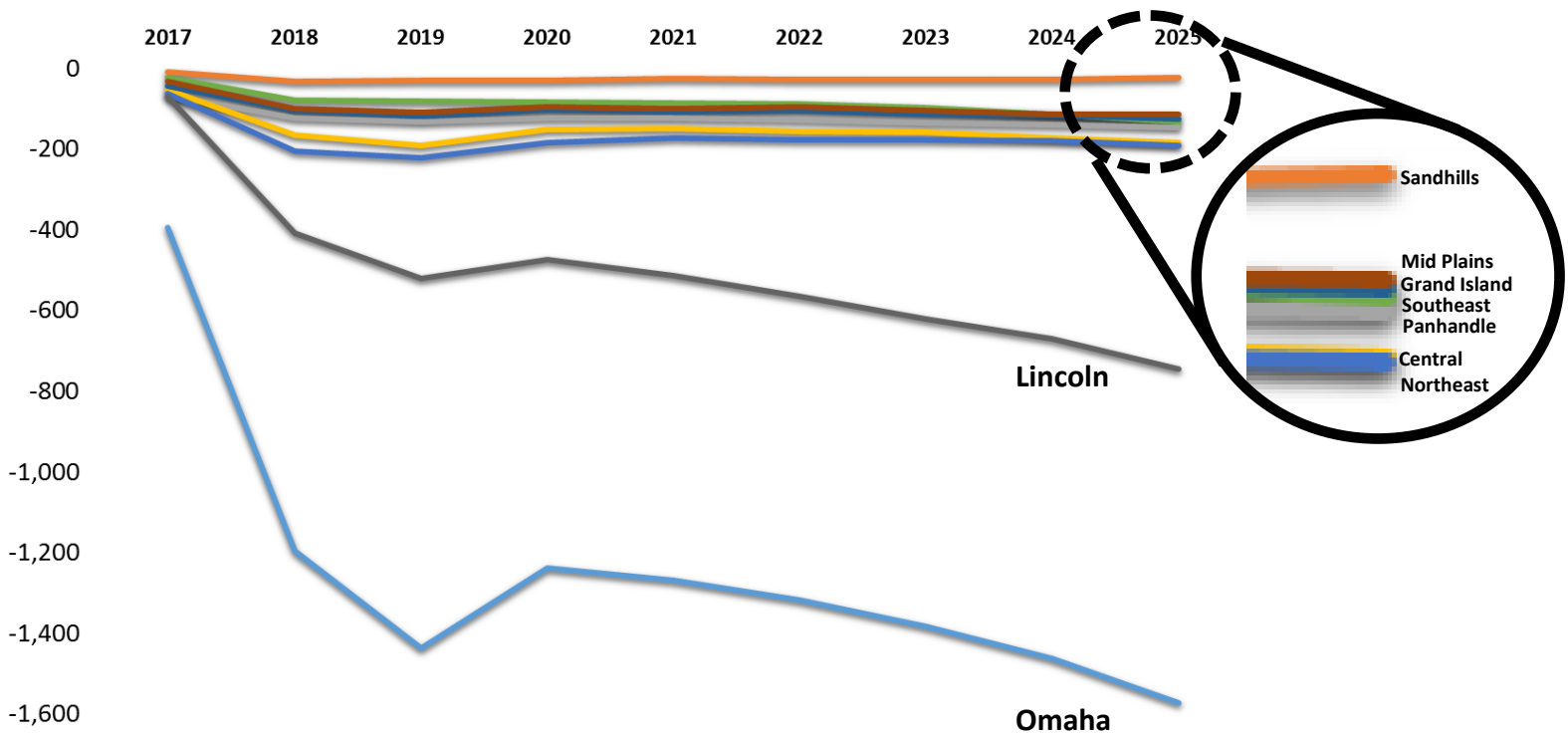
The Central Region has the highest proportion of unmet demand for APRNs.



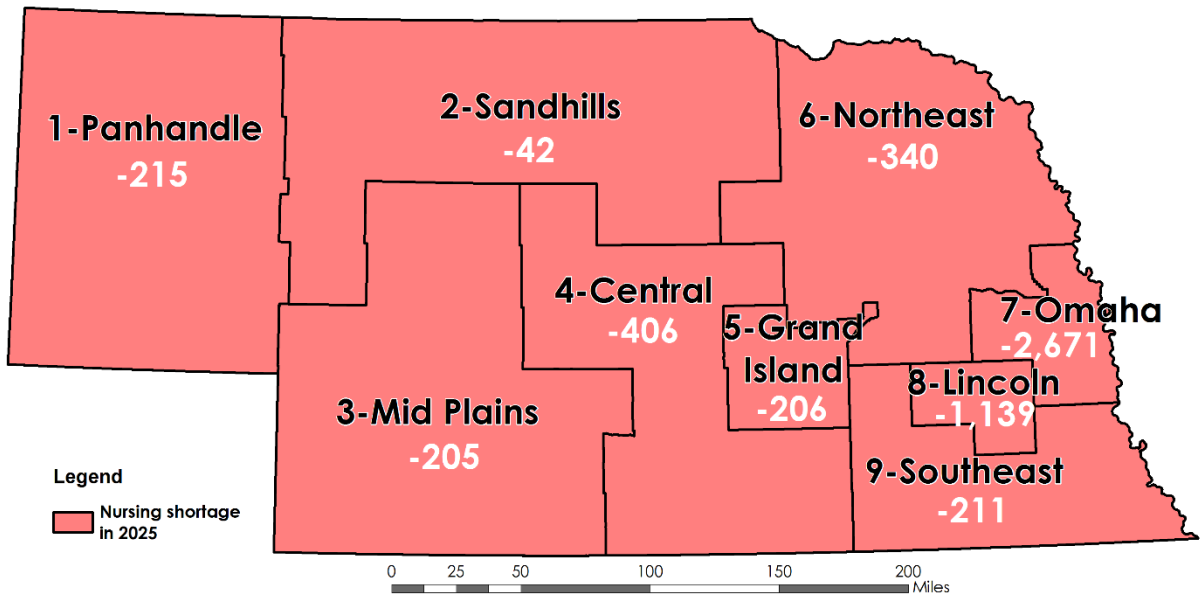
	Panhandle	Sandhills	Mid Plains	Central	Grand Island	Northeast	Omaha	Lincoln	Southeast	State Total
■ Supply	65	19	67	62	45	137	728	332	36	1,490
■ Demand	62	21	67	144	46	136	962	425	37	1,900
■ GAP	2	(2)	0	(82)	(1)	1	(234)	(93)	(1)	(410)

NEBRASKA STATEWIDE GAP – RNS BY REGION (FTES) 2017 - 2025

☞ By 2025, all economic regions will still be experiencing nursing shortages:

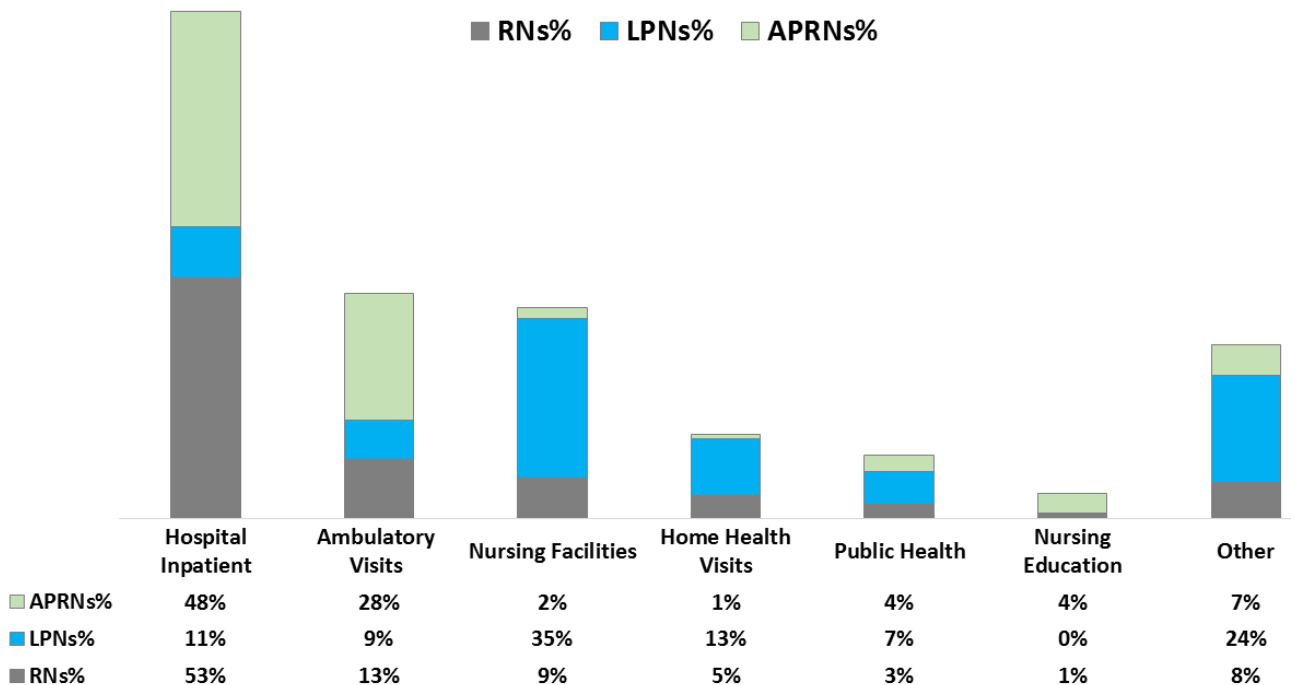


PROJECTED NURSING SHORTAGES (ALL TYPE OF NURSES) BY REGION IN 2025



2018 DEMAND FOR NURSES – STATEWIDE VARIES BY SETTING

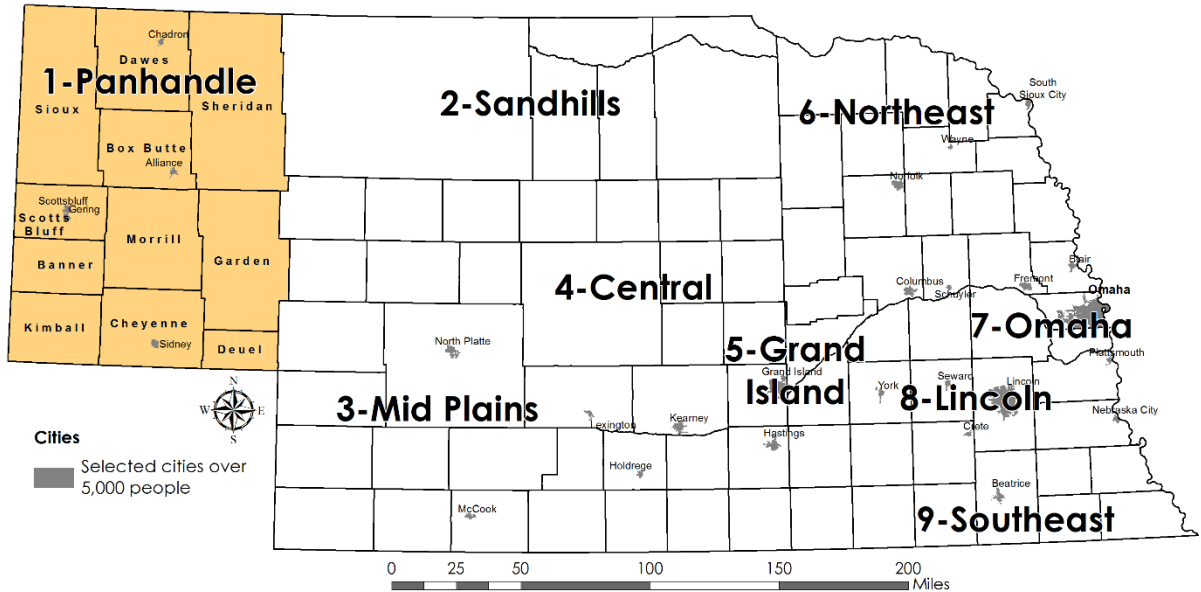
☞ RNs and APRNs are highly demanded in Hospital inpatient facilities, while LPNs are highly demanded in Nursing Facilities.



REGIONAL AND STATEWIDE NURSING WORKFORCE FORECASTS FOR NEBRASKA

Forecasts by Economic Development Regions:

REGION 1- PANHANDLE



PANHANDLE Forecast:

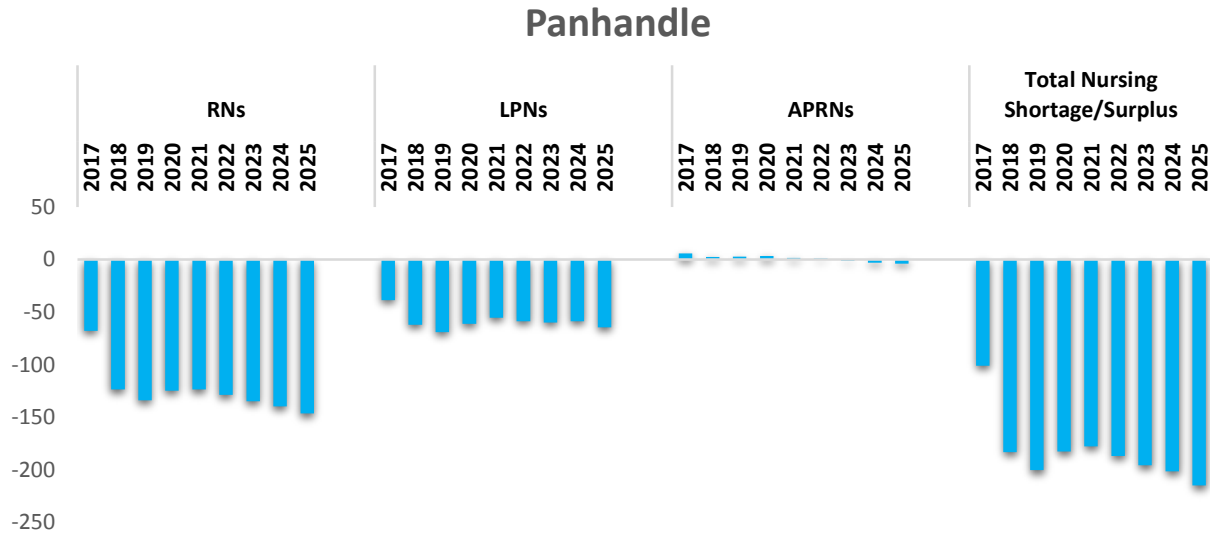
RNs: There will be a demand for RNs through 2025. An RN shortage of 146 FTEs by 2025 is projected.

APRNs: An APRN shortage of 4 FTEs by 2025 is projected.

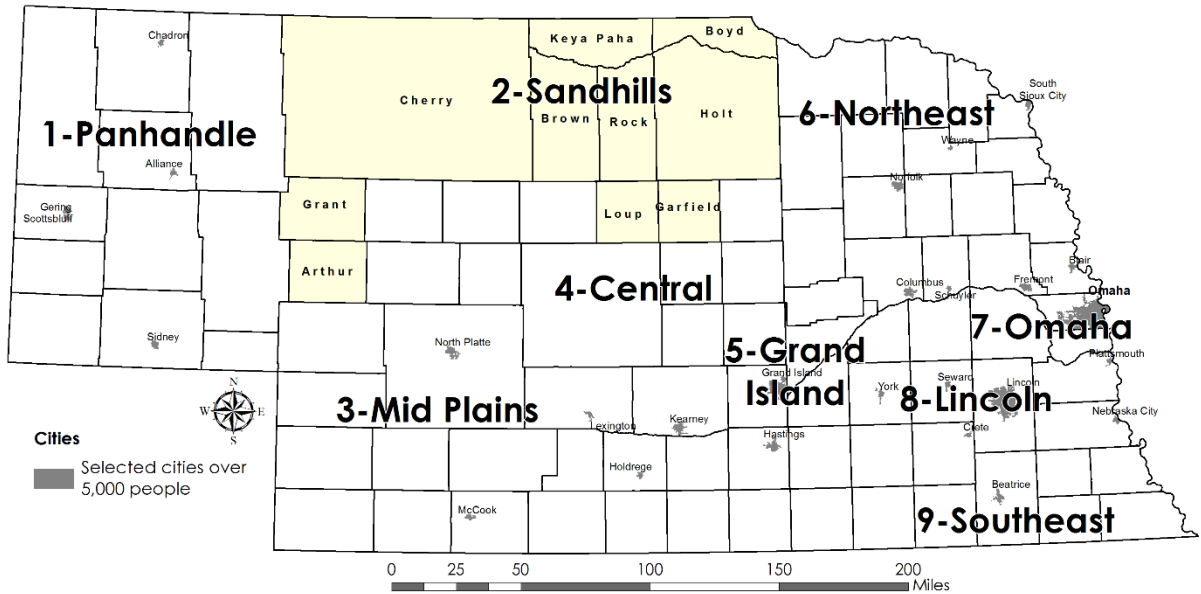
LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 64 FTEs by 2025 is projected.

Total nursing shortage by 2015: 215 FTEs

PANHANDLE - Nursing Shortage/Surplus by Type of Nurse:



REGION 2- SANDHILLS



SANDHILLS Forecast:

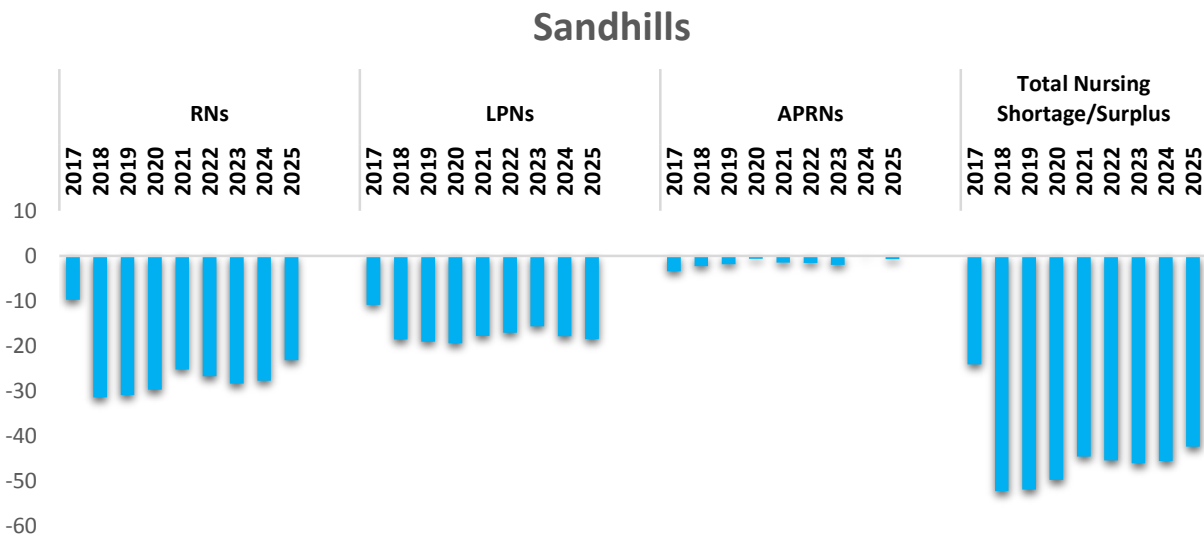
RNs: There will be a demand for RNs through 2025. An RN shortage of 23 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 1 FTE by 2025 is projected.

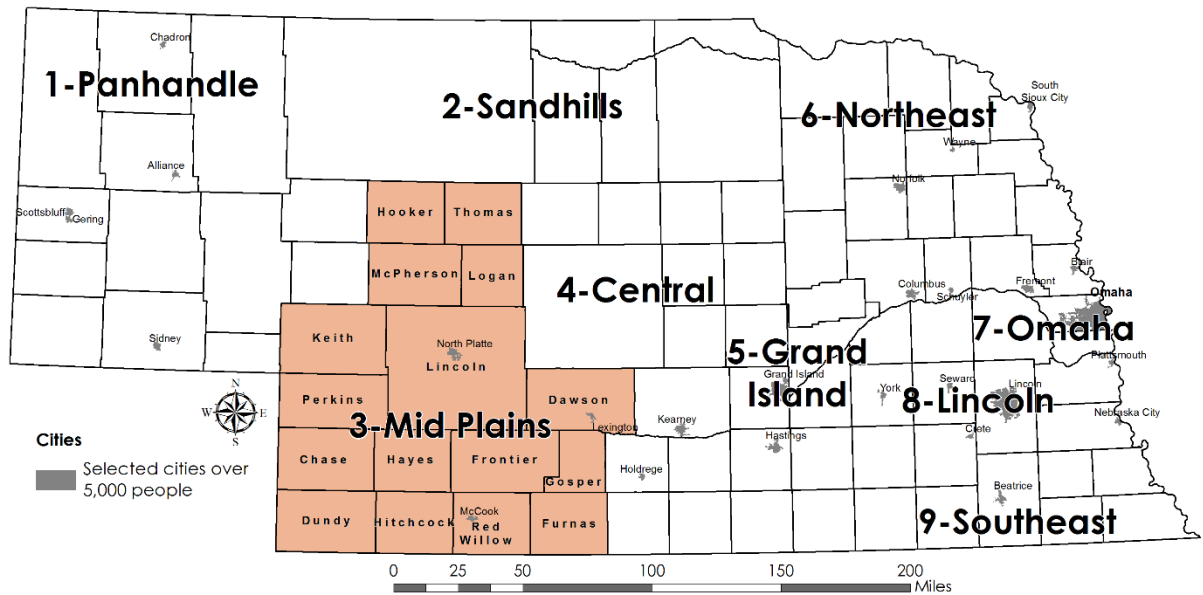
LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 18 FTEs by 2025 is projected.

Total nursing shortage by 2025: 42 FTEs

SANDHILLS - Nursing Shortage/Surplus by Type of Nurse:



REGION 3- MID PLAINS



MID PLAINS Forecast:

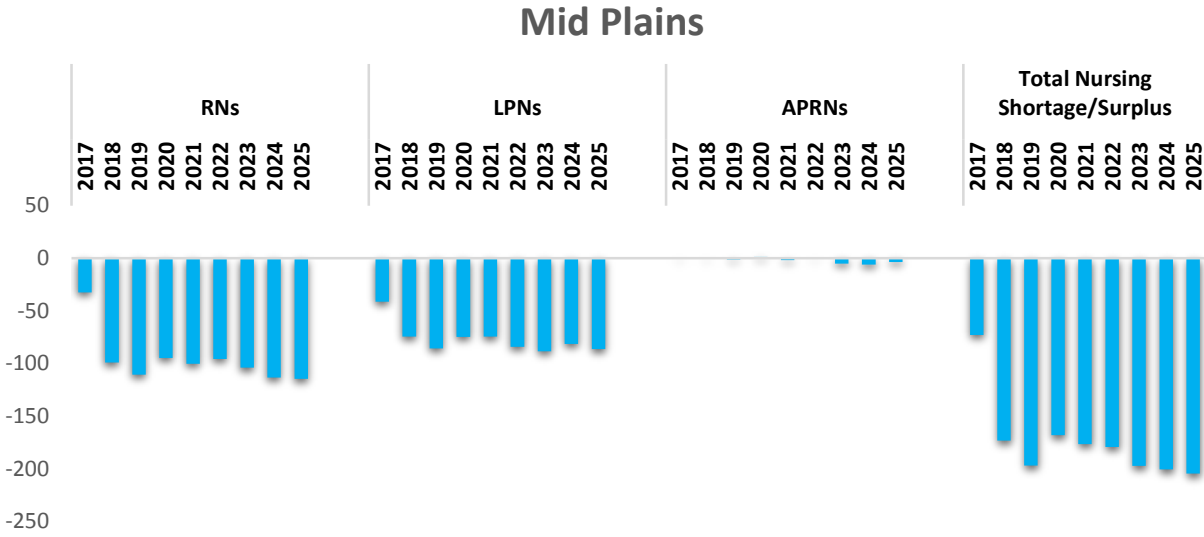
RNs: There will be a demand for RNs through 2025. An RN shortage of 115 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 4 FTEs by 2025 is projected.

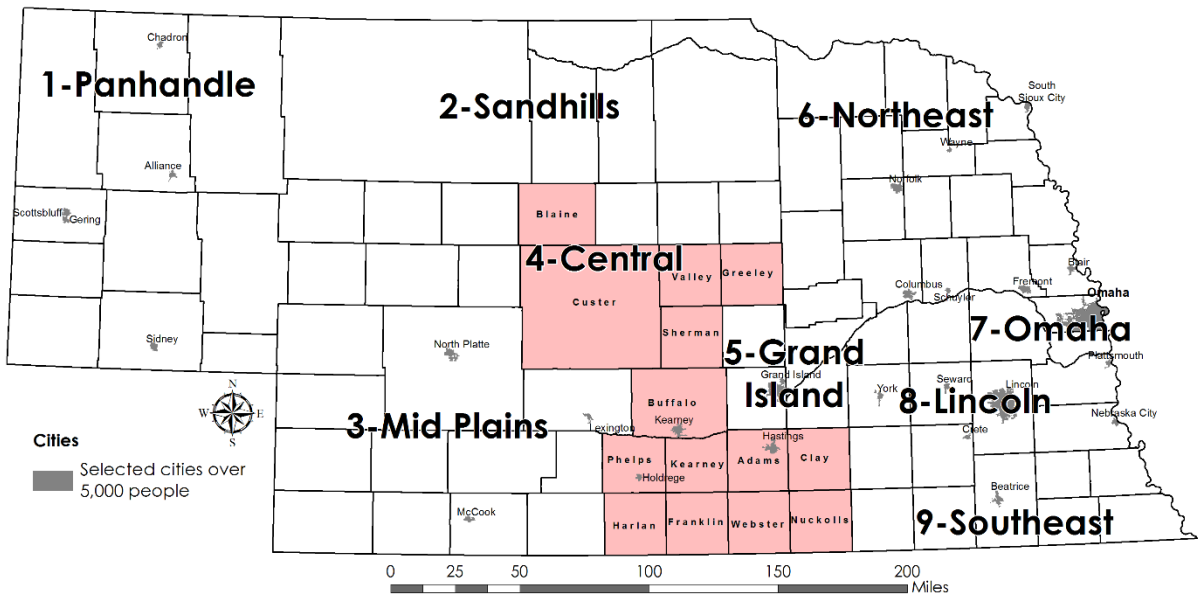
LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 86 FTEs by 2025 is projected.

Total nursing shortage by 2025: 205 FTEs

MID PLAINS - Nursing Shortage/Surplus by Type of Nurse:



REGION 4- CENTRAL



CENTRAL Forecast:

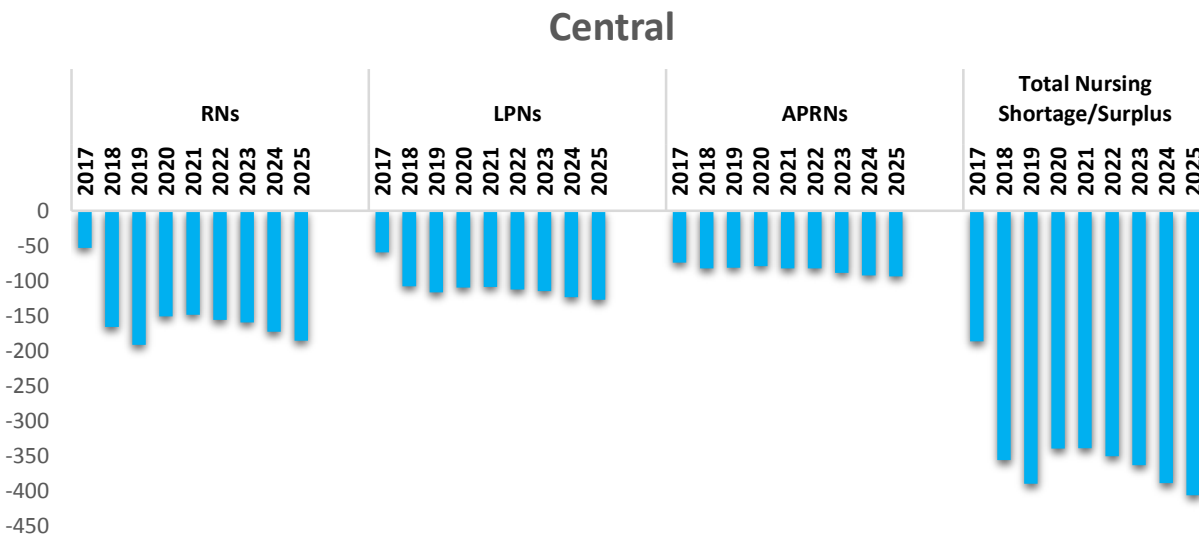
RNs: There will be a demand for RNs through 2025. An RN shortage of 185 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 93 FTEs by 2025 is projected.

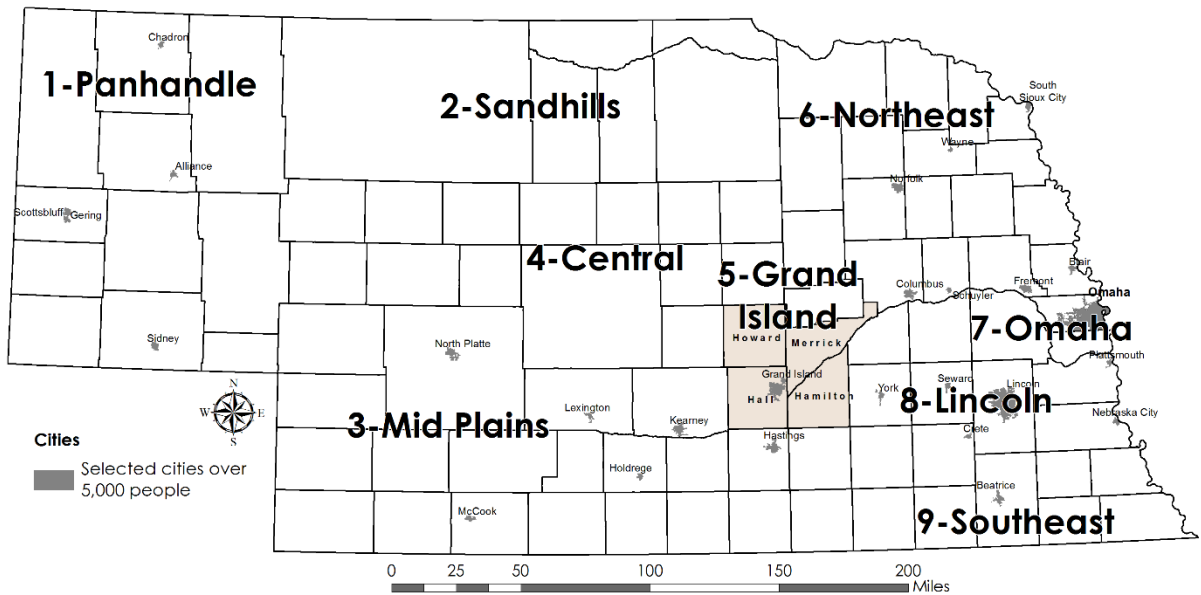
LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 127 FTEs by 2025 is projected.

Total nursing shortage by 2025: 405 FTEs

CENTRAL - Nursing Shortage/Surplus by Type of Nurse:



REGION 5- GRAND ISLAND



RNs: There will be a demand for RNs through 2025. An RN shortage of 127 FTEs by 2025 is projected.

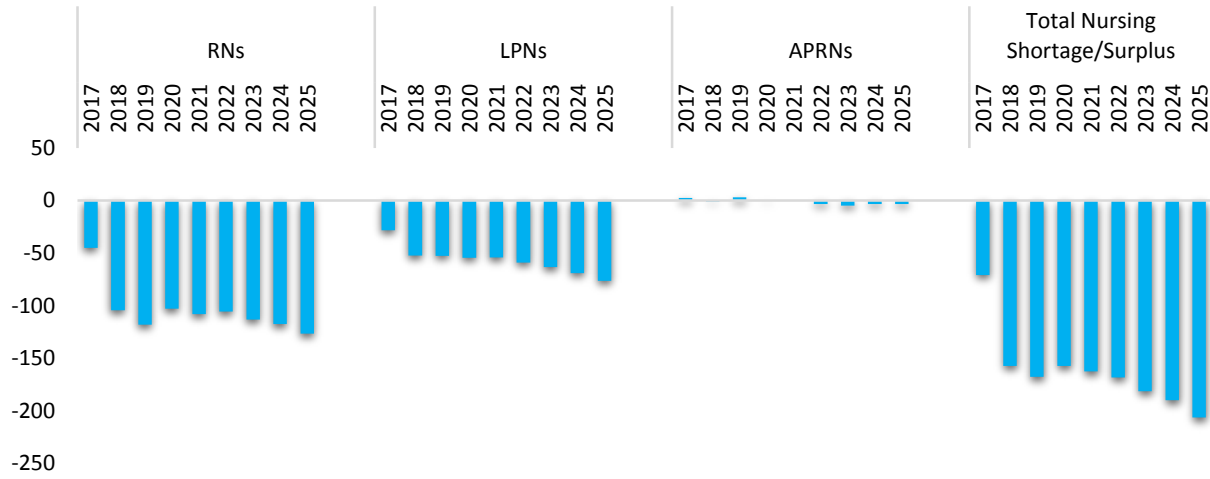
APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 3 FTEs by 2025 is projected.

LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 76 FTEs by 2025 is projected.

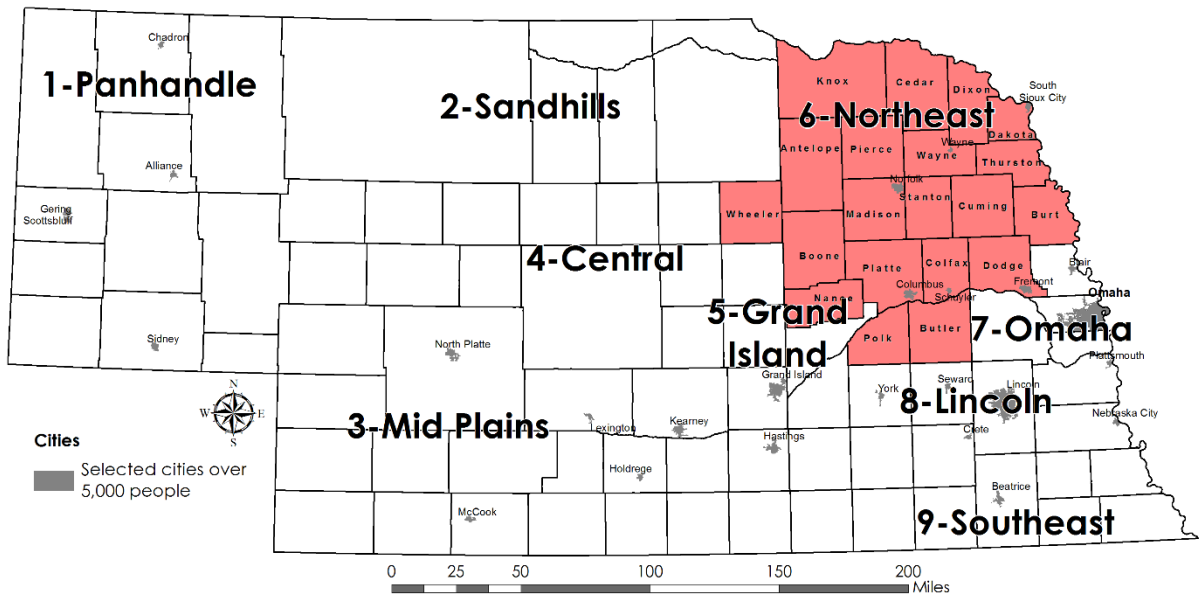
Total nursing shortage by 2025: 206 FTEs

GRAND ISLAND - Nursing Shortage/Surplus by Type of Nurse:

Grand Island



REGION 6- NORTHEAST



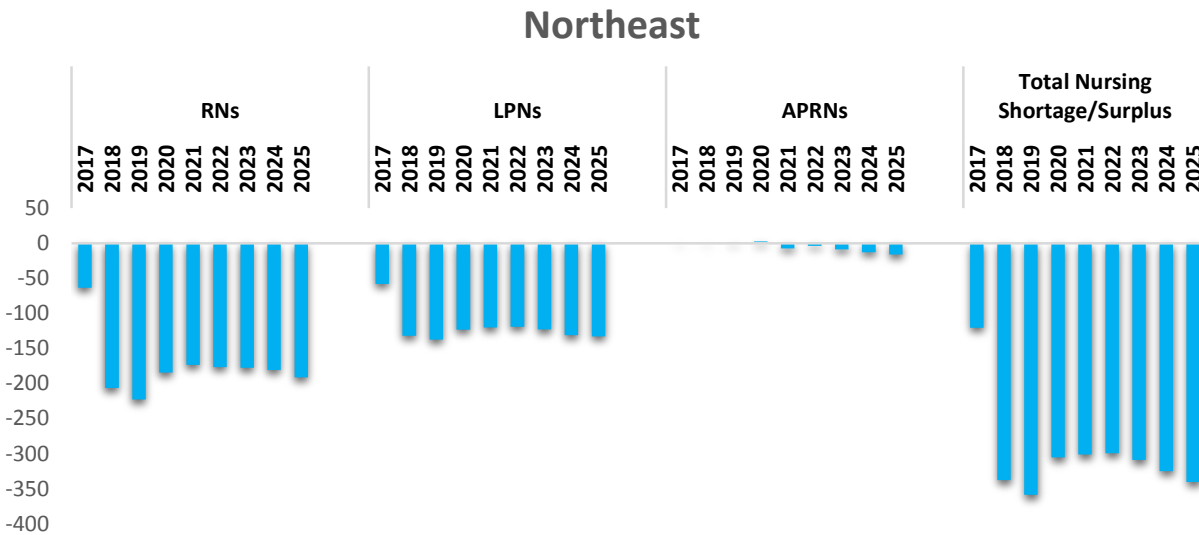
RNs: There will be a demand for RNs through 2025. An RN shortage of 191 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 16 FTEs by 2025 is projected.

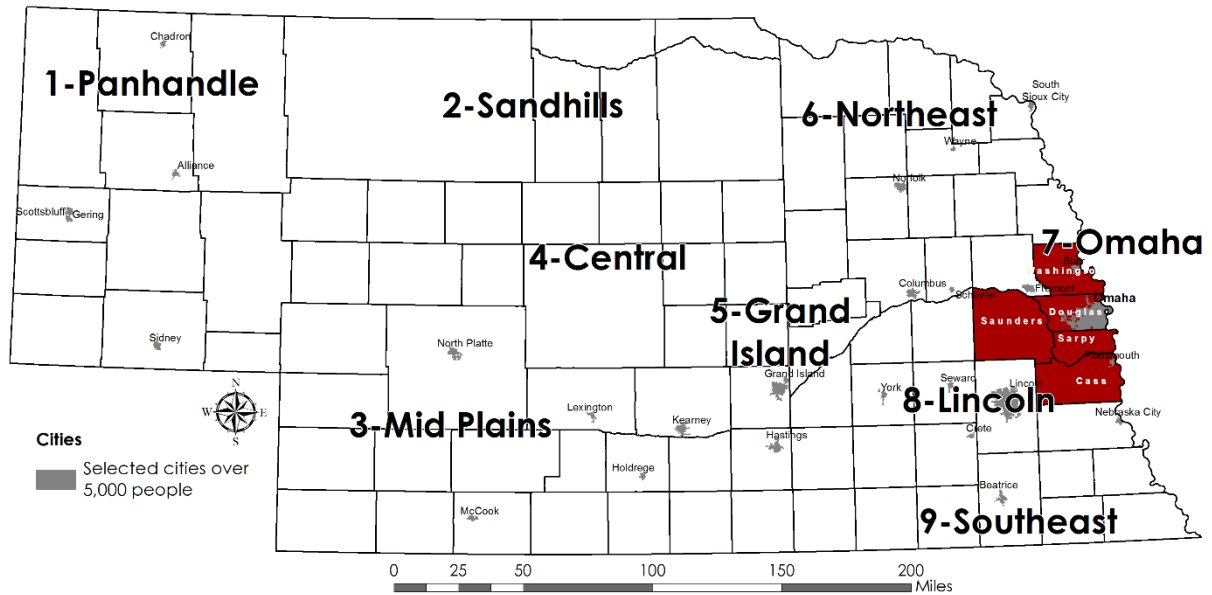
LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 133 FTEs by 2025 is projected.

Total nursing shortage by 2025: 340 FTEs

NORTHEAST - Nursing Shortage/Surplus by Type of Nurse:



REGION 7- OMAHA CONSORTIUM



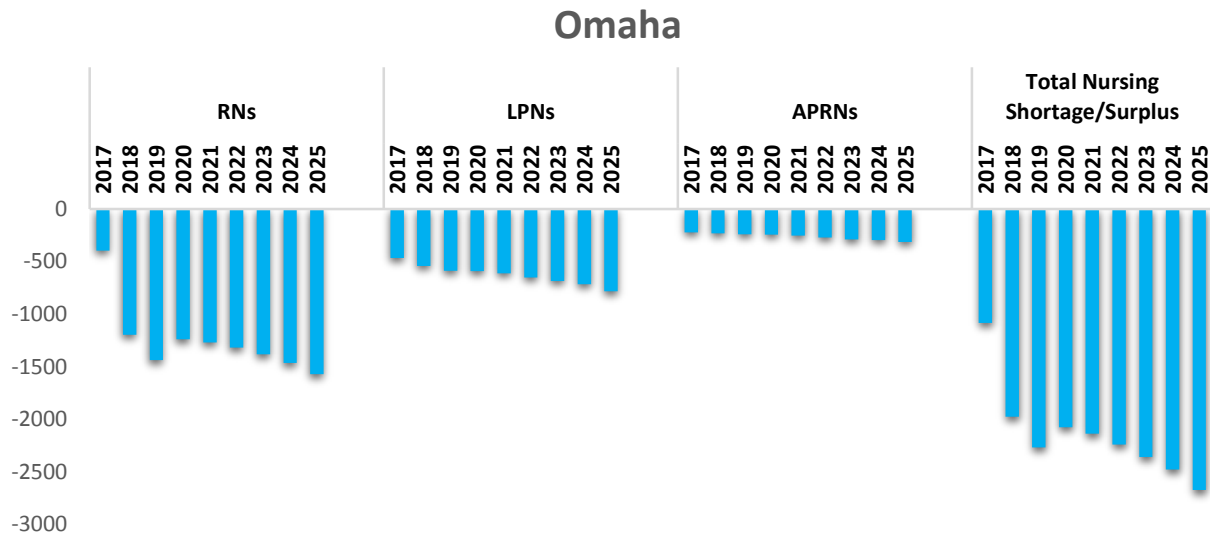
RNs: There will be a demand for RNs through 2025. An RN shortage of 1,572 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 316 FTEs by 2025 is projected.

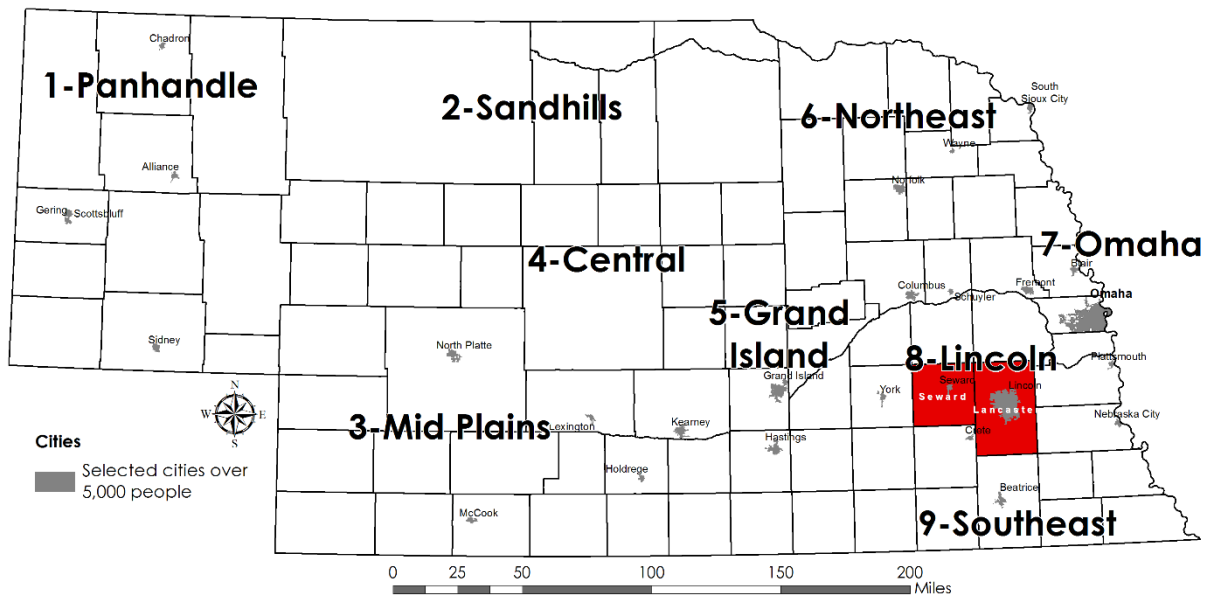
LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 783 FTEs by 2025 is projected.

Total nursing shortage by 2025: 2,671 FTEs

OMAHA CONSORTIUM - Nursing Shortage/Surplus by Type of Nurse:



REGION 8 – LINCOLN



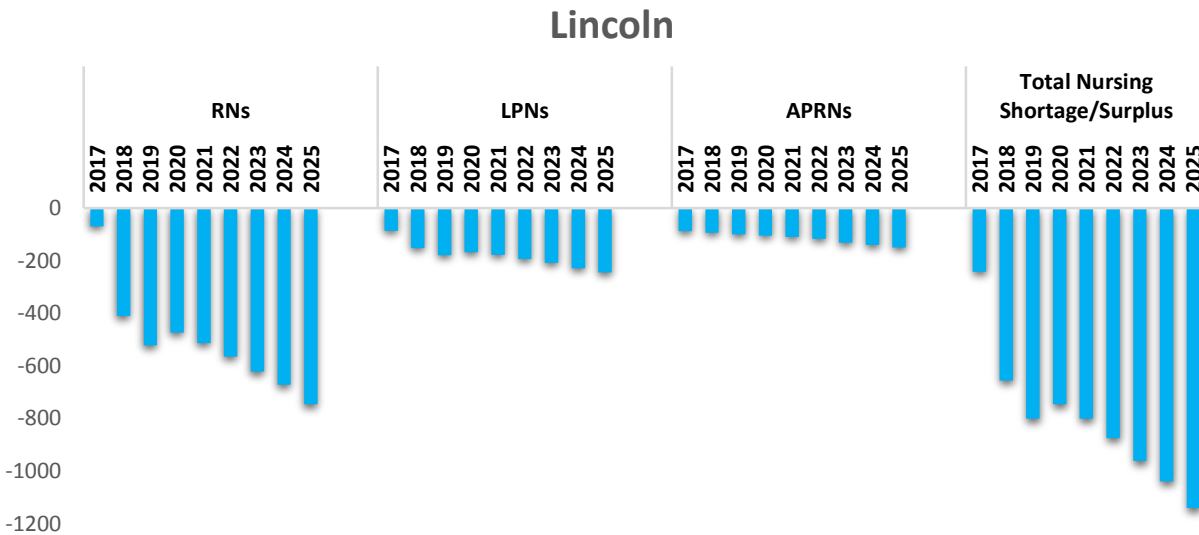
RNs: There will be a demand for RNs through 2025. An RN shortage of 745 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 150 FTEs by 2025 is projected.

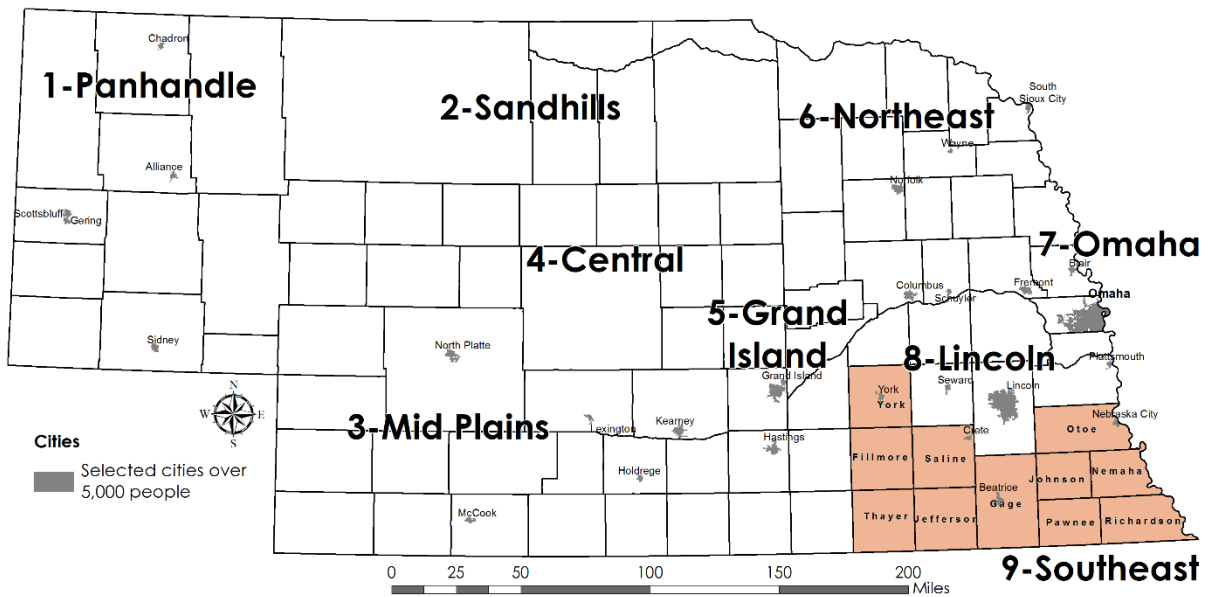
LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 244 FTEs by 2025 is projected.

Total nursing shortage by 2025: 1,139 FTEs

LINCOLN - Nursing Shortage/Surplus by Type of Nurse:



REGION 9 – SOUTHEAST



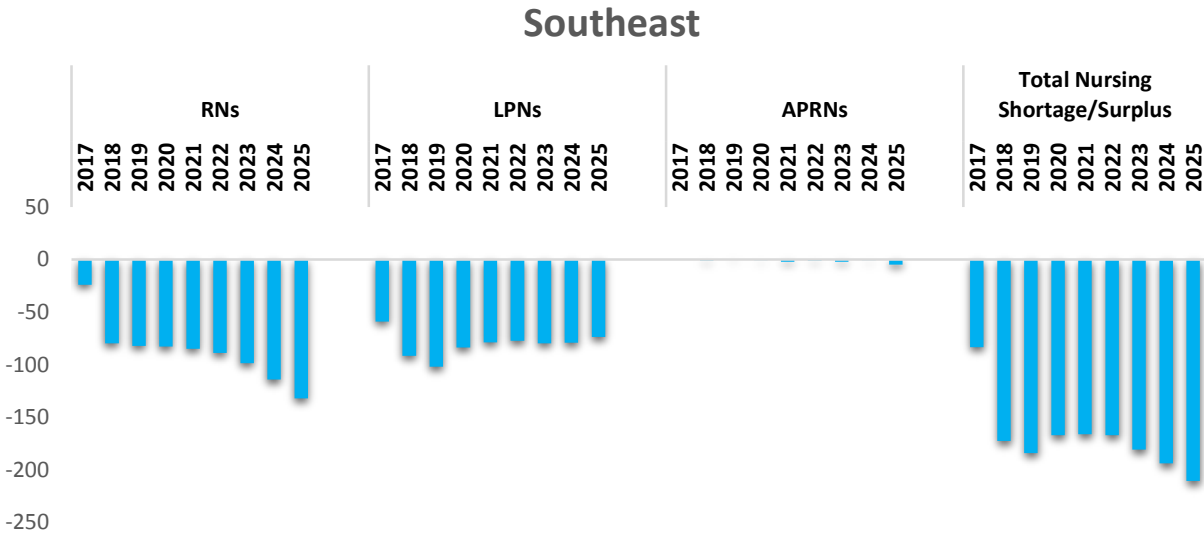
RNs: There will be a demand for RNs through 2025. An RN shortage of 745 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 150 FTEs by 2025 is projected.

LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 244 FTEs by 2025 is projected.

Total nursing shortage by 2025: 1,139 FTEs

SOUTHEAST - Nursing Shortage/Surplus by Type of Nurse:



STATE OF NEBRASKA

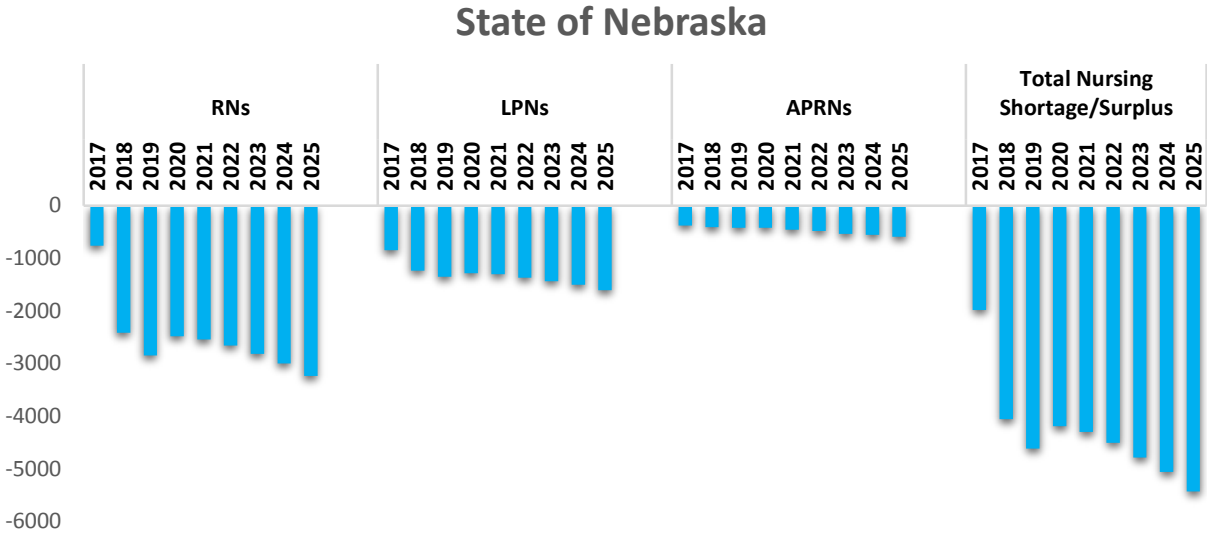
RNs: There will be a demand for RNs through 2025. An RN shortage of 3,238 FTEs by 2025 is projected.

APRNs: There will be a demand for APRNs through 2025. An APRN shortage of 592 FTEs by 2025 is projected.

LPNs: There will be a demand for LPNs through 2025. An LPN shortage of 1,606 FTEs by 2025 is projected.

Total nursing shortage by 2025: 5,435 FTEs

State of Nebraska - Nursing Shortage/Surplus by Type of Nurse:



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Nebraska Board of Nursing

Nebraska Hospital Association

Nebraska Healthcare Association

Nebraska Organization of Nurse Leaders

Individuals:

Ann Oertwich, Ph.D., Executive Director, Nebraska Board of Nursing

Becky Wisell, Nebraska DHHS Licensure Unit

Craig L. Moore, Ph.D., Principal Investigator

Jacci Reznicek, MSN, RN, ANP-BC, DHHS Nurse Consultant

Kathy Hoebelheinrich MSN, APRN-NP, ANP-BC, BC-ADM, CDE, DHHS Nurse Consultant

Juan-Paulo Ramírez, Ph.D., Consultant to the Nebraska Center for Nursing

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Liane Connelly, former member, Nebraska Center for Nursing

Cynthia Bienemy, Executive Director Louisiana Center for Nursing

Kevin Conway, Vice President, Health Information, Nebraska Hospital Association

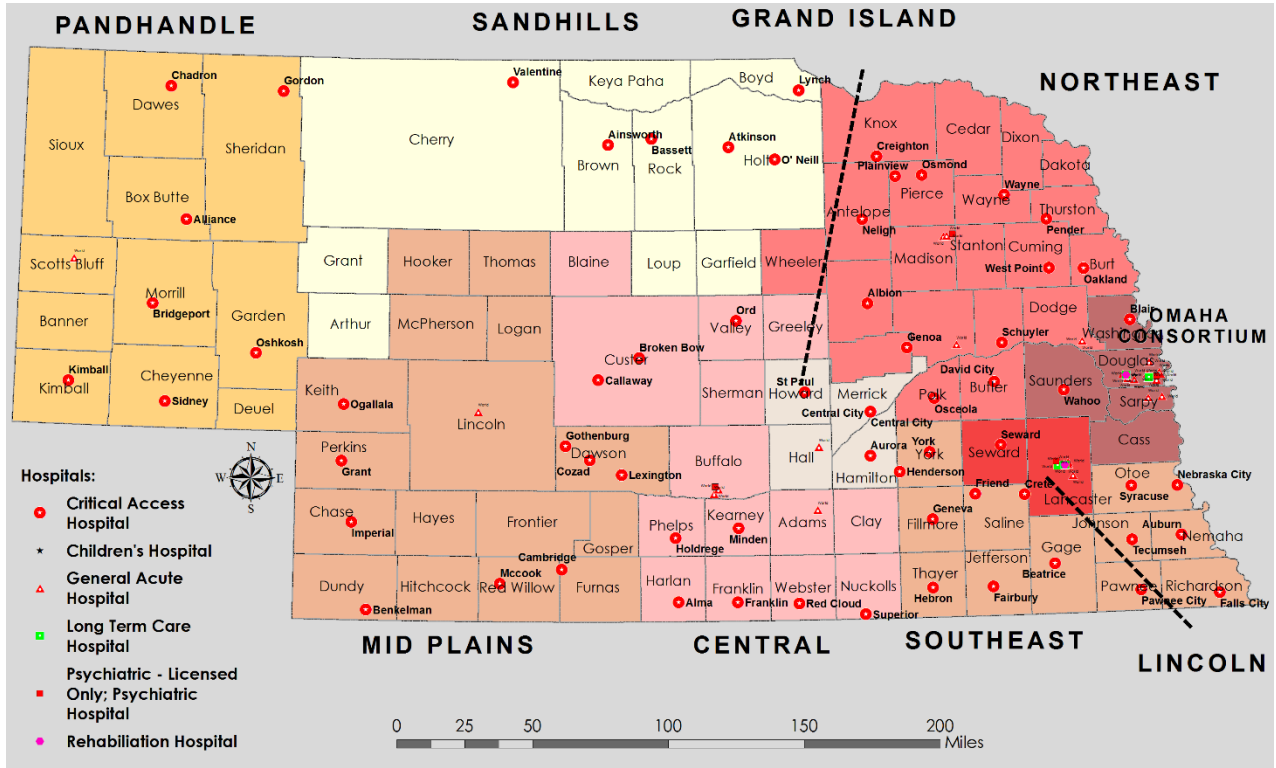
David Drozd, Nebraska State Data Center, University of Nebraska at Omaha

Jodie Meyer, Nebraska Department of Labor

The staff of the Nebraska Center for Nursing for their support

APPENDIX

MAP 1: HOSPITALS & ECONOMIC REGIONS



MAP 2: MEDICALLY UNDERSERVED AREAS (MUAS) IN NEBRASKA

