

# NC Nursecast **BRIEF**

## Nurse Workforce Projections by Setting

**Registered Nurse (RN) Supply and Demand.** By 2033, North Carolina faces an estimated shortage of 12,459 RNs (or 11% of the projected RN workforce) across all settings, but there is significant variation by setting. Hospitals will experience the largest shortage of RNs in terms of absolute numbers by 2033, and nursing home/extended care/assisted living settings will face the largest shortage relative to their projected workforce supply (Table 1).

**Table 1. Projected RN Workforce Shortage or Surplus in 2033 by Setting**

Setting	Projected 2033 Workforce Shortage or Surplus (RN Headcount)	Projected 2033 Workforce Shortage or Surplus (% of RNs)
Hospital	<b>-9927</b>	-16.7%
Nursing Home/Extended Care/Assisted Living	-1888	<b>-30.8%</b>
Home Health/Hospice	-1535	-17.9%
Nursing Education	-132	-8.9%
Correctional Facility	-128	-15.7%
Mental Health Hospital/Facility	-26	-0.9%
Community and Population Health	+86	+1.4%
Ambulatory Care	+363	+2.3%

**Licensed Practical Nurse (LPN) Supply and Demand.** By 2033, the state is expected to face a shortage of 5,044 LPNs, which represents a 26.8% shortfall in future LPN supply relative to demand. Unlike RNs, who are more likely to be employed in hospitals, the greatest number of LPNs are employed by nursing home/extended care/assisted living facilities, and these settings are forecast to face a nearly 50% shortage of LPNs by 2033. As LPNs leave hospital employment, hospitals will also face a large percentage shortfall (31.7%) of LPNs by 2033 (Table 2).

NC Nursecast is an interactive, web-based tool that forecasts future supply and demand for Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) in North Carolina.

Access it at: <https://ncnursecast.unc.edu>

**November 1, 2021**

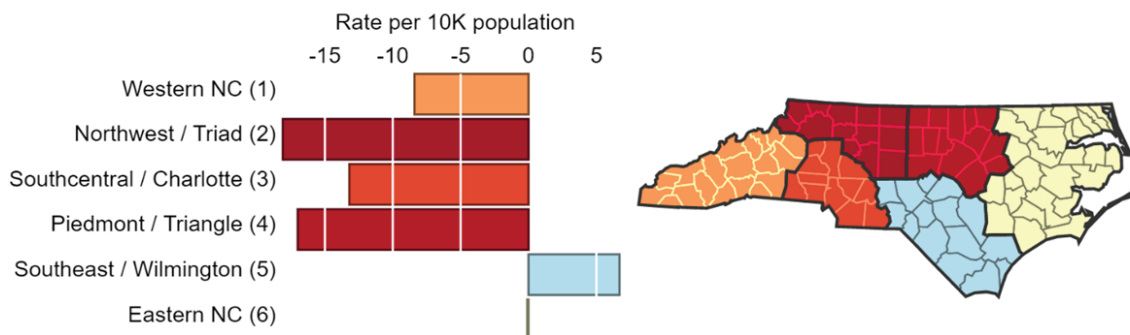
# Nurse Workforce Projections by Setting

**Table 2. Projected LPN Workforce Shortage in 2033 by Setting**

Setting	Projected 2033 Workforce Shortage (LPN Headcount)	Projected 2033 Workforce Shortage (% of LPNs)
Nursing Home/Extended Care/Assistive Living	-3510	<b>-49%</b>
Home Health/Hospice	-504	-14%
Hospital	-314	<b>-31.7%</b>
Ambulatory Care	-148	-6.7%
Mental Health Hospital/Facility	-58	-9.4%
Correctional Facility	-9	-2.2%

**Shortages of Nurses by Setting in Different Regions of North Carolina.** A powerful feature of NC Nursecast is the ability to examine workforce forecasts by setting and by region, including Medicaid, AHEC, and rural regions of the state. Not surprisingly, RN shortages will be greatest in areas of North Carolina with large and growing hospitals and health care systems—the Piedmont/Triangle and Northwest/Triad regions. Eastern NC essentially holds steady at neither a shortage nor surplus, and the Southeast/Wilmington region is projected to have a slight surplus (Figure 1). This surplus is likely because RN programs in that area have some of the highest retention rates in local communities, with a high percentage of their nurses practicing in rural areas.

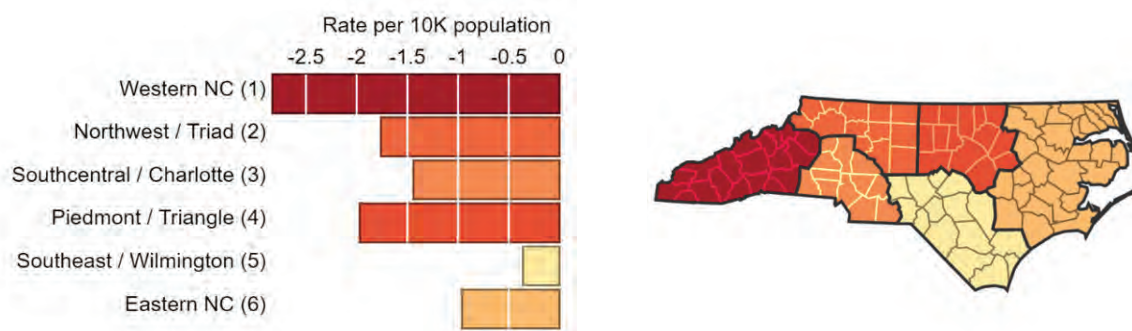
**Figure 1. RN Shortage or Surplus per 10K Population, All Settings, by Medicaid Region**



# Nurse Workforce Projections by Setting

The story looks different for other employment settings. Western NC (Medicaid Region 1) will face a larger per capita shortage of RNs in nursing home, extended care, and assisted living facilities compared to other parts of the state (Figure 2).

**Figure 2. RN Shortage or Surplus per 10K Population in Nursing Home/Extended Care/Assisted Living, by Medicaid Region**



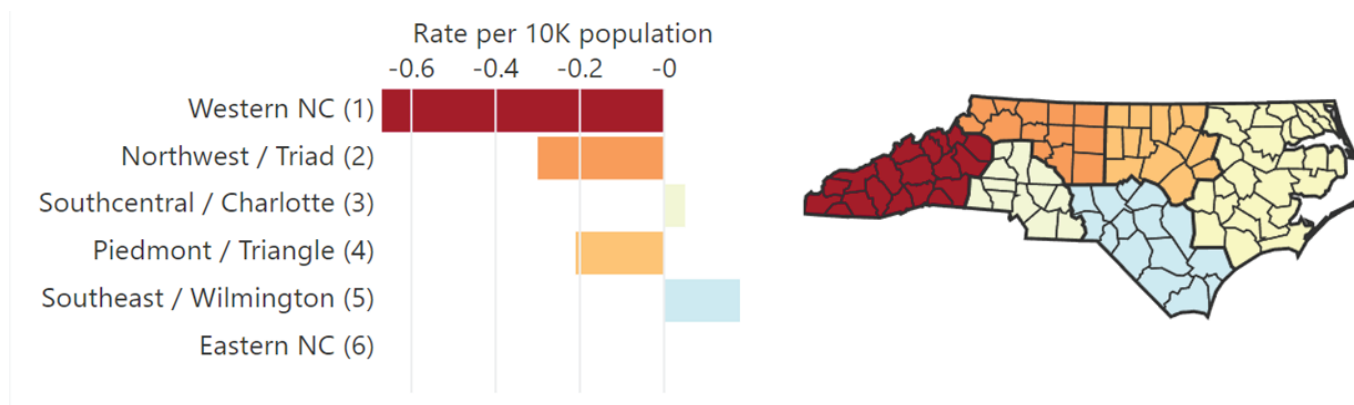
**Regional Differences Explained.** Regional differences exist because the NC Nursecast model incorporates the unique characteristics of RN and LPN supply in different parts of the state: the supply and age profile of nurses in the region, the number of educational programs in the area and their likelihood to produce graduates for local employers, and the historic trends of nurses moving into communities. The model also accounts for regional differences in the demand for RNs and LPNs, including factors like the projected population growth in the area and changing population demographics that will drive the demand for different types of health care services in various regions. **NC Nursecast allows stakeholders—employers, educators, elected officials, and others—to see important regional differences in the future supply and demand of RNs and LPNs and how they compare to state-level trends.**

**Surprise Finding: Ambulatory Care.** NC Nursecast projects that ambulatory care settings will experience an almost 7% shortage of LPNs at the state level in 2033. Ambulatory care shortages vary by Medicaid region (Figure 3) with some areas of the state forecast to experience a slight surplus of LPNs in ambulatory care. The projection of a surplus in ambulatory care may seem surprising, but the supply of LPNs in North Carolina’s ambulatory care settings has increased dramatically in the past few years. Between 2015 and 2018, the number of LPNs in ambulatory care increased 47% compared to a 21% decline in the supply of LPNs in hospitals, and a -6% decrease in LPN supply in nursing homes, extended care, and assisted living facilities.<sup>1</sup>

<sup>1</sup>Fraher EP. Primary Care Teams: Past, Present and Future. J Am Board Fam Med. 2020 Jul-Aug;33(4):495-498. doi: [10.3122/jabfm.2020.04.200260](https://doi.org/10.3122/jabfm.2020.04.200260). PMID: 32675259.

# Nurse Workforce Projections by Setting

Figure 3. LPN Shortages or Surplus per 10K Population in Ambulatory Care, by Medicaid Region



**Careful consideration must be given to interpreting setting forecasts.** Although some settings are forecast to face relatively small shortages or even surpluses of RNs and/or LPNs, careful consideration must be given to interpreting these data because they may reflect other factors such as chronic underfunding, low pay, a lack of desirability of the setting or region, as well as barriers such as a local lack of insurance coverage. The forecasts presented in this brief are based on the historical *utilization* of LPNs and RNs (per population) in different employment settings, not the number of LPNs and RNs that would be *needed* to fully meet patients' needs for care or fill all position vacancies. This is a classic problem in workforce modeling because the true need for health professionals can look very different than "realized" demand.<sup>2</sup>

For example, the model suggests that nursing education will experience a 9% shortage, or an estimated 132 headcount shortfall, of nurse educators by 2033. To educators, this shortage may seem small compared to what they feel is needed to fill vacancies generated by growing faculty retirements and increasing enrollments. However, growing wage disparities between nurses employed in academic settings and clinical settings make it difficult to recruit nurses to and retain them in academia, thus suppressing demand in academic settings.<sup>3</sup>

<sup>2</sup>Ehrenberg RG and Smith RS. 2017 Modern Labor Economics. New York: Rutledge

<sup>3</sup> "The Nursing Faculty Bottleneck." Higher Ed Works. July 21, 2021. [Article](#) and [video](#) & "[NC is paying for neglecting nurses and teachers. It's about to get worse.](#)" News & Observer Editorial Board. September 3, 2021.

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## Overview: Supply & Demand Model and Graduate Diffusion Tool

Similarly, RNs employed in community and population health settings—a category that includes nurses who provide care in community-based settings including public schools, public health departments, occupational health, and other community care centers—are projected to have a balance between supply and demand. However, this balance represents the historical *utilization* of nurses in these areas, and not necessarily the *need* for them. The demand for community and population health nurses is much lower than expected because these settings are chronically underfunded, and demand is suppressed because of low pay. As long as wages stay suppressed and nurses continue to choose other employment settings, this situation will not change.

**Another key consideration** is that the model reflects what we call a “baseline scenario”—or what supply and demand will look like if nothing else changes. The data presented in this brief also represent what shortages and surpluses would look like based on historical trends in supply and demand. However, we know that the pandemic has affected the nursing workforce and that future state and federal policy interventions are also likely to influence future supply and demand. Different scenarios were generated from NC Nursecast to estimate how changes such as nurses exiting early from the workforce, increased training program enrollments, and growing competition for nurses from other states may affect the future nursing workforce. Findings from these forecasts can be found in our [brief about alternative “what if” scenarios](#).

**This brief has demonstrated** just a few ways that NC Nursecast can be used to understand workforce forecasts for RNs and LPNs by setting and region in North Carolina. Model users can also analyze the data by AHEC and rural regions of the state, as well as other employment settings.

More detailed information about individual settings can be accessed in the model [documentation](#) on our website. It is also important to note that the data used in Nursecast originate from self-reported information nurses provide as part of a biannual license renewal process through the NC Board of Nursing. These data represent a complete census of nurses in the state; longitudinal trends in NC nurse licensure data are available in the [NC Health Professions Data System](#) (HPDS) at the Sheps Center.

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Source for all tables and figures in this document is the NC Nursecast:

<https://ncnursecast.unc.edu>

Questions?

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