NC Nursecast:
New Data on NC's Nursing Shortages

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Who are we?

Mission: to provide timely, objective data and analysis to inform health workforce policy in North Carolina and the United States

- Based at Cecil G. Sheps Center for Health Services Research at UNC-CH, but mission is statewide

- Independent of government and health care professionals

- Primarily grant-funded. **The NC Board of Nursing provided the funding and data for NC Nursecast.**

- We do not represent a particular profession, specialty or educational institution

This presentation in one slide

- The NC Nursecast website allows users to customize forecasts by nurse type (RN/LPN) and geography (statewide, Medicaid regions, AHEC regions and metro/non-metro) for various practice settings

- NC was projected to face a nurse shortage before the pandemic, shortages will get more acute if significant numbers of nurses exit the workforce

- Model projects shortage of nurse educators. Educator workforce is older and at higher risk of exiting workforce

- NC Nursecast Graduate Diffusion Tool allows users to see "footprint" of NC nursing programs: % of graduates who remain in state, practice in rural areas, and are employed in various settings

- North Carolina does not have a statewide health workforce planning organization charged with identifying coordinated action to address health workforce shortages

What is NC Nursecast?

NC Nursecast Supply & Demand Model is an interactive, web-based tool that forecasts the future supply and demand for Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) out to 2033

NC Nursecast Graduate Diffusion Tool is an interactive data visualization that allows users to see where students from North Carolina nursing programs practice after they graduate

https://ncnursecast.unc.edu/

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Forecasting the future is difficult ...especially during a pandemic

- Workforce models are assumed to produce one "answer" to the question:

  Will RN and LPN supply meet demand in the future?

- The actual answer is:

  It depends.

- NC Nursecast was developed based on historical data, before COVID-19 emerged

- The pandemic is affecting nurse supply and demand, but effects are not yet well understood
  — Nurses may exit the workforce earlier than expected (due to burnout, becoming a travel nurse etc.)
  — The pandemic may trigger a "nurse hero" effect which could increase supply of nurse graduates
  — NC could face more competition from other states for nurses

    Did you know that more than 50% of RNs who enter NC's workforce each year are from outside NC?
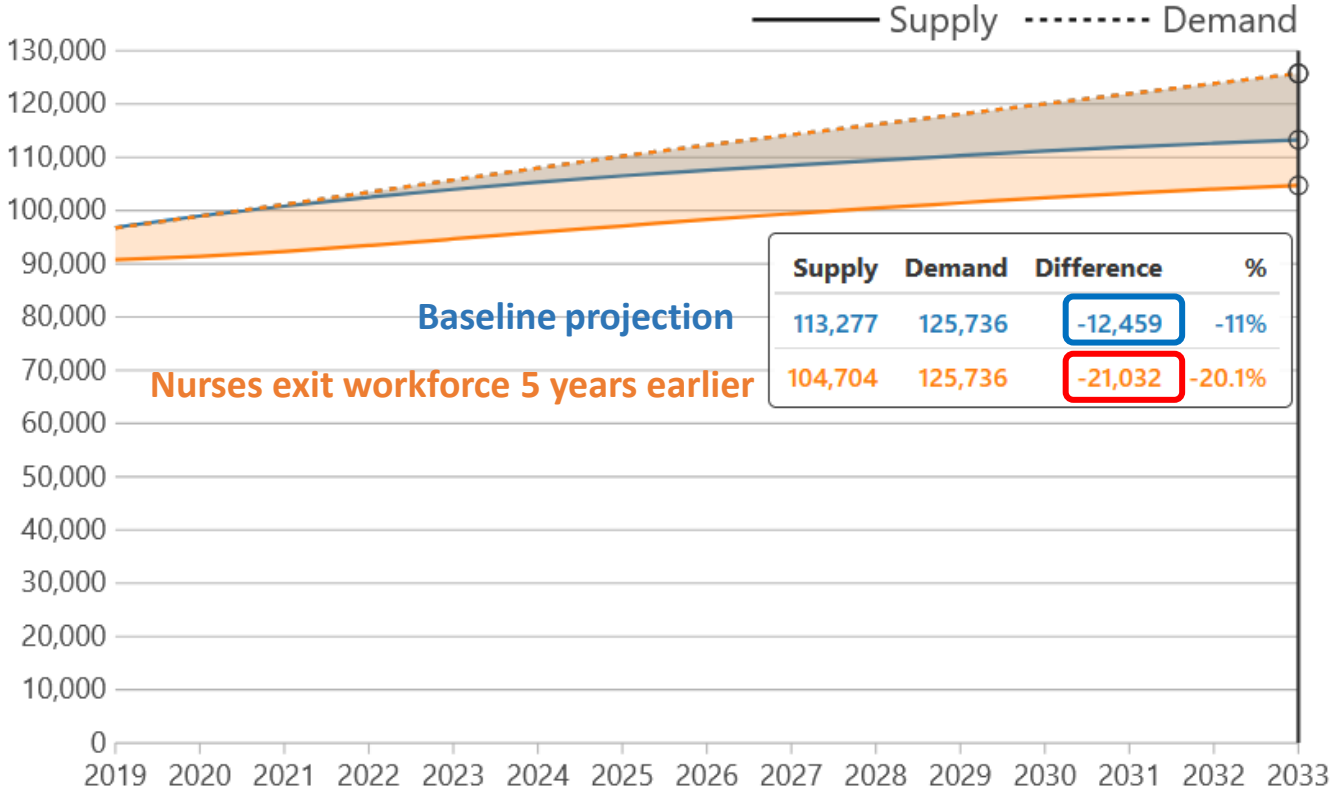
What did we find?

Pre-Covid, NC forecasted to face an estimated shortage of 12,500 RNs by 2033

Registered Nurse Supply-Demand under "Baseline" (Pre-Covid) and Early Exit Scenario

Baseline projection

Nurses exit workforce 5 years earlier

	Supply	Demand	Difference	%
Baseline projection	113,277	125,736	-12,459	-11%
Nurses exit workforce 5 years earlier	104,704	125,736	-21,032	-20.1%

If burnout or other factors cause nurses to exit the workforce five years earlier, the shortage nearly doubles

Hospitals and nursing home, extended care, assisted living facilities face largest RN shortages

Registered Nurse Workforce Shortage and Surplus Estimates for 2033

| Setting	# in Shortage or Surplus in 2033	% Shortage or Surplus in 2033
Total	-12,500	-11%
Hospital	-9,927	-16.7%
Nursing Home/Extended Care/Assisted Living	-1,888	-30.8%
Home Health/Hospice	-1,535	-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%

Note: Data from NC Nursecast, which includes NC Board of Nursing/Health Professions Data System, population data from NC Office of Budget and Analysis and Expert Input

RN Nurse supply and demand varies by region

RNs by Medicaid Region, North Carolina, 2033 (Projected)
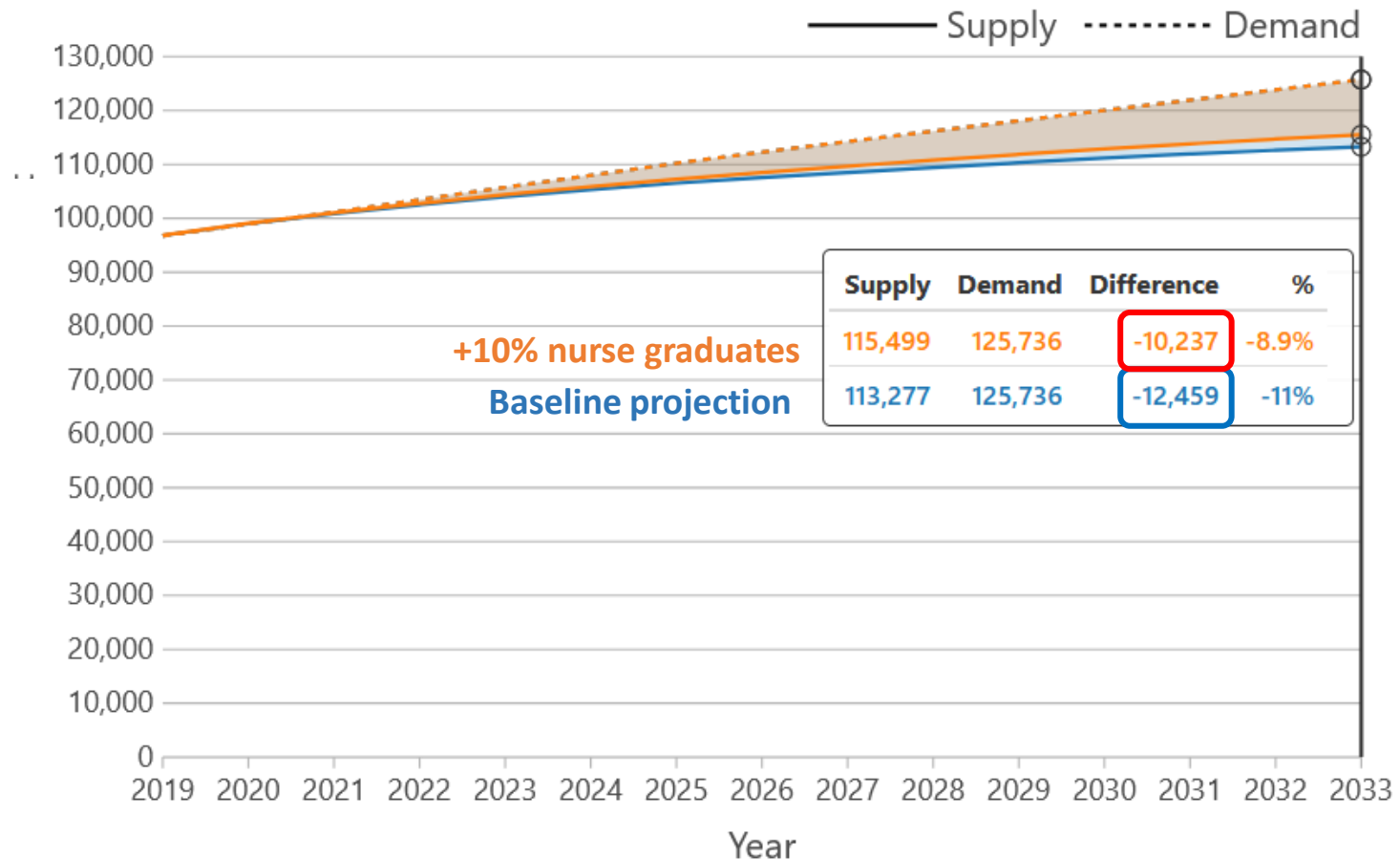
Supply - Demand, All Settings (Combined), All Education, Headcount, Rate per 10K population, Baseline Supply
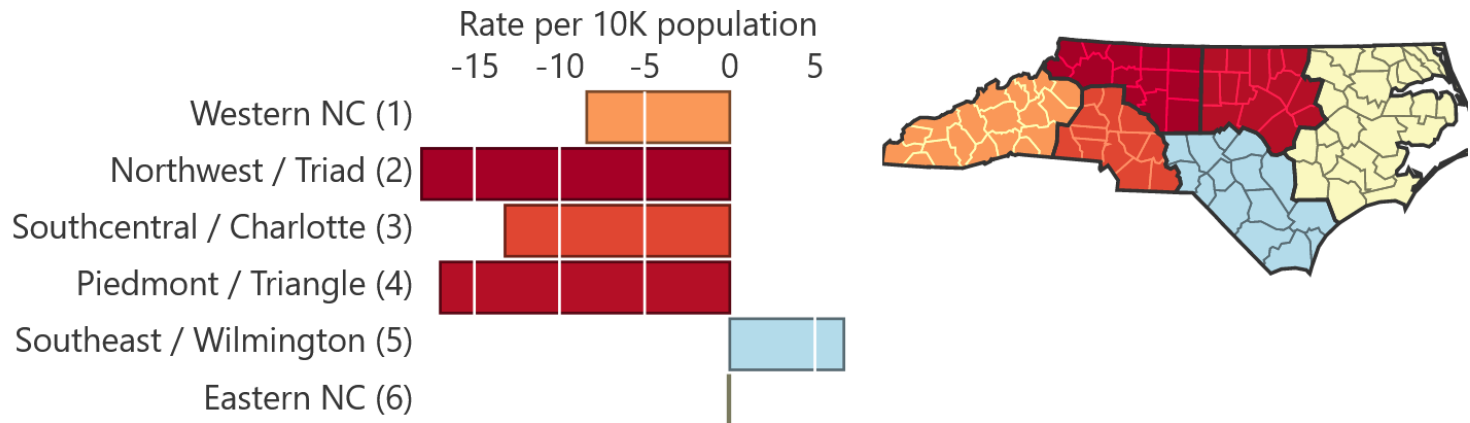
- Northwest/Triad and Piedmont/Triangle have the largest projected shortfalls of RNs by 2033

- Eastern NC essentially faces neither a shortage nor surplus

- The southeast region of the state is the only area projected to have a slight surplus of RNs

Educating more nurses can't be our only solution because effect on shortage is relatively small

Registered Nurse Supply-Demand under "Baseline" (Pre-Covid) and 10% Increase in Nurse Graduates

	Supply	Demand	Difference	%
+10% nurse graduates	115,499	125,736	-10,237	-8.9%
Baseline projection	113,277	125,736	-12,459	-11%

# And increasing student enrollment is difficult due to faculty shortages

Registered Nurse Educator Supply-Demand under "Baseline" (Pre-Covid) and Early Exit Scenario
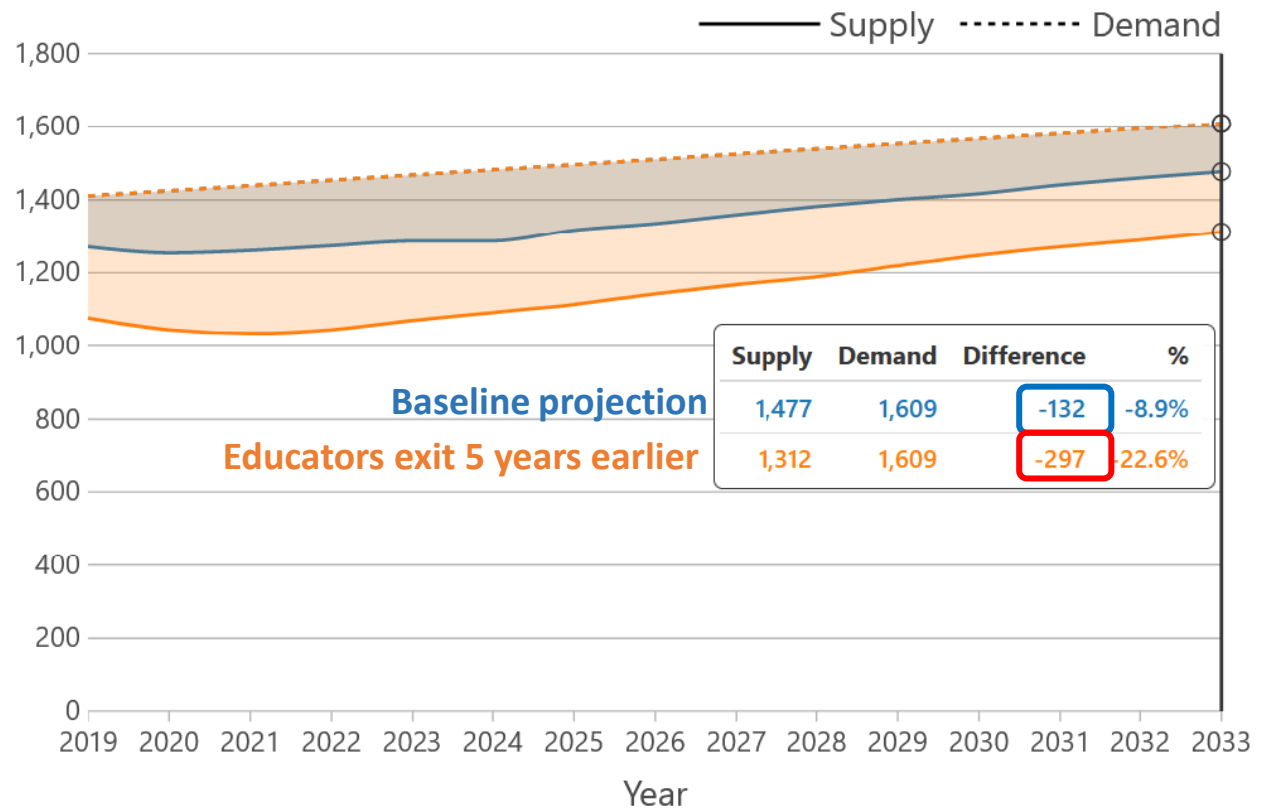
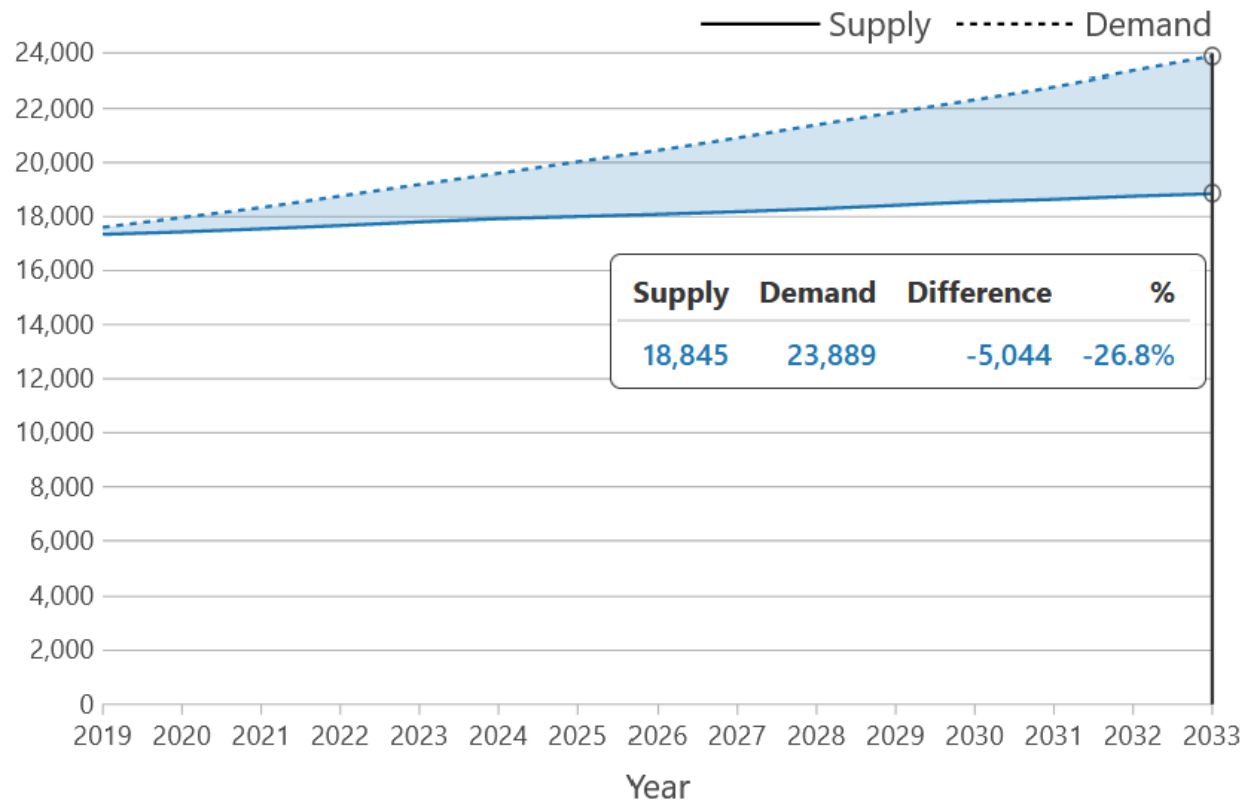Shortage of nurse educators more than doubles if educators exit workforce 5 years early

This is because the nurse educator workforce is older and more likely to retire

Average Age of Registered Nurses by Employment Setting
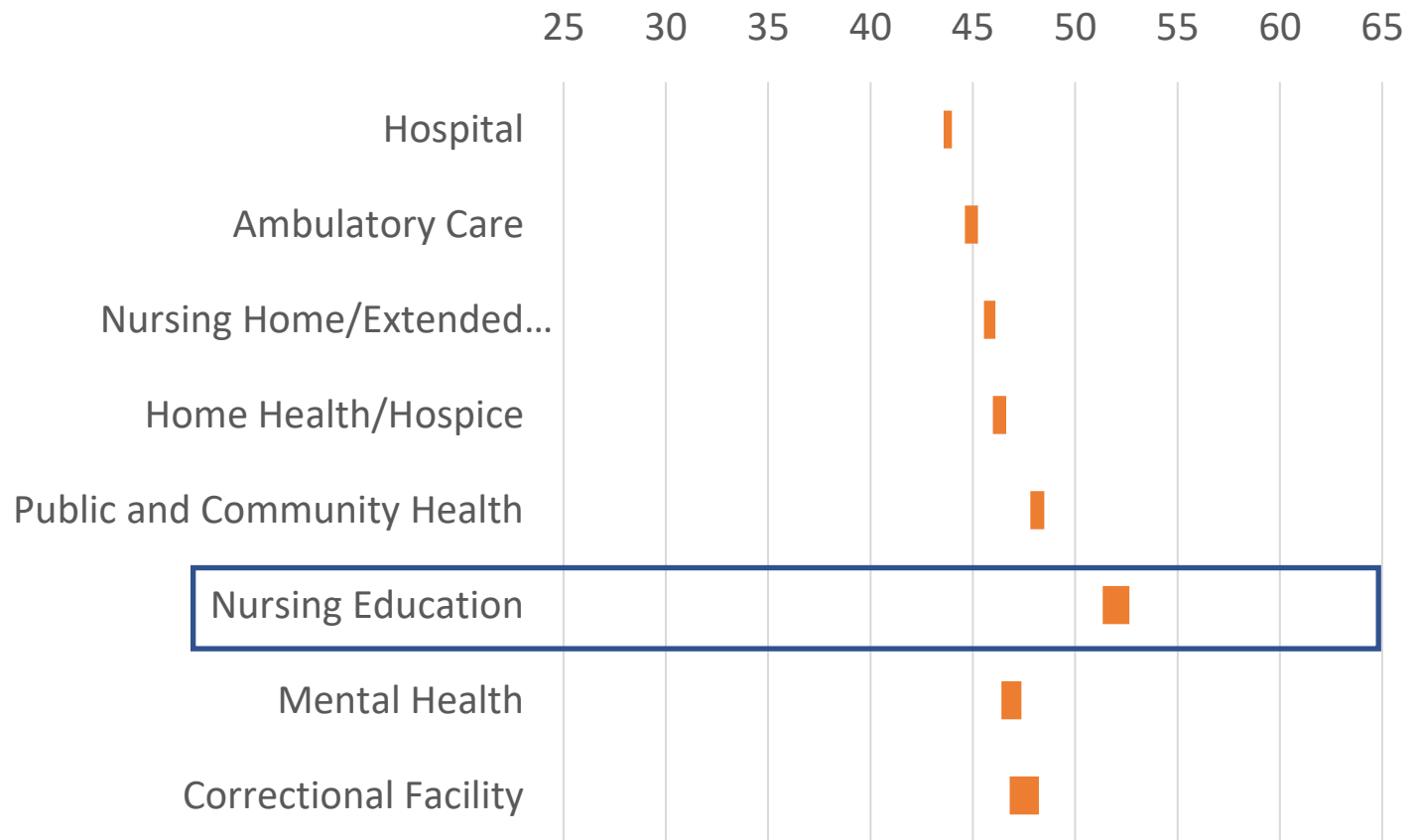
LPNs will face even greater shortages than RNs, relative to the size of their workforce

Licensed Practical Nurse Supply-Demand

Nursing homes, extended care, assisted living settings face largest LPN shortages
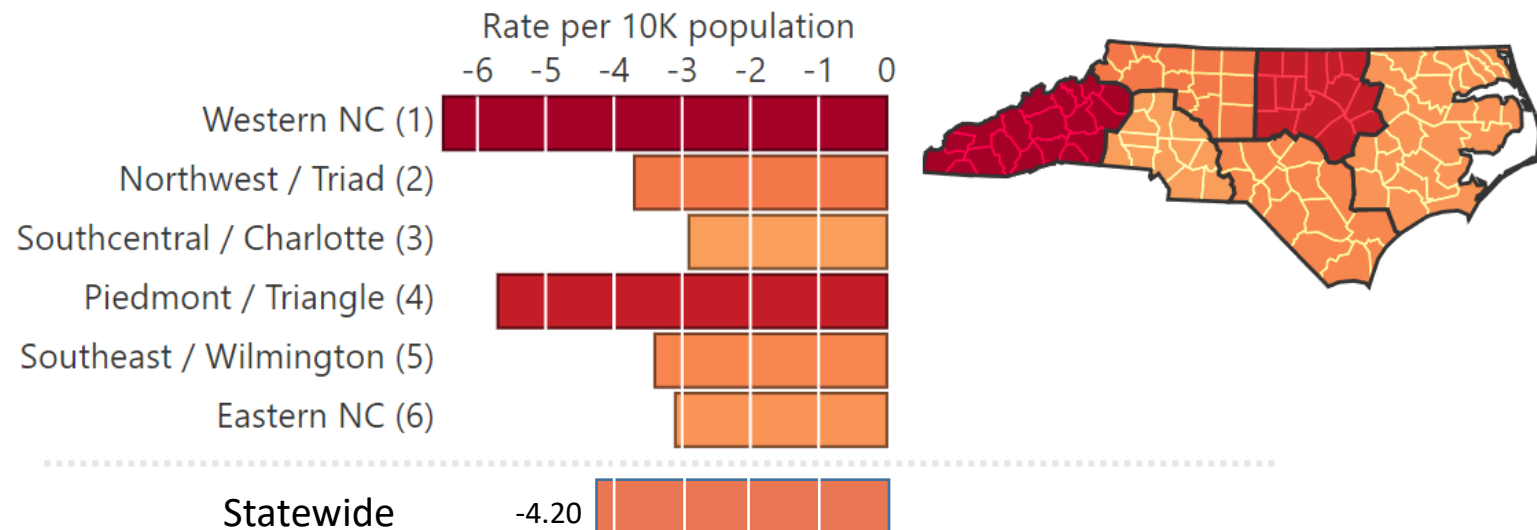
LPN Shortage and Surplus Estimates for 2033

Setting	# in Shortage or Surplus in 2033	% Shortage or Surplus in 2033
Total	-5,000	-27%
Hospital	-314	-31.7%
Nursing Home/Extended Care/Assisted Living	-3,510	-49%
Home Health/Hospice	-504	-14%
Correctional Facility	-9	-2.2%
Mental Health Hospital/Facility	-58	-9.4%
Ambulatory Care	-148	-6.7%

Note: Data from NC Nursecast, which includes NC Board of Nursing/Health Professions Data System, population data from NC Office of Budget and Analysis and Expert Input

LPN shortages differ by region compared to RN shortages

LPNs by Medicaid Region, North Carolina, 2033 (Projected)

Supply - Demand, All Settings (Combined), All Education, Headcount, Rate per 10K population, Baseline Supply

Rate per 10K population

Region	Rate
Western NC (1)	
Northwest / Triad (2)	
Southcentral / Charlotte (3)	
Piedmont / Triangle (4)	
Southeast / Wilmington (5)	
Eastern NC (6)	
Statewide	-4.20

- All areas of the state face sizeable LPN shortages

- Western NC is expected to face the largest LPN shortage by 2033 followed by the Piedmont/Triangle area

NC Nursecast is particularly powerful for examining projected nurse shortages by setting and region

Northwest Medicaid Region RN Shortages Differ from Statewide Projections

Northwest Region Counties:
Ashe
Alleghany,
Davie
Davidson
Forsyth
Guilford
Randolph
Rockingham
Stokes
Surry
Watauga
Wilkes
Yadkin

Setting	NW Region % Shortage	Statewide % Shortage
Nursing Home/Extended Care/Assisted Living	-40%	-31%
Nursing Education	-33%	-9%
Hospital	-31%	-17%
Home Health/Hospice	-20%	-18%
Community and Population Health	-11%	+1%
Ambulatory	-5%	+2%
Mental Health Hospital/Facility	+1%	+1%
Correctional Facility	+27%	-16%

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Western Medicaid Region LPN Shortages Differ from Statewide Shortages

Setting	Western Region % Shortage	Statewide % Shortage
Nursing Home/Extended Care/Assisted Living	-77%	-49%
Correctional Facility	-74%	-2%
Hospital	-66%	-32%
Ambulatory Care	-62%	-7%
Home Health/Hospice	-9%	-14%
Mental Health Hospital/Facility	+14%	-9%

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Something different is happening in the southeastern part of the state...it is projected to face a slight nursing surplus.

What's happening?

The NC Nursecast Graduate Diffusion Tool provides clues.

NC Nursecast Graduate Diffusion Tool

- Displays "footprint" of NC's education program graduates from 2013-2016

- For each ADN, BSN, and LPN program, shows % of workforce retained in the state, in rural areas, and by employment setting, two years after graduation

- NC nursing programs have high in-state retention rates, and varying retention rates in rural areas

Nurse Education Programs in North Carolina	Retention Rate in NC	Retention in rural NC counties
Licensed Practical Nurse (LPNs) Programs	92%	33%
Associate Degree Nurse (ADN) Programs	92%	29%
Bachelor of Science in Nursing (BSN) Programs	86%	10%

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UNC System BSN Programs Have Varying Footprints

Institution	# of Grads 2013-2016	% Working in NC	% Working in Rural NC	Mean distance from program to practice (miles)
Appalachian State University	127	89%	15%	90
East Carolina University	848	88%	9%	71
Fayetteville State University	50	74%	26%	20
North Carolina A & T State University	118	88%	4%	35
North Carolina Central University	190	89%	7%	15
University of North Carolina Wilmington	314	85%	3%	76
University of North Carolina at Chapel Hill	497	80%	2%	20
University of North Carolina at Charlotte	333	88%	3%	35
University of North Carolina at Greensboro	321	93%	3%	31
University of North Carolina at Pembroke	104	77%	49%	32
Western Carolina University	250	84%	12%	68

Graduate Diffusion Model Allows Users to Visualize and Compare Footprints
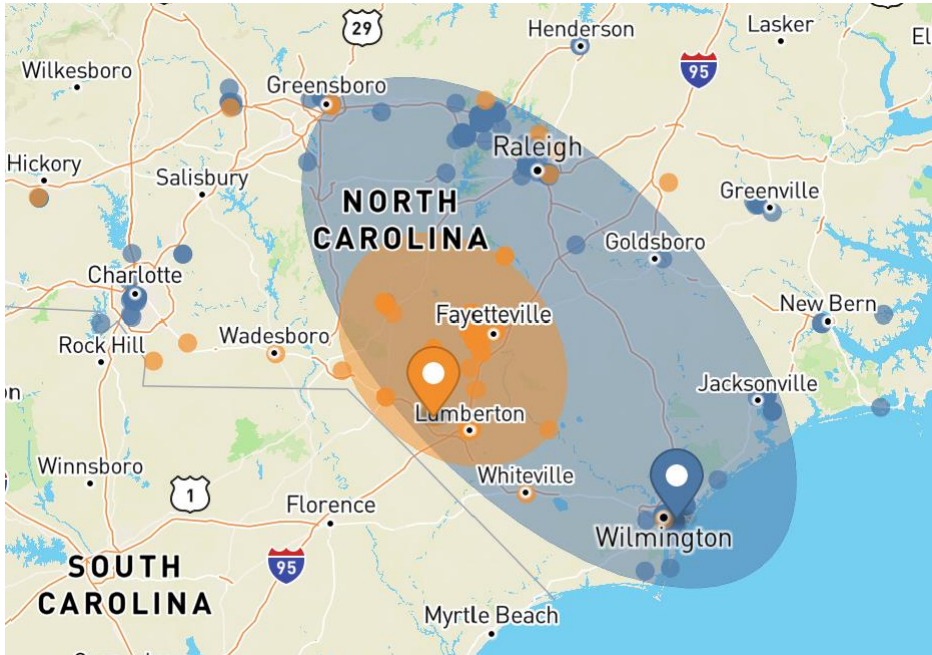
| Institution	Program Type	#	# Hospital (%)	# Ambulatory (%)	# Home Health / Hospice (%)	# Rural (%)	Mean Distance in Miles	Percent Retention in NC
University of North Carolina Wilmington	RN-BSN	314	273 (87%)	4 (1.3%)	3 (0.96%)	8 (2.5%)	76	85%
University of North Carolina at Pembroke	RN-BSN	104	89 (86%)	2 (1.9%)	0 (0.0%)	51 (49%)	32	77%

UNCP, UNCW and ADN and LPN Programs in Community Colleges in the Southeast/Wilmington Medicaid Region are Meeting their Local Needs

Community College LPN Programs in Southeast/Wilmington Medicaid Region

Institution	Program Type	#	# Hospital (%)	# Ambulatory (%)	# Home Health / Hospice (%)	# Rural (%)	Mean Distance in Miles	Percent Retention in NC
Bladen Community College	LPN	74	8 (11%)	4 (5.4%)	2 (2.7%)	50 (68%)	25	99%
Brunswick Community College	LPN	62	1 (1.6%)	7 (11%)	1 (1.6%)	2 (3.2%)	17	90%
Central Carolina Community College	LPN	128	8 (6.3%)	7 (5.5%)	9 (7.0%)	68 (53%)	23	93%
Cape Fear Community College	LPN	71	2 (2.8%)	10 (14%)	4 (5.6%)	1 (1.4%)	16	95%
Fayetteville Technical Community College	LPN	130	27 (21%)	6 (4.6%)	5 (3.8%)	21 (16%)	15	79%
Montgomery Community College	LPN	122	9 (7.4%)	4 (3.3%)	8 (6.6%)	68 (56%)	29	99%
Richmond Community College	LPN	46	4 (8.7%)	5 (11%)	1 (2.2%)	45 (98%)	17	91%
Robeson Community College	LPN	43	3 (7.0%)	2 (4.7%)	6 (14%)	35 (81%)	14	91%
Sampson Community College	LPN	63	3 (4.8%)	4 (6.3%)	6 (9.5%)	35 (56%)	30	100%
Sandhills Community College	LPN	23	2 (8.7%)	1 (4.3%)	0 (0.0%)	15 (65%)	23	90%
Southeastern Community College	LPN	71	7 (9.9%)	5 (7.0%)	2 (2.8%)	57 (80%)	24	95%

NC Nursecast Graduate Diffusion Tool Map – Southeast/Wilmington Medicaid LPN Programs
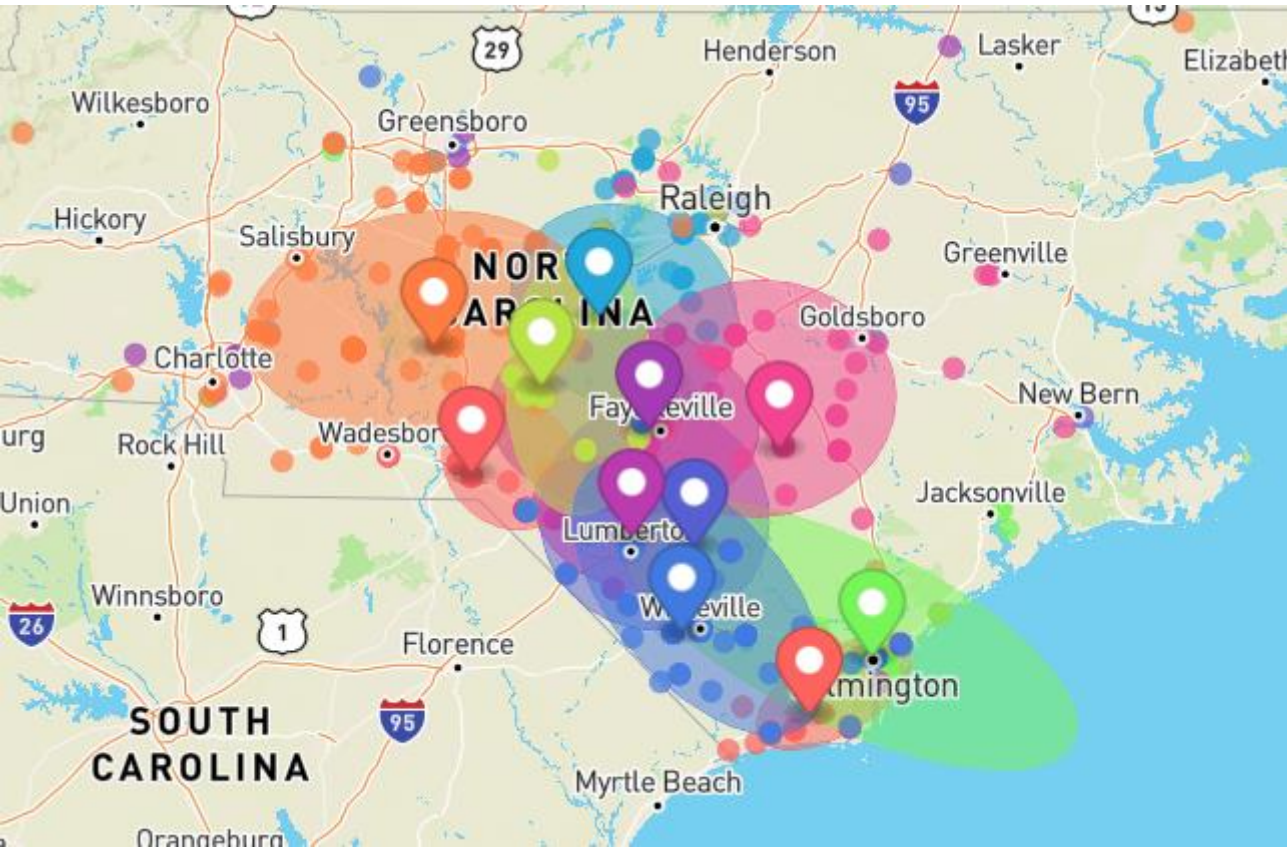
Why this work is important now

- Lots of discussion at state and national level about strategies to ameliorate nursing workforce shortages, including:

  - increasing number of students in the pipeline
  - funding loan repayment programs
  - addressing faculty, preceptor and clinical site shortages
  - increasing pay
  - addressing provider well-being
  - retaining nurses
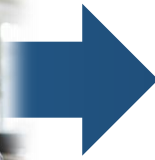 - reorganizing work to support team-based models of nursing care

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Policy Solutions are Needed that Target Multiple Points in the Lifespan of a Nursing Career

Recruitment

Early Career

Mid-Career

Late Career & Retirement

Scholarships

Health careers programs

Interprofessional education

Loan repayment

Transition to practice programs

Career pathways: LPN to RN & RN to APRN

Childcare

Tax credits

Team-based practice

Support training outside hospital settings

Teaching opportunities

Recruit retired nurses back into the workforce

Currently, there is no statewide health workforce planning organization

The NC AHEC Program, the NC IOM and the Cecil G. Sheps Center for Health Services Research are partnering to convene stakeholders to identify promising practices to develop and support NC's health workforce

Approach:

- Persistent, transparent, and accountable to policy makers, educators, professionals, employers and other stakeholders for evidence-based approaches to address health workforce needs

- Leverage and expand data sources to identify health workforce needs and solutions

- Focus on progress toward implementing those solutions and provide regular updates

- Recommend additional actions to address current and future health workforce shortages and maldistributions.

Plan to meet quarterly beginning April 2022

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Detecting Challenges: NC Sentinel Network

Information from employers about their workforce challenges is essential to developing timely and effective responses.

NC AHEC Program, in collaboration with the Sheps Center, is collecting information from employers on local changes in workforce demand.

A "Sentinel Network" of employers:
- Identifies **skills needed** and **local conditions** making hiring difficult
- Provides "**how and why**" perspectives behind demand signals

Timing:

- Initial questionnaire: Fall 2021 (closed mid-November 2021)

- Second questionnaire: early May 2022 (will close mid-June 2022)

- Plan to continue every 6 months as long as it's valuable

Results: Available to review at https://nc.sentinelnetwork.org/
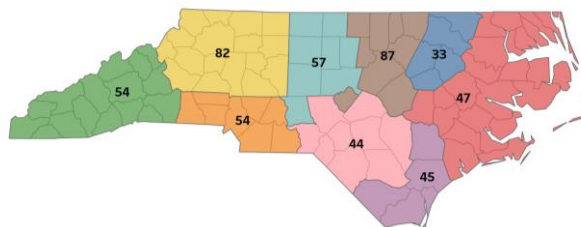
Responses were submitted on behalf of 338 facilities and organizations across the state

North Carolina Institute of Medicine: Task Force on the Future of Nursing

The North Carolina Institute of Medicine has proposed a **task force to identify a collective vision for the future of the nursing profession in North Carolina.**

If funded, the 12-month task force would begin in the fall of 2022, and would address the following questions:

• **How can we respond to projected nurse shortages?**

• **How can we optimize the nursing workforce in the context of the changing health care landscape?**

• **How can the nursing profession contribute to transformative change in achieving health equity?**

NCIOM Thought Partners for Task Force development include:

• Sheps Center Program on Health Workforce Research and Policy, including NC Nursecast
• North Carolina Nurses Association
• North Carolina Future of Nursing Action Coalition (NC FON AC)
• Schools of nursing (including UNC-Chapel Hill, UNC-Charlotte, Duke University, and East Carolina University)
• NC Community Colleges
• North Carolina Healthcare Association
• North Carolina Area Health Education Centers
• North Carolina Department of Health and Human Services

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