The Nursing Workforce in North Carolina: Academic Progression and New Roles in a Transformed System

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Data
At the non-resident-in-training. Primary care includes family practice, general practice, internal medicine, pediatrics, and OB/GYN.

<table>
<thead>
<tr>
<th></th>
<th>North Carolina</th>
<th>Rural Counties (375x)</th>
<th>Urban Counties (448)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>9,765,229</td>
<td>2,208,796 (22%)</td>
<td>7,556,433 (78%)</td>
</tr>
<tr>
<td>Non-Federal Physicians</td>
<td>21,788</td>
<td>3,035</td>
<td>18,773</td>
</tr>
<tr>
<td>Physicians Per 10,000 pop</td>
<td>22.3</td>
<td>21.2</td>
<td>24.6</td>
</tr>
<tr>
<td>Primary Care Physicians</td>
<td>7,402</td>
<td>1,360</td>
<td>6,042</td>
</tr>
<tr>
<td>Physicians Per 10,000 pop</td>
<td>7.6</td>
<td>5.3</td>
<td>8.1</td>
</tr>
<tr>
<td>Nurse Practitioners</td>
<td>4,044</td>
<td>689</td>
<td>3,355</td>
</tr>
<tr>
<td>Physician Assistants</td>
<td>4,044</td>
<td>671</td>
<td>3,373</td>
</tr>
<tr>
<td>Dentists</td>
<td>4,401</td>
<td>669</td>
<td>3,732</td>
</tr>
<tr>
<td>Dental Hygienists</td>
<td>4,690</td>
<td>1,098</td>
<td>3,592</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>91,222</td>
<td>18,438 (20%)</td>
<td>72,784 (80%)</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>9,422</td>
<td>1,769</td>
<td>7,653</td>
</tr>
<tr>
<td>Physical Therapists</td>
<td>1,940</td>
<td>358</td>
<td>1,582</td>
</tr>
<tr>
<td>Occupational Therapists</td>
<td>2,773</td>
<td>350</td>
<td>2,423</td>
</tr>
</tbody>
</table>

Why?
A 2008 Sheps Center study of Associate Degree Nursing programs in NC showed that ADNs were more likely than their BSN counterparts to
1. practice in rural/underserved areas
2. practice in higher-need settings, like home care/ hospice and long-term care
3. Practice in higher-need specialties, like geriatrics
So we did another study

Our research question:
“Do nurses who entered the workforce with an ADN and have a baccalaureate or higher degree in nursing behave more like ADNs or baccalaureate+ nurses?”

Our sample

Our analysis of the 2012 NC RN licensure file compares:

Potential mobility RNs who entered with ADNs and did not have a higher degree: 34,058 (40%)
Mobility among RNs who met entry requirements but did not complete the higher degree: 12,317 (15%)
Mostly BSN+ Nurses who entered with a BSN or higher degree: 9,516 (12%)

N = 74,763 (77.9% of total RNs)

Mobility nurses less likely to practice in home care/hospice and long-term care than ADN nurses without additional education. Nurses with BSN+ at entry more likely to practice in pediatrics

North Carolina Nursing Workforce by Employment Setting and Degree, 2012

Other (n=11,822)
Hospital In-Patient (n=9,771)
Hospital Out-Patient (n=1,247)
Mental Health Facility (n=1,303)
Public Clinics/Health Dept (n=2,361)
Womens Care/Maternity (n=1,318)
Long Term Care (n=1,880)
Nursing Home (n=2,992)
School of Nursing (n=1,462)
HealthCare Insurance Co (n=770)
Other (n=1,832)

Note: Employment setting was missing for 1,123 RNs

Mobility nurses less likely to practice in geriatrics than ADN nurses without additional education. Nurses with BSN+ at entry more likely to practice in pediatrics

North Carolina Nursing Workforce by Practice Area and Degree, 2012

Other (n=11,822)
School (n=1,427)
Critical/Emergency Care (n=1,027)
Psych/Mental Health (n=3,430)
Post/Rehab (n=1,142)
Med/Surgical (n=2,247)
Oncology (n=84)
Other (n=4,071)

Note: Specialty was missing for 1,123 RNs

Mobility nurses less likely to practice as staff/general duty nurses

NC Nursing Workforce by Position Type and Degree, 2012

Other (n=1,552)
Research (n=421)
CNAA (n=1,322)
Clinical Specialist (n=715)
Nurse Midwife (n=167)
Nurse Practitioner (n=1,066)
Staff/General Duty (n=6,698)
Healthcare or Assistant (n=1,564)
Instructor (n=1,550)
Supervisor or Admin (n=1,550)
Consultant (n=1,562)
Admin or Assistant (n=1,506)

Note: Position type was missing for 1,123 RNs

Mobility nurses 3 times more likely to practice in NC’s most distressed counties compared to BSN entry nurses

NC Nursing Workforce by Economic Tier of Practice Location and Degree, 2012

Tier 1 (Most Distressed) (n=18,807)
Tier 2 (Moderate Distress) (n=11,711)
Tier 3 (Least Distress) (n=14,169)

Note: Overall RNs were missing for 1,123 RNs
Mobility nurses twice as likely as BSN+ nurses to practice in rural counties

North Carolina Nursing Workforce by Rural/Urban Setting and Degree, 2012

<table>
<thead>
<tr>
<th>Setting</th>
<th>BSN Entry</th>
<th>Mobility</th>
<th>ADN Entry and BSN as Highest</th>
<th>ADN Entry and ADN Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>10%</td>
<td>20%</td>
<td>24%</td>
<td>75%</td>
</tr>
<tr>
<td>Urban</td>
<td>50%</td>
<td>20%</td>
<td>24%</td>
<td>95%</td>
</tr>
</tbody>
</table>

So ... do mobility nurses behave more like ADNs or baccalaureate+ nurses? It depends

After seeking additional education, mobility nurses behave:

More like BSN+ nurses in terms of specialty and setting
  - Less likely to practice in home care, hospice, long-term care and geriatrics

More like ADN nurses in terms of geographic dispersion.

Compared to BSN entry nurses:
  - Twice as likely to practice in rural
  - Three times more likely to practice in NC’s Tier 1 counties

Like neither group in terms of job title
  - Less likely to be in staff/general duty positions

Implications for education

- Need more rotations outside of hospital—in home health, long-term care, hospice, public health and other community-based settings
- Continue to diffuse BSN+ education out to ADNs in rural and underserved areas
- There are over 8,000 ADNs practicing in rural counties who have not pursued additional education in nursing
- But it’s not just a numbers game.....we need to think about new roles for nurses

The future nursing workforce: New roles in a transformed health system

Let 1,000 flowers bloom: ongoing experiments in health system transformation

- Growing number of patient centered medical homes, accountable care organizations and integrated delivery systems
- CMS actively funding demonstration projects
- Secretary Burwell recently announced 50% of Medicare payments tied to value by 2018

New models of care: key characteristics

Goal: provide patients with more comprehensive, accessible, coordinated and high quality care at lower costs

- Payment based on value, not volume (accountability)
- Emphasis on primary, preventive and “upstream” care
- Care is coordinated between:
  - medical sub-specialties, home health agencies and nursing homes
  - health care system and community-based social services [social determinants of health]
- EHRs used to monitor patient & population health—increased use of data for risk-stratification and hot spotting
- Interventions focused on both patient- and population-level
Nursing in a Transformed Health Care System: New Roles, New Rules

“What will it take to optimize the contributions of nurses in these changing systems?

- Redesign the nursing curriculum to impart new competencies;
- Retract existing nurses to impart new skills and knowledge;
- Revamp licensing examination and requirements to reflect the new curriculum; and
- Restructure the state regulatory system to allow flexible deployment of the nurse workforce.”


How do nurses fit in new models of care?

- PCMHs and ACOs emphasize care coordination, population health management, patient education, health coaching, data analytics, patient engagement, quality improvement, etc.
- Moving more toward ambulatory settings and community care
- New job titles and roles emerging
- “Boundary Spanners”
- Requires application of skills in new ways and development of new skills

New and evolving role areas

- Population health
- Complex older adults and family caregivers
- Care coordination and transitional care
- Use of data, evidence and other performance improvement skills
- Interprofessional collaboration

But how do we redesign structures to support these roles? ➔ Education

- Must redesign education system so nurses can flexibly gain new skills and competencies
- Retrain and upgrade skills of the 2.9 million nurses already in the system – they are the ones who will transform care
- Training must be convenient – timing, location, & financial incentives
- Need to prepare faculty to teach new roles and functions
- Clinical rotations need to include “purposeful exposure” to high-performing teams and ambulatory settings

But how do we redesign structures to support these roles? ➔ Regulation

To create a more dynamic regulatory system, we need:

- To develop evidence to support regulatory changes, especially for new roles
- Better evaluation of pilot workforce interventions to understand if interventions improve health, lower costs and enhance satisfaction
- To establish a national clearinghouse to provide up-to-date and reliable information about scope of practice changes in other states
- Remove regulatory barriers to let nurses utilize skills to max benefit of patients

But how do we redesign structures to support these roles? ➔ Policy

- Insurance reimbursement rules
  - Current system rewards uncoordinated care and higher costs; shift toward value-based care will likely support efforts to increase nursing contributions to care
- Regulation of entry-level nursing education
  - Modify state licensure board rules governing pre-licensure programs to ensure graduates have new skills and competencies needed; adjust didactic training requirements to include more ambulatory experiences
- NCLEX
  - Exams designed to ensure graduates can pass NCLEX; if NCLEX changes to reflect new roles, curriculum will change to keep up
- Federal and state funding agencies
  - Funding can drive innovation and encourage transformation
Who is going to pay for all this retooling we need to do?

- Adequate and sustainable payment models to retool and redeploy the workforce are lacking.
- Many workforce innovations are supported by one-time funds. If payment models don't change rapidly enough, will these interventions be sustainable?
- 1,000 flowers are blooming but are adequate dollars available to conduct research and evaluations necessary to develop evidence base needed to support workforce redesign?

Why the nursing workforce is critical to health system transformation

- With nearly 3 million nurses in active practice, nursing is by far largest licensed health profession (*about four times as many nurses as physicians*).
- Nursing care linked to quality and satisfaction measures that will increasingly be tied to value-based payments.
- Nurses provide whole-person care across health and community-based settings.
- Nurses are the ultimate "flexible" workforce taking on new roles in transformed health system.

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Extra Slides

Education Highest Degree of North Carolina Nursing Workforce: 2012

<table>
<thead>
<tr>
<th>Highest Degree Held</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>8,897</td>
<td>9.2%</td>
</tr>
<tr>
<td>Diploma</td>
<td>6,752</td>
<td>6.9%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>35,032</td>
<td>36.0%</td>
</tr>
<tr>
<td>Baccalaureate in Nursing</td>
<td>29,767</td>
<td>30.6%</td>
</tr>
<tr>
<td>Baccalaureate in Other</td>
<td>4,831</td>
<td>5.0%</td>
</tr>
<tr>
<td>Masters in Nursing</td>
<td>8,508</td>
<td>8.8%</td>
</tr>
<tr>
<td>Masters in Other</td>
<td>2,726</td>
<td>2.8%</td>
</tr>
<tr>
<td>Doctorate in Nursing</td>
<td>359</td>
<td>0.4%</td>
</tr>
<tr>
<td>Doctorate in Other</td>
<td>350</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>97,222</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Asians, African Americans, males are more likely to have baccalaureate or higher

- The average age of ADN and BSN or higher nurses is the same at **44 years** of age.
- **62% of male RNs vs 57% of female RNs** have BSN or higher*.
- **86% of Asian RNs and 65% of African American RNs** have BSN or higher**.

*Out of 2,216 male RNs and 7,587 female RNs.
**Out of 2,164 Asian RNs and 8,246 African American RNs. Race was missing for 153 RNs.
**Highest Degree of North Carolina Nursing Workforce: 1982-2012**

North Carolina Nursing Workforce by Highest Degree, 1982-2012

- Diplomas: 47% 40% 34% 19% 12% 2%
- Associate: 25% 34% 19% 19% 13% 3%
- Baccalaureate Nursing: 21% 11% 14% 12% 7% 3%
- Baccalaureate Other: 3% 2% 4% 3% 2% 3%
- Masters Nursing: 9% 5% 12% 12% 7% 4%
- Masters Other: 3% 1% 15% 6% 4% 3%
- Doctorate: 0% 1% 1% 2% 0% 1%

**Boundary spanning roles growing quickly**

- Increasing number of staff focused on roles that shift focus from visit-based to population-based strategies
- Two examples:
  - **Panel Managers**
    - Assume responsibility for patients between visits. Use EHRs and patient registries to identify and contact patients with unmet care needs. Often medical assistants but can be nurses or other staff
  - **Health Coaches**
    - Improve patient knowledge about disease or medication and promote healthy behaviors. May be medical assistants, nurses, health educators, social workers, community health workers, pharmacists or other staff