Economic Benefits of Less Restrictive Regulation of APRNs in North Carolina:
An Analysis of Local and Statewide Effects on Business Activity

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Roadmap

- The policy problem
- Projecting APRN demand and supply in NC
- Economic impact analysis
- Potential impact of APRNs on health expenditures
- Potential impact of APRNs on physician shortages
- Conclusions
Outline

- The policy problem
Estimated Physician Shortages in North Carolina in 2020

- **Primary care MDs excluding OB/GYNs**: Lower-bound estimate 5%, Upper-bound estimate 14%
- **OB/GYNs**: Lower-bound estimate 23%, Upper-bound estimate 33%
- **Anesthesiologists**: Lower-bound estimate 12%, Upper-bound estimate 31%
- **All nonfederal physicians**: Lower-bound estimate 5%, Upper-bound estimate 14%

Source: Duke University, Center for Health Policy and Inequalities Research
APRNs: A Large Potential Resource

- APRNs have practice outcomes equivalent or better to those of physicians
- APRNs provide care at lower cost
  - Training costs for MDs are 4-7x APRN costs
  - APRN salaries 50-65% lower than MD counterparts
  - Resource savings:
    - Shorter hospital lengths of stay
    - Fewer infant hospitalizations
    - Less use of labor induction/C-sections
Regulatory Barriers to Greater APRN Use

- **NPs.** NC among 21 most restrictive states
  - 22 states allow autonomous practice
  - 8 states allow autonomous Dx but not prescribing

- **CNMs.** NC among 5 most restrictive states
  - 46 states allow practice w/o MD supervisory agreement
  - 21 states allow independent prescribing authority

- **CRNAs.** NC among 11 most restrictive states
  - 17 states opted out of Medicare 4:1 supervision rule
  - 40 give CRNAs prescribing authority

- **CNSs.** NC among 11 most restrictive states
  - 40 give CNSs prescribing authority
  - CNSs allowed independent practice but no title protection
Outline

- The policy problem
- Projecting demand and supply for APRNs in NC
Projecting Demand for APRNs Through 2019

- 2012 baseline
  - Latest available estimates of APRNs by county
  - “Pre-ACA” health spending (2009 actual projected to 2012)
  - ACA “fully” implemented by 2018-2019 time-frame

- Demographic changes
  - Population growth
  - Change in age/sex mix

- Changes due to ACA
  - Lower bound: no Medicaid expansion
  - Upper bound: with Medicaid expansion
Estimated Change in Demand for APRNs (and other health care) 2012-2019

<table>
<thead>
<tr>
<th></th>
<th>Lower-bound estimate</th>
<th>Upper-bound estimate</th>
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<tbody>
<tr>
<td>Affordable Care Act</td>
<td>3.1%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Aging/sex mix</td>
<td>6.2%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Population growth</td>
<td>8.2%</td>
<td>8.2%</td>
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</tbody>
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Percentage increase in demand relative to 2012
Projecting Supply of APRNs Through 2019

2012 baseline
- Latest available estimates of APRNs by county
- 2012-2019 mirrors Reagan/Salsberry APRN supply projections

Reagan/Salsberry compared states with most NP restrictions (e.g., NC) with states having least restrictions (e.g., AZ, CO, NM, OR, UT, WA)
- From 2001-2008 NP supply increased 10.91/100,000 more in least restrictive states
- In NC, this would represent a 24.4% increase in NP supply

24.4% increase was used for all 4 categories of APRNs
Estimated Size of APRN Market in NC (millions of 2014 dollars)

- NPs: Lower-bound estimate $510, Upper-bound estimate $1,145
- CNMs: Lower-bound estimate $29, Upper-bound estimate $65
- CRNAs: Lower-bound estimate $413, Upper-bound estimate $527
- CNSs: Lower-bound estimate $113, Upper-bound estimate $235

Note: lower-bound estimates based solely on APRN total compensation (salaries & benefits). Upper-bound estimates include practice expenses.
Outline

- The policy problem
- Projecting the supply and demand for APRNs in NC
- Economic impact analysis
Measuring Economic Activity

- **Output.** Economic value of goods and services provided (in $)
- **Jobs.** Number of people employed
- **Wages and benefits.** Payroll compensation (in $)
- **Tax Revenues.** State and local tax revenues
Economic Impact Analysis

- **Direct Effect**: an increase/decrease in economic output in one part of the economy
- **Indirect Effect**: increase/decrease in economic output as a result of the direct effect
Economic Impact Analysis

- **Direct Effect**: an increase in economic output in one part of the economy. In this case, we’re looking at an increase in APRN activity.

- **Indirect Effect**: increase in economic output as a result of the direct effect.
Economic Impact of Less Restrictive APRN Regulation

- **Total Output**
  - Will increase $477 to $883 million
  - Each new FTE APRN supports $273,000 to $506,000 in added output.

- **Jobs**
  - Will increase 3,848 to 7,128 annually
  - Each new FTE APRN supports 2.2-4.0 jobs

- **Wages and Benefits**-will increase $244 to $452 million annually

- **Tax Revenues**- will increase $20.7 to $38.3 million annually
Visualizing the Results

Increased Output (Lower Bound) by County

Magnitude of Increase (in thousands of $)
- 0 - 244
- 244 - 699
- 699 - 1,234
- 1,234 - 3,304
- 3,304 - 55,764
The policy problem
Projecting the supply and demand for APRNs in NC
Economic impact analysis
Potential impact of APRNs on health expenditures
Potential Impact of Less Restrictive APRN Regulation on Health Spending in NC

- Estimated from RAND study of NPs/PAs in Massachusetts (0.63% savings)
- Estimated from The Perryman Group study of APRNs in Texas (6.2% savings)
Support for Lower-Bound Estimates

- Problems with extrapolating RAND savings estimate to NC
  - NP/PA use in MA=1/3 below U.S. average
  - NP use in NC roughly matches U.S. average
  - Potential share of visits that could be handled by NPs has declined slightly (9.2% in 2006 vs. 8.7% in 2010)

- Problems with extrapolating Perryman Group savings estimate to NC
  - Purportedly based on comprehensive review of literature and comprehensive consideration of sources of savings
  - However, computations/assumptions are a black box
Support for Upper-Bound Estimates

Why RAND savings may be conservative
- Based only on NP savings, ignores other categories of APRNs
- Figures entirely exclude savings from lower resource use, e.g., hospitalizations
- Based on phased-in savings over 5 years
- RAND itself calculated an upper-bound figure of 1.25%
- NC regulations on APRNs are more restrictive than MA’s

Could Perryman Group savings be conservative?
- But no sure way of telling given what has been reported

Bottom line:
- Far more likely that savings exceed lower bound than upper bound
- More likely that savings are closer to 6.2% than 0.63%
Outline

■ The policy problem
■ Projecting the supply and demand for APRNs in NC
■ Economic impact analysis
■ Potential impact of APRNs on health expenditures
■ Potential impact of APRNs on physician shortages
Potential Impact of Less Restrictive APRN Regulation on PCP Shortages in NC

Primary care MDs, excluding OB/GYNs

- Assuming only CNMs used to fill OB/GYN shortage: 265% (Lower-bound estimate) 92% (Upper-bound estimate)

OB/GYNs

- Assuming NPs, CNMs and CNSs used to fill OB/GYN shortage: 216% (Lower-bound estimate) 100% (Upper-bound estimate)

Primary care MDs, excluding OB/GYNs

- Assuming only CNMs used to fill OB/GYN shortage: 17% (Lower-bound estimate) 25% (Upper-bound estimate)

OB/GYNs

- Assuming NPs, CNMs and CNSs used to fill OB/GYN shortage: 65% (Lower-bound estimate) 100% (Upper-bound estimate)
Potential Impact of Less Restrictive APRN Regulation on Other MD Shortages in NC

- **Anesthesiologists**
  - Lower-bound estimate: 85%
  - Upper-bound estimate: 220%

- **All nonfederal physicians**
  - Lower-bound estimate: 41%
  - Upper-bound estimate: 118%
Support for Lower-Bound Estimates

- Evidence that upper-bound physician shortage estimates are too low
  - Non-OB-GYN PCP estimate possibly inflated (based on 8% shortage for all non-federal MDs regardless of specialty)
  - Anesthesiology figures ignore 18.5% current shortage of CRNAs

- Evidence that 24.4% increase in APRN supply is too optimistic
  - The measured increase in Reagan/Salsberry occurred when the supply of NPs relative to population was at a much lower level
  - Absent empirical studies, there is no way to know for certain whether CNMs, CRNAs or CNSs would respond to lighter regulation to same extent as NPs
Support for Upper-Bound Estimates

- Evidence that lower-bound physician shortage estimates are too high
  - Anesthesiologist estimate based on 2010 RAND study but newest RAND estimates show no current shortage in NC
  - Most remaining estimates rely on NCIOM baseline shortage figure of 1% which seems quite conservative

- Evidence that 24.4% increase in APRN supply is too pessimistic
  - In Reagan/Salsberry, actual NP/pop. increase in high regulation states was 40%
  - Cross-sectionally, CNM supply is 3.3x as high in low regulation states compared to high regulation states like NC

- Bottom line:
  - Weight of evidence = impact ≥ lower bound
  - Odds that less restrictive regs would generate significant surpluses of any MD specialty appear low
Conclusions

- Right-sizing the regulation of APRNs offers the prospect of:
  - Greatly expanding the number of active APRNs in NC
  - Sharply reducing the size of pending physician shortages
  - Modestly reducing avoidable health expenditures

- An important side-benefit will be:
  - More new jobs
  - More wages/benefits
  - Greater state/local tax revenues

- Rare for policy change to improve access, cost and quality simultaneously