

# Limited Economic Benefits Expected by Relaxing Nursing Scope of Practice Regulations in North Carolina

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In February 2015, the Duke University Center for Health Policy and Inequalities Research published ***Economic Benefits of Less Restrictive Regulation of Advanced Practice Registered Nurses in North Carolina: An Analysis of Local and Statewide Effects on Business Activity*** (“Duke Study”).<sup>1</sup> It was funded by the North Carolina Nurses Association and concluded that if nursing scope of practice regulations were relaxed, North Carolina would experience a minimum annual increase in total economic output of \$477 million and a reduction of the expected physician anesthesiologist shortage by at least 85 percent. The American Society of Anesthesiologists (ASA) Department of Health Policy Research (HPR) reviewed the Duke Study and identified substantial flaws that refute the validity of the Study’s conclusions.

The flaws of the Duke Study include:

1. An assumption of a shortage of physician anesthesiologists in North Carolina while ignoring current contrary evidence,
2. Dependence on a single unreliable study’s estimate of the impact of less restrictive regulations on the supply of advanced practice registered nurses (APRNs),
3. Exaggeration of the future reduction of a non-existent physician anesthesiologist shortage, and
4. Exclusion of the greater economic impact of physicians.

## 1. Incorrect assumption of a shortage of physician anesthesiologists in North Carolina

The Duke Study assumes a shortage of physician anesthesiologists based on an estimate from a 2010 report by the RAND Corporation.<sup>2</sup> The 2010 RAND report estimated a physician anesthesiologist shortage in North Carolina of 8.2 percent in 2007. However, RAND released an updated report in 2014 that reverses their prior estimate and concludes there is no shortage of physician anesthesiologists in North Carolina.<sup>3</sup> The more recent report indicates that, at the very least, there is an equilibrium of physician anesthesiologists in North Carolina while at most there is actually a slight surplus. The economic benefits purported in the Duke Study presuppose a shortage of physician anesthesiologists, which does not exist.

The Duke Study also used a projected 2020 shortage of anesthesiologists from RAND’s 2010 report to estimate a per year increase in the (non-existent) shortage of physician anesthesiologists in North Carolina. The Duke Study’s use of a national-level projection to extrapolate workforce supply in a single state introduces substantial measurement error and is without merit.

Further, the Duke Study inflates the calculated physician anesthesiologist shortage by adding a projected increased demand for primary care physicians due to provisions in the Affordable Care Act (ACA). By doing so, the Study assumes that the demand for anesthesia services will increase at the same rate as the demand for primary care services. A 2015 report by IHS Inc. projected a national 2025 primary care physician shortage more than five times larger than that of “other specialists” (includes anesthesiologists along with many non-surgical and non-primary care specialists).<sup>4</sup> Since the ACA focuses on increasing access to primary care services, assuming that those primary care demand growth rates would apply to anesthesia services is inappropriate.

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## 2. Reliance on a single flawed study's estimate of the impact of less restrictive regulations

The Duke Study estimated APRN growth resulting from less restrictive regulations based entirely on results from a 2013 article by Reagan and Salsberry (“R&S”) published in *Nursing Outlook*.<sup>5</sup> Although policy may be influenced by a single study, it is more appropriate that policymakers consider all available evidence. The R&S article is weaker than most available evidence on the topic, as noted by RAND in a 2015 analysis of the nursing workforce in Ohio. RAND did not include the R&S study in its analysis, citing methodological problems in the R&S study and stating that R&S “likely overestimated the impacts of SOP laws.”<sup>6</sup>

HPR reviewed the article upon which the Duke Study relies and identified several critical flaws in the R&S predictive model:

- R&S did not include key variables in the model that are commonly used in most studies of labor supply and demand. Examples include per capita income and wages/payment rates. Those variables have been found to correlate with measures of physician supply and demand.<sup>7,9</sup>
- The R&S model did not sufficiently take into account the inherent differences between the geographic areas studied. There are many observed and unobserved factors that differ from region to region that were omitted from the model, thus clouding the results. For example, R&S did not account for differences in access to and quality of care among the geographic areas. Care quality and access may affect the health care market by influencing the hiring choices of health care employers.
- Variables used in predictive models often influence each other, and not accounting for those influences is problematic for correctly interpreting the results. For example, per-capita physician workforce, the presence of poverty and the percentage of uninsured people all influence each other in multiple ways. R&S did not account for those influences in their model.
- R&S predicts changes over time in the nursing workforce; however, the R&S model used only time-invariant variables. To more accurately determine what influences change, the model should allow the values of the predictive variables to also change over time.

For additional details about the methodological flaws of the R&S article, please refer to this document’s Technical Appendix (email [ask.hpr@asahq.org](mailto:ask.hpr@asahq.org) or visit <https://www.asahq.org/resources/health-policy-research> for access).

## 3. Exaggerated reduction of physician anesthesiologist shortage by using misleading calculations

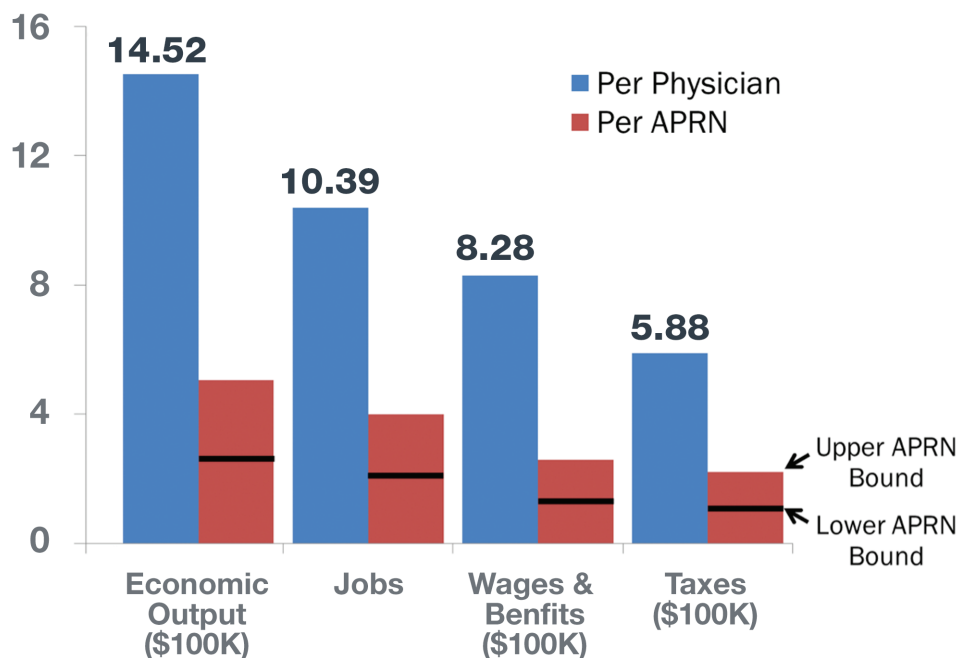
The Duke Study states that the effects of loosening these scope of practice regulations could reduce the shortage of physician anesthesiologists by between 85 and 220 percent (thus possibly eliminating the shortage entirely). However, the Study also states “it is also worth keeping in mind that the figures for anesthesiologists do not account for the current 18.5 percent shortage of CRNAs. If the expanded supply of CRNAs first were used to fill that gap, it would reduce the number available to redress the MDA [physician anesthesiologist] shortage by approximately three quarters. This means that even if the physician shortage figures underlying the upper-bound estimates above are correct, the expected reduction in the shortage would be close to 55 percent rather than 220 percent.”(page III-14) The Duke Study does not provide a corrected lower-bound estimate of shortage reduction, but the upper bound decreased greatly – from 220 percent to 55 percent. To accurately determine the effect of more nurse anesthetists on the supply of anesthesia providers, the effect on nurse anesthetist supply should be calculated first, and then the effect on physician anesthesiologists. The calculations presented in the Duke Study are misleading.

## 4. Ignoring the greater economic impact of physicians

The major implication of the Duke Study is that fewer scope of practice regulations will benefit North Carolina’s economy, but it fails to account for the lost economic impact resulting from the use of a nurse anesthetist rather than a physician anesthesiologist. In 2014, IMS Health conducted an Economic Impact Analysis for the American Medical Association analyzing the effect of physician hires on the economy.<sup>10</sup> As in the Duke Study, the physician impact study used IMPLAN multipliers to examine total economic output, jobs, wages and benefits, and tax revenue. The physician economic impact study also included a state-by-state table, making it easy to compare the results in North Carolina (Figure 1, page 3).

## Figure 1: Economic Impact of Physicians and Nurses in North Carolina Per Provider

From 2014 IMS Health Physician Economic Impact Study and 2015 Duke APRN Economic Impact Study<sup>1,10</sup>



**THE BOTTOM LINE: The Duke Study is considerably flawed and should not be used to inform policy decisions about nursing scope of practice regulations.**

### References:

1. Conover CJ, Richards R. Economic Benefits of Less Restrictive Regulation of Advanced Practice Registered Nurses in North Carolina: An Analysis of Local and Statewide Effects on Business Activity. Duke University, Center for Health Policy and Inequalities Research 2015. Accessed from [http://chpir.org/\\_homepage-content/completed-projects/economic-benefits-of-less-restrictive-regulation-of-advanced-practice-registered-nurses-in-north-carolina/](http://chpir.org/_homepage-content/completed-projects/economic-benefits-of-less-restrictive-regulation-of-advanced-practice-registered-nurses-in-north-carolina/) on September 23, 2015.
2. Daugherty L, Fonseca R, Kumar KB, Michaud PC. An analysis of the labor markets for anesthesiology. RAND Corporation 2010. Accessed from [http://www.rand.org/pubs/technical\\_reports/TR688](http://www.rand.org/pubs/technical_reports/TR688) on September 23, 2015.
3. Baird M, Daugherty L, Kumar KB, Arifkhanova A. The anesthesiologist workforce in 2013: A final briefing to the American Society of Anesthesiologists. RAND Corporation 2014. Accessed from [http://www.rand.org/pubs/research\\_reports/RR650.html](http://www.rand.org/pubs/research_reports/RR650.html) on September 23, 2015.
4. Dall T, West T, Chakrabarti R, Iacobucci W. The complexities of physician supply and demand: Projections from 2013 to 2025. IHS Inc. 2015. Accessed from <https://www.aamc.org/download/426242/data/ihsreportdownload.pdf> on September 23, 2015.
5. Reagan PB, Salsberry PJ. The effects of state-level scope-of-practice regulations on the number and growth of nurse practitioners. *Nursing Outlook*. 2013;61(6):392-9.
6. Martsolf GR, Auerbach DI, Arifkhanova A. The impact of full practice authority for nurse practitioners and other advanced practice registered nurses in Ohio. RAND Corporation 2015. Accessed from [http://www.rand.org/pubs/research\\_reports/RR848.html](http://www.rand.org/pubs/research_reports/RR848.html) on September 23, 2015.
7. Cooper RA, Getzen TE, Laud P. Economic expansion is a major determinant of physician supply and utilization. *Health Services Research*. 2003;38(2):675-96.
8. McRae I, Butler JRG. Supply and demand in physician markets: A panel data analysis of GP services in Australia. *Int J Health Care Finance Econ*. 2014;14:269-87.
9. McCurdy TE. An empirical model of labor supply in a life cycle setting. National Bureau of Economic Research 1980; Working Paper No. 421.
10. IMS Health: The national economic impact of physicians. IMS Health 2014. Accessed from <http://www.ama-assn.org/ama/pub/advocacy/state-advocacy-arc/economic-impact-study.page> on September 23, 2015.