The Value of Full Practice Authority for Pennsylvania's Nurse Practitioners

Technical Appendix

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INTRODUCTION

The American health care market simultaneously faces two precarious trends: rising costs and a growing shortage of primary care providers. As more medical school graduates opt for careers as specialists instead of as primary care providers (PCP),[1] the physician supply has stalled. But an aging population and millions of newly-insured Affordable Care Act beneficiaries have caused demand growth to speed up, and the field faces a 20,400-physician shortage by 2020.[2] This growing primary care shortage comes as health care prices grow faster than wages or inflation.[3]

As these cost and supply problems intensify, nurse practitioners (NP) may be critical to meeting growing primary care needs at affordable costs. Nurse practitioners, a subset of advanced practice registered nurses (APRN),[4] hold postgraduate nursing degrees and are trained to diagnose and treat illnesses, order and interpret tests, and focus on health promotion, disease prevention and health education and counseling. The prevalence and importance of NPs began with the development of nurse practitioner programs amid 1960s health care expansion.[5] Today, nurse practitioners fill a variety of critical roles, including many traditionally associated with physicians.[6] Importantly, research on both patient satisfaction and outcomes shows that nurse practitioners provide comparable or superior quality to that of physicians.[7]

In many states, however, regulatory barriers stand in the way of expanding NPs' role as primary care providers. These barriers include scope of practice laws that limit NPs' ability to work based on mandatory collaborative agreement contracts with physicians or physician supervision. Additionally, these barriers yield fragmented medical reimbursement regimes that stifle NPs' ability to be reimbursed as PCPs.

A growing chorus of key stakeholders has called for updating these regulatory regimes. A 2010 Institute of Medicine (IOM) report recommended that states reform scope-of-practice regulations and provide for direct NP reimbursement in order to allow nurses help meet the growing primary care shortage.[8] The National Governors Association has reported that nurse practitioners have been shown to provide comparable quality care to physicians and recommended that states consider easing scope-of-practice restrictions and modifying reimbursement policies to encourage greater NP involvement in primary care.[9] The Federal Trade Commission has recommended state legislators consider that scope-of-practice laws may deprive consumers of quality and cost benefits by placing unnecessary or overbroad competition restrictions on the primary care market.[10]

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1 For a discussion of the dwindling number of medical students choosing careers in primary care, see Mark D. Schwartz, et al., *Changes in Medical Students' Views of Internal Medicine Careers*, 171 Archives of Internal Med. 744, 744–46 (2011); Colin West & Denise Dupras, *General Medicine vs. Subspecialty Career Plans Among Internal Medicine Residents*, 301 JAMA 2241, 2242–44 (2012).

2 Dep't of Health & Human Serv., Health Res. & Serv. Admin., Projecting the Supply and Demand for Primary Care Practitioners Through 2020 26 (2013).

3 Andrea M. Sisko, et al., *National Health Expenditure Projections, 2013–23: Faster Growth Expected With Expanded Coverage And Improving Economy*, 33 Health Affairs 1841, 1841–43 (Oct. 2014).

4 Other fields of advanced practice nurses include Clinical Nurse Specialists (CNS), Certified Registered Nurse Anesthetists (CRNAs), and Certified Nurse Midwives (CNMs).

5 For a concise overview of the historical development of Nurse Practitioners, see Kathleen Masters, Role Development in Professional Nursing 39–40 (2014).

6 For a more detailed overview of different segments of the nursing profession, see Inst. of Med., The Future of Nursing: Leading Change, Advancing Health 37–44 (2011), *available at* http://www.nap.edu/catalog/12956/the-future-of-nursing-leading-change-advancing-health.

7 *See infra* Metric #2: Measuring the Effect on Quality.

8 *See id.* at 10.

9 *See* Nat'l Governors Assoc., The Role of Nurse Practitioners in Meeting Increasing Demand for Primary Care 1, 8 (Dec. 20, 2012), *available at* http://www.nga.org/files/live/sites/NGA/files/pdf/1212NursePractitionersPaper.pdf.

10 *See* Federal Trade Commission, Policy Perspectives: Competition Advocacy and the Regulation of Advanced Practice Nurse Practitioners (Mar. 2014), *available at* https://www.ftc.gov/reports/policy-perspectives-competition-regulation-advanced-practice-nurses.

In May 2015, Maryland joined 20 other states and the District of Columbia in allowing nurse practitioners to practice independently, the seventh state in the last four years.[11] Pennsylvania remains among the states that restrict NPs' ability to practice and compete in the primary care marketplace by requiring NPs to practice under physician collaboration agreements,[12] prohibiting NPs from prescribing certain medications without physician collaboration,[13] and failing to provide for direct third-party reimbursement.[14] Policymakers are currently considering legislation that would grant NPs Full Practice Authority. This report surveys applicable research to assess the impact for Pennsylvanians that reform would have on access, quality, and cost of health care. That research suggests that Full Practice Authority could benefit Pennsylvanians by increasing access to comparable or higher quality health care and it could lower costs in the process. Reform would save Pennsylvanians at least $6.4 billion over a decade, increase the statewide nurse practitioner workforce by 13%, and improve the overall quality of primary care.

11 Act Concerning Certified Nurse Practitioners – Authority to Practice, 435 Md. Laws ch. 435 (2015).
12 *See* 63 P.S. § 218.2(c.1) for a list of authorized NP diagnoses and treatments in Pennsylvania.
13 *See* 63 P.S. § 218.2(b) for the statutory explanation of the NP's prescriptive authority in Pennsylvania.
14 *See* Pa. Coal. of Nurse Practitioners, Improving Access to Healthcare in Pennsylvania 5 (Jan. 2011), *available at* www.pacnp.org/resource/resmgr/White_Paper_Final_Edition_31.pdf.

METHODOLOGY

This technical appendix explains the methodology behind our findings on how Full Practice Authority for CRNPs would affect consumers of primary care in Pennsylvania.

Because there were no studies yielding Pennsylvania-specific results, we observed the results of studies on sets of states that were composed of both Pennsylvania and states with similar practice-restrictions to Pennsylvania.[15] The studies compared these states to states without such restrictions, considering restrictions' effects on one of three metrics: access, quality, and cost of health care. By applying these studies to Pennsylvania's demographic data, we yielded findings on how removal of the collaboration requirement would likely affect access, quality, and costs in Pennsylvania specifically.

We note here that these estimates are not intended as precise projections of exactly how changes would impact access, quality, and cost in Pennsylvania. Rather we surveyed the existing studies to find the best estimates of reform's impact and applied those studies' findings to available health care data for Pennsylvania. In doing so we endeavored to be conservative, and the benefits from reform for each measure could be even greater than this paper estimates.

15 These studies focused primarily on diagnosing/treating authority and prescriptive authority—the first two components of Full Practice Authority. But because these first two components are highly associated with the third component—direct payment for services—we view this third component as factoring into the results of these studies. *See* Tracy Yee et al., *Primary Care Workforce Shortages: Nurse Practitioner Scope-of-Practice Laws and Payment Policies*, Nat'l Inst. for Healthcare Reform: Research Brief No. 13 (Feb 2013).

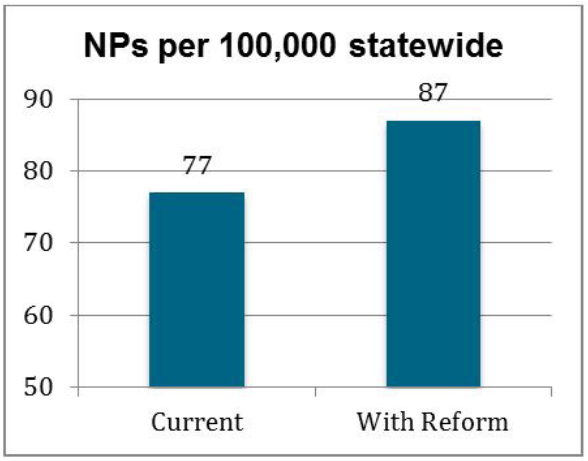
METRIC #1: MEASURING THE EFFECT ON ACCESS

Reform would result in more NPs practicing. Pennsylvanians would have more options, and more convenient times and locations for primary care.

To estimate Full Practice Authority's effect on primary care access in Pennsylvania, we relied on a study by Patricia Regan and Pamela Salsberry.[16] They began by grouping states as "Most Restrictions," "Some Restrictions," or "No Restrictions" based on 2001 scope-of-practice laws. The study evaluated each group's NP-concentration growth between 2001 and 2008 by performing a regression analysis using the change in number of NPs from 2001 to 2008 as the dependent variable, with scope-of-practice regulations, census regions, number of primary care physicians, number of specialty care physicians, poverty level, population density, health coverage rates, and share of the population over age 65 as independent variables.[17] The results showed that by 2008, having restrictions reduced NPs in a health service area (HSA) by about 10 NPs per 100,000 people.[18]

Pennsylvania requires a collaboration practice agreement (CPA) for both diagnosing/treating and prescribing authority, placing it in the "Most Restrictions" group.[19] Assuming Reagan and Salsberry's 10-NP-per-100,000 increase by 2015,[20] previous repeal of the state's CPA requirement would put the state's NP-concentration at about 87 NPs per 100,000 instead of 77.[21] This reflects a 20% increase in growth rate between 2008 and 2015.[22] Figure 1 details the NP-concentration increase. Figure 2 details the growth-rate increase.

Figure 1



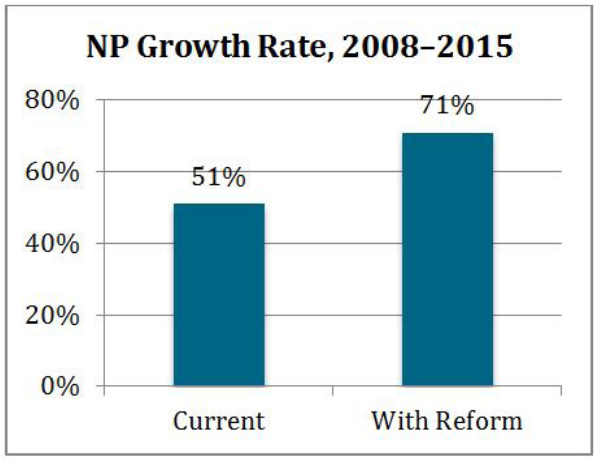


Figure 2

16 Patricia Reagan & Pamela Salsberry, *The effects of state-level scope-of-practice regulations on the number and growth of nurse practitioners*, 61 Nursing Outlook 392 (2013).
17 *See id.* at 397.
18 *Id.* This is a conservative estimate, for the values in the study varied between 10 and 11 NPs per 100,000. Notably, the study found no significant difference between the "Most Restrictions" and "Some Restrictions" groups.
19 *Id.* at 395.
20 While the Reagan and Salsberry study was cross-sectional and not designed as a time-series analysis, at least two other studies have used the study to project increases over time for an individual state. *See* Christopher J. Conover et al., Economic Benefits of Less Restrictive Regulation of Advanced Practice Registered Nurses in North Carolina (Feb. 2015) (applying the Reagan and Salsberry study to North Carolina and projecting hypothetical increases for year 2012); Micah Weinberg & Patrick Kellerman, Full Practice Authority for Nurse Practitioners Increases Access and Controls Cost: Technical Appendix (Apr. 2014) (applying the Reagan and Salsberry study to California and projecting hypothetical increases for year 2011).
21 Current NP-concentration was found by dividing the 9,906 NPs currently in the state, Pa. State Board of Nursing, by the current population of 12.79 million, U. S. Census Bureau.
22 Growth rates of 51% and 73% were calculated by observing the percent change from 51 NPs to 77 and 88 NPs, respectively. The period 2008–2015 was chosen to reflect the same length of time as the 2001–2008 period.

HSA-level impact. Each HSA in Pennsylvania has a different concentration of NPs. Therefore, we determined NP-concentrations within HSAs if they grew proportionally to reflect a 10 NP-per-100,000 increase statewide.[23]

If the statewide NP concentration increased from 77 to 87 NPs per 100,000, each HSA's concentration would increase by 13%. Table 1 illustrates this increase.[24]

Table 1

Nurse Practitioners per 100,000 Residents by HSA in Pennsylvania

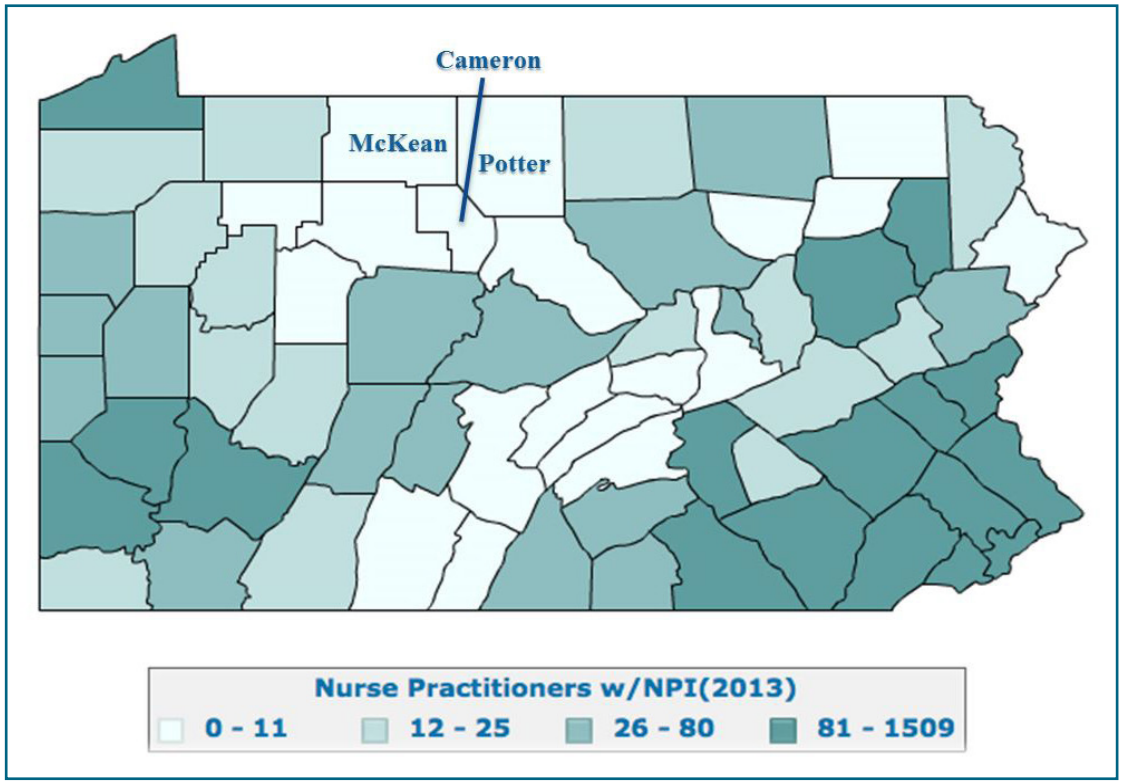
HSA #	Counties	Current	Reform
42	Allegheny, Armstrong, Beaver, Butler, Westmoreland, Indiana	83	93
139	Berks	53	60
858	Bradford, Sullivan, Susquehanna	95	107
57	Bedford, Blair, Cambria, Somerset	54	61
26	Centre, Clearfield, Jefferson	47	53
117	Crawford	45	51
43	Cumberland, Dauphin, Lebanon, Perry	73	83
125	Elk	57	65
880	Erie, Warren	77	87
872	Franklin, Fulton	37	42
47	Lackawanna, Wayne	70	79
140	Lancaster	59	67
129	Lawrence	48	54
84	Lehigh, Carbon, Monroe, Northampton	73	83
78	Luzerne, Columbia, Wyoming	41	47
44	Lycoming, Clinton	112	126
864	McKean, Cameron, Potter	40	45
918	Mercer	51	58
110	Mifflin, Huntingdon, Juniata	24	27
28	Philadelphia, Bucks, Chester, Montgomery, Delaware	104	118
876	Pike	12	13
8	Schuylkill, Montour, Snyder, Northumberland, Union	54	61
128	Tioga	70	79
52	Venango, Clarion, Forest	57	65
100	Washington, Fayette, Greene	57	65
868	York, Adams	59	67

23 Although Reagan and Salsberry averaged across all data-reporting HSAs nationwide to derive the 10 NP-increase, the statewide concentration is used as a benchmark instead of the HSA-average within Pennsylvania. This is for two reasons. First, it ensures the HSAs' increases are consistent with the statewide increase reported *supra.* This breakdown by HSA is meant to be illustrative, and does not claim to be based on anything other than the projected statewide concentration increase and an assumption of proportionality. Second, using the statewide concentration is more conservative. The HSA-average is 60 NPs per 100,000 and the statewide concentration is 77 NPs per 100,000. Adding 10 NPs to the statewide concentration thus yields a lesser, more conservative percent-change estimate.

24 Specific HSAs were determined pursuant to data by The National Cancer Institute's Surveillance, Epidemiology, and End Results Program. *Health Service Areas (HSAs)*, Surveillance, Epidemiology, and End Results Program, Nat'l Cancer Inst., http://seer.cancer.gov/seerstat/variables/countyattribs/hsa.html#download; *see also infra* p. 16 for more information on HSAs. Number of NPs per HSA in 2013 was determined by summing the number of NPs per county in 2013 within the HSA. The number of NPs per county in 2013 was determined by extrapolating from the number of NPs with NPI per county, so that they summed to the total NPs (with and without NPI) statewide. *See Health Workforce*, Dep't of Health & Human Serv., Health Res. & Serv. Admin. (2013), http://ahrf.hrsa.gov/arfdashboard/ArfGeo.aspx.

Example: Cameron, McKean, and Potter Counties. To get a glimpse of the current distribution of NPs with National Provider Identification (NPI) by county, see Figure 3, below.[25] Other studies have used the distribution of NPs with NPI general proxy for distribution of all NPs.[26]

Figure 3



Many of the counties that have the fewest absolute numbers of NPs belong to HSAs that also have low concentrations of NPs. For example, HSA #864 (McKean, Cameron, and Potter counties) is among the HSAs with the fewest NPs, with only about 27 total NPs. It also only has about half the statewide NP-concentration, with 40 NPs per 100,000 as opposed to 77 NPs per 100,000 statewide. Access to primary care is particularly challenging in these areas of Pennsylvania.

Fortunately, the increased access resulting from Full Practice Authority would provide tangible benefits for health care consumers in Pennsylvania. Not only would consumers have more provider choices, but they would enjoy the unique benefits NPs offer. NPs tend to work at more convenient times and at more convenient locations that are often difficult for more traditional providers like physicians to offer.[27] For example, NPs often work in retail-based clinics and walk-in clinics, among other convenient forums, whereas physicians generally do not.[28] Thus, reform would pass on Full Practice Authority's positive access impact to health care consumers in Pennsylvania, particularly those in underserved areas.

25 Map provided by the Health Resources and Services Administration (HRSA). *Id.*
26 *See* Weinberg & Kellerman, *supra* note 20, at 16 (explaining the use of NPI statistics as a proxy for overall NPs).
27 Morris M. Kleiner et al., *Relaxing Occupational Licensing Requirements: Analyzing Wages and Prices for a Medical Service* 14 (Nat'l Bureau of Econ. Research Working Paper No. 19906, 2014), *available at* http://www.nber.org/papers/w19906.
28 Id.

METRIC #2: MEASURING THE EFFECT ON QUALITY

Reform would increase the statewide quality of primary care, including greater patient satisfaction with visits and better health outcomes.

In assessing reform's effect on quality, studies yield two key takeaways: (1) primary care from nurse practitioners is of comparable or superior quality to care by physicians, and (2) state's with Full Practice Authority enjoy overall higher quality primary care.

Quality of NP Care. Research shows that care provided by NPs is of equal or superior quality to that of physicians. For example, studies show patients report equal[29] or greater[30] levels of satisfaction with NP-provided care, and that NPs spend equal[31] or greater[32] amounts of time with patients during visits. Studies have also shown that patients of NPs are better able to achieve weight loss[33] and lower blood pressure,[34] and self-reported health statuses were higher among patients of NPs.[35]

Quality of Overall Primary Care. Research also shows that reform increases a state's overall quality of primary care. Kleiner et al. investigated whether easing scope-of-practice restrictions correlated with rises in adverse medical conditions, using infant mortality and malpractice insurance rates as proxies. The study found reform does not correlate with a rise in either one.[36]

Additional research indicates that easing scope-of-practice regulations increases the overall quality of care based on subjective and objective measurements. Traczynski and Udalova assessed quality of overall primary care visits using patient reports of whether primary care providers spent enough time with them, whether patients felt providers listened to their concerns, and whether providers explained things in an understandable way. States without restrictive NP regulations scored better on all three.[37] Essentially, easing scope-of-practice laws frees physicians and nurse practitioners from spending burdensome hours on administrative requirements and allows both to spend more time with patients.[38]

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29 Richard S. Hooker et al., *Patient Satisfaction with Physician Assistant, Nurse Practitioner, and Physician Care: A National Survey of Medicare Beneficiaries*, 12 JCOM 2 (Feb. 2005), available at http://www.turner-white.com/pdf/jcom_feb05_survey.pdf.

30 Bryant Furlow, *Nurse practitioners outscore physicians in patient satisfaction survey*, ClinicalAdvisor.com (Jun. 24, 2011), http://www.clinicaladvisor.com/nurse-practitioners-outscore-physicians-in-patient-satisfaction-survey/article/206090/ ("For 15 of 18 core questions, the difference was statistically significant, all in favor of NPs[.]"); see also P. Venning et al., *Randomised Controlled Trial Comparing Cost Effectiveness of General Practitioners and Nurse Practitioners in Primary Care*, 320 British Med. J. 1048 (2000), *available at* http://www.bmj.com/content/320/7241/1048; Miranda G. H. Laurant et al., *An Overview of Patients' Preference for, and Satisfaction with, Care Provided by General Practitioners and Nurse Practitioners*, 17 J. Clinical Nursing 2690 (2008), *available at* http://onlinelibrary.wiley.com/doi/10.1111/j.1365- 2702.2008.02288.x/abstract.

31 A. Guzik et al., *Patient Satisfaction with NP and Physician Services in the Occupational Health Setting*, 57 Am. Assoc. Occupational Health Nurses J. 191 (2009).

32 *See* Venning, *supra* note 30, at 1048–53; D. Litaker et al., *Physician-Nurse Practitioner Teams in Chronic Disease Management: The Impact on Costs, Clinical Effectiveness, and Patients' Perception of Care*, 17 J. Interprofessional Care 223 (2003); A. T. Dierick-van Daele et al., *Nurse Practitioners Substituting for General Practitioners: Randomized Controlled Trial*, 65 J. Adv. Nursing 391 (2009).

33 N. C. ter Bogt et al., "*Preventing Weight Gain: One-Year Results of a Randomized Lifestyle Intervention*," 37 Am. J. Preventive Med. 270 (2009).

34 Mary O. Mundinger et al., *Primary Care Outcomes in Patients Treated by Nurse Practitioners or Physicians: A Randomized Trial*, 283 JAMA 59 (2000); Mary O. Mundinger et al., *Primary Care Outcomes in Patients Treated by Nurse Practitioners or Physicians: Two-Year Follow-Up*, 61 Med. Care Research & Rev. 332 (2004); W. L. Wright et al., *Hypertension Treatment and Control Within an Independent NP Setting*, 17 Am. J. Managed Care 58–65 (2011); P. C. Conlon, *Diabetes Outcomes In Primary Care: Evaluation Of The Diabetes Nurse Practitioner Compared to the Physician*, 20 Primary Health Care 26 (2010).

35 Dierick-van Daele et al., *supra* note 32.

36 *Id.* at 28–29.

37 Jeffrey Traczynski and Victoria Udalova, *Nurse Practitioner Independence, Health Care Utilization, and Health Outcomes* (Univ. of Haw. Working Paper, 2013).

38 *Id.* at 29. Traczynski and Udalova found that reduced administrative burden may explain reports of higher overall care in states without scope-of-practice restrictions. *Id.* After states grant NP independence, physicians actually spend more time on patient care without a corresponding increase in total hours all medical activities, indicating that physicians substitute additional care hours for time spent on collaboration and supervision requirements. *Id.*

Traczynski and Udalova also showed that in states that remove NP restrictions, annual checkups go up and avoidable emergency room visits go down.

Annual checkups. Traczynski and Udalova designated those states requiring supervisory or collaborative control over any aspect of NP practice as "dependent" and those without restrictions as "independent."[39] Controlling for age, race, health insurance status, ethnicity, gender, urban residency, employment status, marital status, education, and income, the study found that 66% of adults got yearly checkups,[40] but 70% got yearly checkups during 1–2 years after reform, and 72.8% got yearly checkups during year 10 after reform.[41]

Pennsylvania was contained in the "dependent" category for this study by virtue of its restrictions on both practice and prescriptive authority. Data for Pennsylvania's particular checkup-rate is prohibitively difficult to obtain for the purposes of this piece, but a comparable increase in annual adult checkups would mean more than half-a-million additional Pennsylvanians getting yearly checkups by year 10.[42]

Emergency room visits. Traczynski and Udalova also found a significant long-term reduction in avoidable emergency room visits after granting NP independence.[43] The study investigated emergency room visits for ambulatory care sensitive (ACS) conditions, which are "diagnoses for which timely and effective outpatient care can help . . . by either preventing the onset of an illness or condition, controlling an acute episodic illness or condition, or managing a chronic disease or condition."[44] Data showed a 21.7% decrease in ACS emergency room visits, [45] which is 0.25 fewer emergency room visits per ACS condition per year.[46]

In all, Full Practice Authority is correlated with healthier citizens, which may be explained by the high-quality care NPs deliver but also by the reduced burden for both physicians and NPs when they are freed from the administration requirements that come with collaboration agreements.

39 *Id.* at 6.
40 *Id.* at 14.
41 *Id.* at 13.
42 This reflects annual checkup rates for similarly restricted states applied to Pennsylvania, which yield 6.27 million Pennsylvania checkups today and 7.09 million after reform. Actual data for Pennsylvania likely differs, but this is a helpful estimate based on similarly-situated states.
43 *Id.*
44 *Id.* (quoting Billings et al., *Impact of Socioeconomic Status on Hospital Use in New York City*, 12 Health Affairs 162, 163 (1993) (internal quotation marks omitted).
45 *Id.*
46 *Id.* (explaining this translation as based on the mean number of emergency room visits in a year for conditions with non-zero visits being 1.17 in their sample).

METRIC #3: MEASURING THE EFFECT ON COST

NPs provide quality care at lower costs. Reducing barriers to effective NP practice could save Pennsylvanians more than $6.4 billion over ten years.

To estimate how Full Practice Authority would affect health care costs in Pennsylvania, we reviewed a variety of studies that estimated cost savings from granting NP independence. We began by observing a North Carolina study by Conover et al.[47] That study estimated savings in North Carolina between 0.63% and 6.2% of total health care expenditures over ten years.[48] The 0.63% figure was drawn from a RAND Corporation study on the effects of NP independence in Massachusetts.[49] The 6.2% figure was drawn from a Perryman Group study estimating reform's impact in Texas.[50]

Conover et al. predicted that North Carolina's total health care savings would amount to more than the RAND Corporation figure of 0.63% of total health expenditures, yielding savings of more than $433 million per year (based total health expenditures of on $66.8 billion per year). Conover based this conclusion on a number of factors:

The RAND figure represented phased-in savings over five years, which may be slower than in North Carolina (without phasing in, the savings would be 0.73%).

- The RAND figure entirely excludes medical savings such as lower hospitalizations.
- The RAND figure only includes potential savings from NPs, not from CNMs, CRNAs, or CNSs.
- North Carolina regulations are more restrictive than in Massachusetts.[51]

Conover concluded that North Carolina's savings would probably fall within the 0.63%–6.2% range. However, he did not rule out the possibility that North Carolina could save even more than the Perryman Group figure of 6.2%, meaning savings could surpass $4.3 billion per year.[52]

Whether this same range applied to Pennsylvania required first looking at how Pennsylvania's NP-restrictions compared to those in North Carolina, Massachusetts, and Texas. Those three states have a "supervisory" regulatory structure, while Pennsylvania has a "collaborative" regulatory structure. This, however, was not a meaningful difference for studies on access and quality. Both the Reagan and Salsberry study[53] and the Kleiner et al. study[54] categorized Pennsylvania with North Carolina, Massachusetts, and Texas. This was because those studies' categories did not differ on whether the structure was "collaborative" or "supervisory," but on whether the regimes restricted diagnostic, treatment, and prescriptive authority at all. Effects were observed to be dependent on the amount of authority restricted, not on the nature of such restrictions. Because the collaborative/supervisory distinction did not matter for access and quality, and because these are inputs affecting cost, it is unlikely the collaborative/supervisory distinction would matter for cost.

Additionally, Conover's first two factors for why 0.63% is insufficient apply to Pennsylvania: the figure phases in savings over five years, and it ignores fewer hospitalizations.

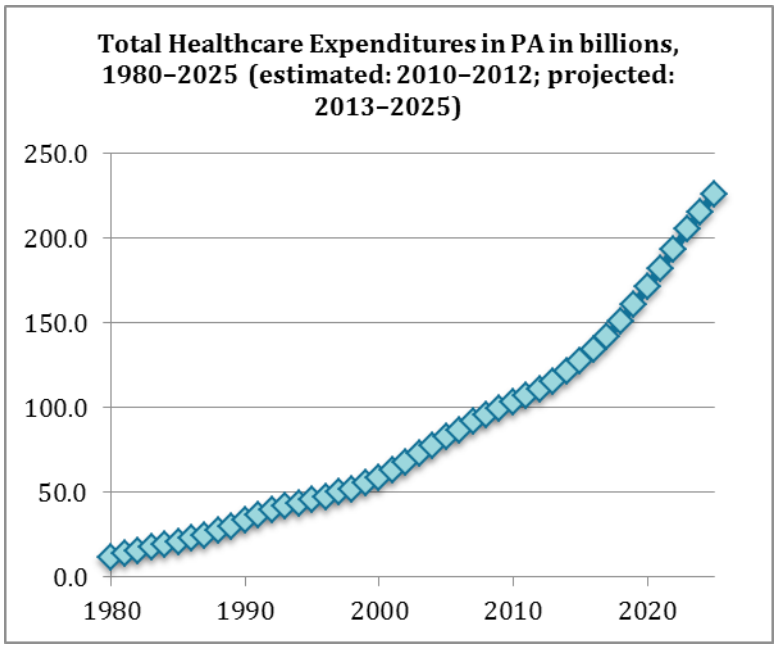
47 Christopher J. Conover et al., Economic Benefits of Less Restrictive Regulation of Advanced Practice Registered Nurses in North Carolina (Feb. 2015).
48 *Id.* at II-6, III-12, IV-5.
49 *Id.* at II-6; *see also* Christine E. Eibner et al., Controlling Health Care Spending in Massachusetts: An Analysis of Options 103 (Aug. 2009).
50 *Id.* at III-12; *see also* Perryman Group, The Economic Benefits of More Fully Utilizing Advanced Practice Registered Nurses in Texas 13 (May 2012), *available at* http://c.ymcdn.com/sites/flanp.site-ym.com/resource/resmgr/articles_and_research/Perryman-APRN-Ultilization-E.pdf.
51 *Id.* at IV-5.
52 *Id.* at IV-9–IV-10. Conover et al. refrained from giving an exact estimate.
53 Reagan and Salsberry, *supra* note 16.
54 Kleiner et al., *supra* note 27.

Where does Pennsylvania fit? For these reasons, savings in Pennsylvania are likely in the 0.63%–6.2% range. But we made a number of adjustments to find the most conservative savings estimate. We adjusted RAND's 0.63% figure to fit better with Pennsylvania. RAND based its figure on Medical Expenditure Panel Survey (MEPS) data that indicated NP care in Massachusetts was 35 percent less costly than visits to physicians for six acute conditions (cough, throat symptoms, fever, earache, skin rash, and nasal congestion).[55] But the national average is a 20 percent savings.[56] Accessing MEPS data for Pennsylvania is prohibitively difficult for the purposes of this piece, so we used the national rate as a proxy for the Pennsylvania rate. The 0.63% total savings was thus scaled down to 0.36% to reflect the decrease from 35% to 20% in acute-condition savings.

Pennsylvania health care expenditures. After deriving a savings rate of 0.36% on total expenditures over ten years, we estimated expenditures. Pennsylvanians spent roughly $100 billion on health care in 2009,[57] which was the last year Pennsylvania-specific data was available. Pennsylvania's health care spending has historically grown at a faster rate than the national average. But conservatively applying projected national growth rates to Pennsylvania's numbers, Pennsylvanians are projected to spend $1.782 trillion on health care in the next ten years.

Figure 4 shows Pennsylvania's projected health care expenditures through 2025.[58]

Figure 4



55 Eibner, *supra* note 49, at 103.
56 *Id.* at 105.
57 *See* Center for Medicare & Medicaid Studies, *Health expenditures by state of residence: Summary Tables, 1991-2009* (Dec. 2011), *available at* http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/res-tables.pdf.
58 CMS provided Pennsylvania-specific data up to 2009. *Id.* Growth was estimated for 2010–2013 using CMS national data, growth was projected for 2014–2023 using CMS national projected data, growth for 2024–2025 was projected using a conservative 5% growth rate (below the CMS-estimated 5.7%). *See* CMS.gov, http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html.

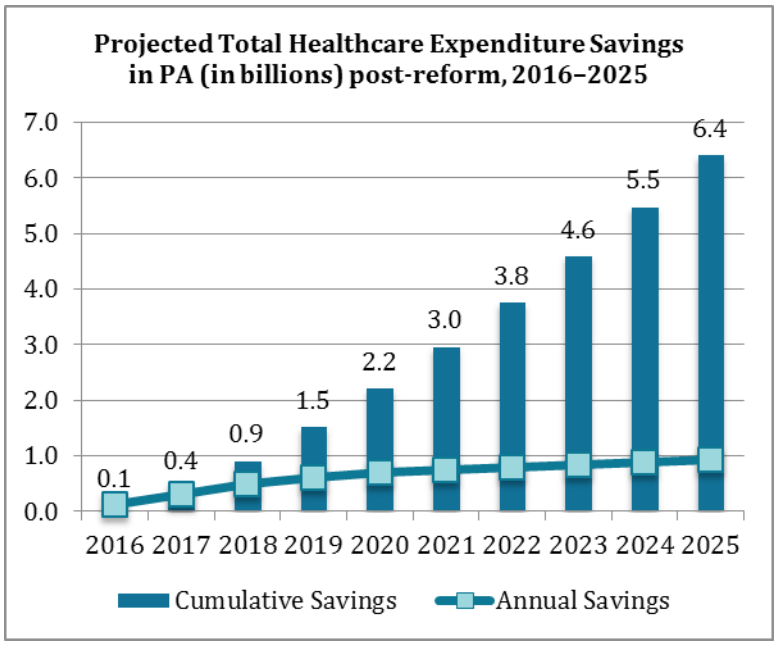
Estimated savings. Even using conservative growth rates and a conservative savings figure of 0.36% over ten years, granting Full Practice Authority would lead to savings of $6.4 billion over the next ten years. Figure 5, below, details these savings.[59]

Ultimately, the point of this piece is not to find an exact savings number, but to apply the existing work of other experts to find what the health care market would look like if Pennsylvania removes its scope-of-practice restrictions. Again, the 0.36% savings rate and the $6.4 billion savings it produces are conservative. There are examples of savings (other than from the six acute conditions) that would push the ten-year savings figure beyond $6.4 billion.

Additional savings on general medical exams and well-baby visits. The 0.63% RAND figure we used as a basis for saving 0.36% did not include potential savings on general medical examinations or well-baby visits.[60] If patients save on general medical examinations and well-baby visits, RAND predicted saving 1.25% of total expenditures. Similarly adjusting this rate yields a 0.71% savings rate for Pennsylvania, totaling $12.7 billion over ten years.

Additional savings and estimates. Other savings not incorporated into the RAND estimate are likely as well, meaning overall savings could be even higher. Patients would likely see decreased travel costs, fewer avoidable emergency room visits, and long-term cost savings from more regular primary care. Hospitals and clinics would likely see less expensive overhead and fewer administrative costs.

Figure 5



59 These figures reflect a "phasing-in" period of five years. After one year, 0.09% of expenditures are saved; after five years, 0.30% of expenditures are saved; after ten years, 0.63% of expenditures are saved. *See* Eibner, *supra* note 49, at 104 (citing 0.15% after one year, 0.52% after five years, and 0.63% after ten years in Massachusetts).

60 *Id.* at 103.

CONCLUSION

Existing studies suggest that granting Pennsylvania's nurse practitioners Full Practice Authority could potentially benefit Pennsylvanians by increasing access to comparable or better health care at lower costs. Research demonstrates reform would save Pennsylvanians at least $6.4 billion in the next ten years, increase the number of NPs statewide by 13%, and improve the statewide quality of primary care.

RESOURCES

AREA HEALTH RESOURCE FILE

The primary source of data for the "Access" portion of the analysis was the 2012–2013 Area Health Resource File (AHRF), issued by the Department of Health and Human Services. The AHRF contains county-level data for the entire nation pooled from multiple sources, both public and private. In general, county-level codes and classifications and population characteristics are publicly provided by federal agencies. The majority of provider counts, expenditure measures and utilization rates are provided by private organizations such as the American Medical Association (AMA) and American Hospital Association (AHA).

HEALTH SERVICE AREAS

Health Service Areas were created under the U.S. National Health Planning and Resource Development Act of 1974 and are defined by the National Center for Health Statistics. They are made up of contiguous groups of counties that are used to better understand service areas for hospital-based care, which generally do not fall within an individual county. For this analysis, modified HSAs were used as defined by the National Cancer Institute. These HSAs have been modified in such a way so that no HSA crosses state lines.

NUMBER OF NURSE PRACTITIONERS BY COUNTY

Essential to the analysis is the number of NPs in each county. The AHRF includes a count of NPs in each county provided by CMS. However, this count only includes those with a National Provider Identifier (NPI). The NPI system was developed to simplify administrative and financial transactions under the Health Insurance Portability and Accountability Act (HIPAA). Any NP billing Medicare or Medicaid directly—but not necessarily independently—for their services must have a unique NPI. Many NPs also bill through a physician's NPI, known as providing care "incident to" the physician's care, and therefore do not have an NPI.

To estimate the number of NPs per county it was necessary to use both the number of NPs per county as provided by CMS, and the total number of NPs as reported by the Pennsylvania State Board of Nursing data. County totals provided by CMS were then scaled up so that the total number of NPs in the state equaled the number provided by the Pennsylvania Coalition. The number of NPs with NPI represented 56.5% of all NPs in Pennsylvania. Therefore, we feel this method is sufficiently robust. However, there is the possibility that the distribution of NPs throughout the state is affected by selection bias.