

Improving Efficiency in the Health-Care System: Removing Anticompetitive Barriers for Advanced Practice Registered Nurses and Physician Assistants

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BROOKINGS

Abstract

In an era characterized by high levels of U.S. health-care spending and inadequate health outcomes, it is vital for policymakers to explore opportunities for enhancing productivity. Important productivity gains could be achieved by altering the mix of labor inputs used in the health-care sector. However, the potential for these gains is sharply limited by anticompetitive policy barriers in the form of restrictive scope of practice (SOP) laws imposed on physician assistants and advanced practice registered nurses. In this proposal we discuss evidence that shows how these laws restrict competition, generate administrative burdens, and contribute to increased health-care costs, all while having no discernable health benefits. We discuss how moving to a fully authorized SOP for these providers can free up labor markets, allowing for a more-cost-effective and more-productive use of practitioners, while potentially fostering innovation and still protecting public health. A key outcome would be improved access to care as gains in productivity increases capacity in the health-care system. We conclude with a discussion of state and federal policies that either remove these barriers directly or encourage state legislative bodies to do so.

Table of Contents

ABSTRACT	2
CHAPTER 1. INTRODUCTION	5
CHAPTER 2. THE CHALLENGE	7
CHAPTER 3. THE PROPOSAL	15
CHAPTER 4. QUESTIONS AND CONCERNS	19
CHAPTER 5. CONCLUSION	21
APPENDIX A. SCOPE OF PRACTICE FOR NONPHYSICIAN HEALTH-CARE PROVIDERS	22
APPENDIX B. SUMMARY OF RECENT STUDIES ON SCOPE OF PRACTICE LAWS	25
AUTHORS AND ACKNOWLEDGMENTS	28
ENDNOTES	29
REFERENCES	30

Chapter 1. Introduction

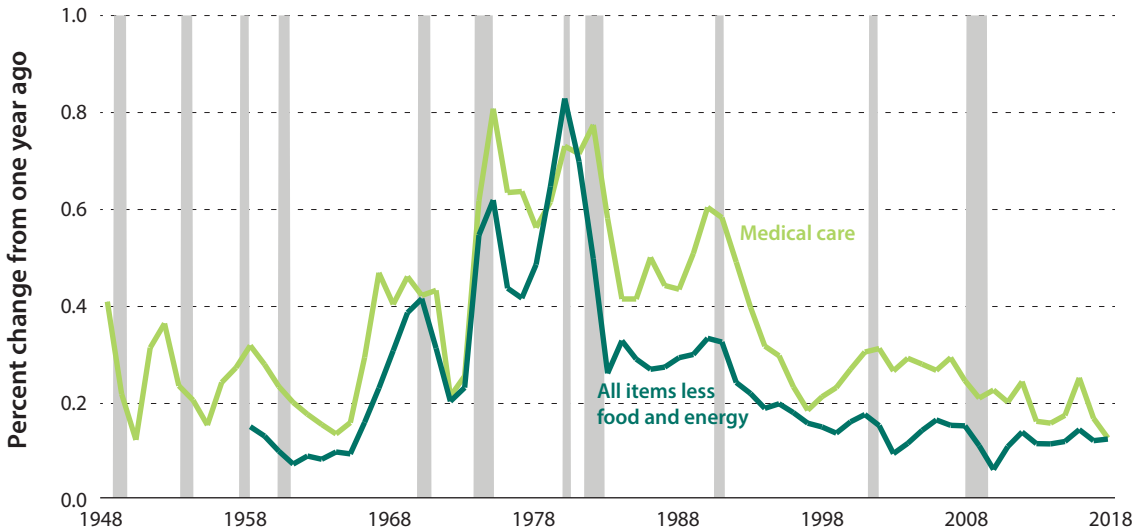
It is well known that the United States allocates far more of its GDP to resources used in the production and consumption of health care than any other developed country. If this allocation of resources resulted from informed price-conscious consumers acting within competitive markets, thereby attaining better health, it would not necessarily be a concern for public policy. However, it is also known that the United States lags behind other countries in terms of health outcomes, whether measured in terms of years of life expectancy, quality-adjusted life years, or maternal and infant outcomes. Consequently, U.S. residents obtain far less value per health-care dollar spent (Anderson and Frogner 2008; Squires and Anderson 2015). Moreover, some outcomes are worsening; for example, the United States is the only high-income country in the world with an *increasing* rather than decreasing trend in maternal mortality in recent years (Division of Reproductive Health 2017; Global Burden of Disease Study 2015).

The relative level of U.S. spending on health care is troubling, as is its unabated growth. The percentage of U.S. GDP spent

on health-care services grew from 8.9 percent in 1980 to 17.9 percent in 2016 (Office of the Actuary 2016). While there was a slight reduction in this percentage from 2010 to 2013, it has climbed since major provisions of the Patient Protection and Affordable Care Act (ACA) were implemented in 2014. An important part of the reason for the growth is that the consumer price index (CPI) for medical care exceeded the overall core CPI (the CPI for all items less food and energy) in every year since 1981 (see figure 1).¹ Addressing this cost growth will require improved efficiency in the provision and consumption of health-care services. Improving productivity in health care will become especially vital for the United States as the population continues to age, as advances in technology and pharmaceuticals continue to generate costly new services, and as policymakers struggle with federal deficits that exceed a desired fraction of GDP while investments in other public goods may lag.

Achieving productivity gains is one way to reduce cost pressures throughout the health-care system and, ultimately,

FIGURE 1.
Core and Medical Consumer Price Index, 1948–2018



Source: Bureau of Labor Statistics (BLS) 1948–2018.
Note: Shaded bars indicate recessions.

in government budgets. Productivity can be increased by using different combinations of labor and capital, as well as by using lower-cost sources of labor to achieve the same or better outcomes. Indeed, relatively high payment rates for physicians in the United States versus other developed countries (Bauchner and Fontanarosa 2018; Laugesen and Glied 2011; Papanicolas, Woskie, and Jha 2018) make this a particularly appealing opportunity.

The lack of normal competitive forces in the health-care sector, however, serves as a key barrier to achieving these efficiency gains. Currently, there are strong anticompetitive barriers to making more use of advanced practice providers (APPs) in the health-care sector. These legal barriers—scope of practice (SOP) restrictions that limit the tasks and autonomy of APPs—have been generated by state legislatures and supported by physician groups through their associations and legislative advocacy. We particularly focus on SOP restrictions for APPs such as physician assistants (PAs), advanced practice registered nurses (APRNs) and the subset of APRNs involved in maternal health, certified nurse midwives (CNMs).

In addition to lowering productivity and raising health-care costs, SOP restrictions can limit access to health care. There

are already shortages of primary care and other providers in some parts of the country; these shortages are expected to grow significantly over the next few decades because of the aging population and other secular trends (Pettersen et al. 2012). By unnecessarily limiting the tasks that qualified APPs can perform, SOP restrictions exacerbate such shortages and limit access to care. At the same time, researchers have not found evidence that less-restrictive SOP is associated with any diminution of quality or any harms to public health. Consequently, we argue that policymakers should expand SOP, thereby enhancing the competitiveness of health-care markets and improving access and, potentially, outcomes for patients.

This report discusses the role of SOP laws as they pertain to PAs and APRNs, the issues surrounding these restrictions on practice, the anticompetitive barriers these restrictions create, and the evidence regarding their effects. We focus on how SOP restrictions affect both health-care spending and outcomes, since our overall focus is on efficiency and the competitiveness of health-care markets. We argue that shifting spending away from physician to APP services through a loosening of anticompetitive SOP barriers is a viable and desirable policy route for the United States.

Abbreviations

AAPA:	American Academy of PAs
ACA:	Affordable Care Act
ACO:	accountable care organization
APP:	advanced practice provider
APRN:	advanced practice registered nurse
BPCI:	Bundled Payments for Care Improvement
BSN:	bachelor of science in nursing
CNM:	certified nurse midwife
CNS:	clinical nurse specialist
CRNA:	certified registered nurse anesthetists
FTC:	Federal Trade Commission
HPSA:	health professional shortage area
MSN:	master of science in nursing
NP:	nurse practitioner
PA:	physician assistant
SOP:	scope of practice

Chapter 2. The Challenge

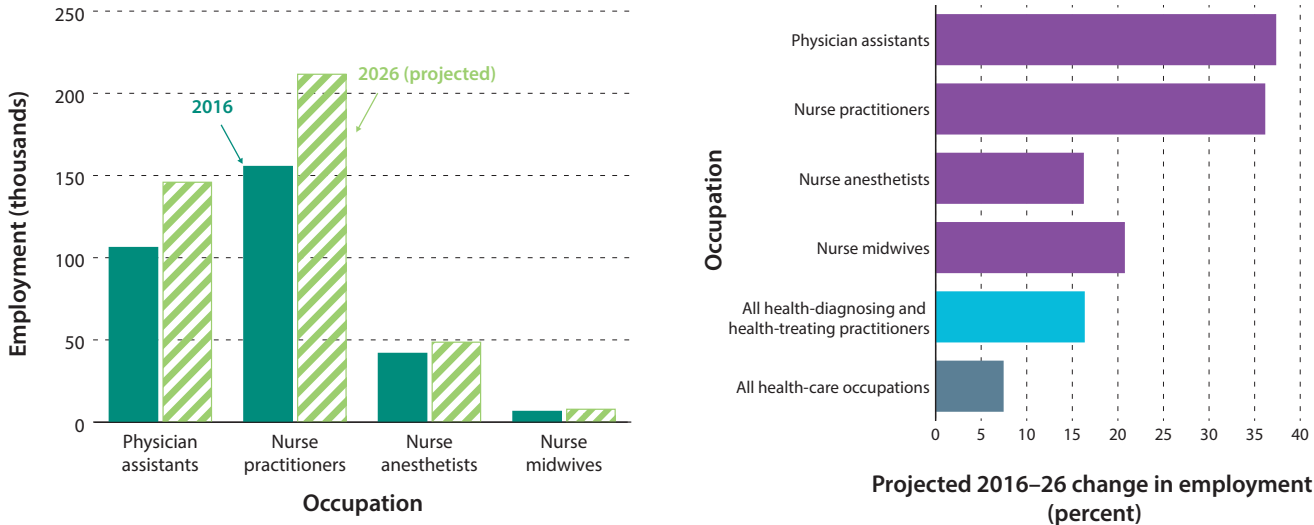
A bedrock characteristic of the U.S. health-care system is the legal requirement that providers obtain occupational licenses, after they have completed specific education, training, and exams. These licenses exist to ensure that practitioners are knowledgeable and competent, which in turn serves to protect the public from potential harm (Bryson and Kleiner 2010) and raises the quality of care provided by the health-care system. Nationally, the Bureau of Labor Statistics (BLS) estimates that 72.6 percent of health-care practitioners (6.5 million workers) are licensed and subject to laws that require and regulate those licenses (BLS 2017a). BLS predicts that the growth in these occupations will far outpace that of other occupations (see figure 2). While the exams for obtaining licenses are national and developed largely through professional associations, practitioners receive their license from the states in which they practice.

Beyond initial licensing requirements that guide entry into professions, many health-care practitioners face SOP license restrictions after entry. These restrictions are set by the states

and define the range of tasks legally allowed for a given type of provider. While physicians generally do not have state-level laws defining or restricting their SOP, other practitioners, including PAs, APRNs, dental hygienists, optometrists, and physical therapists generally face restrictions on their SOP.²

SOP laws vary depending on the practitioner group being considered, but all laws specify the degree of independent practice that is permitted, ranging from no specific requirements, to collaborative or consultative arrangements with physicians, to supervisory relationships with physicians. The current trend is toward more provider independence—known as fully authorized SOP—and fewer restrictions on practice (appendix figures 1–3). For example, the number of states allowing completely independent practice and prescribing authority for CNMs more than tripled from 9 to 29 between 1994 and 2017 (Markowitz et al. 2017; authors’ calculations). Selected recent state policy actions on SOP are described in box 1.

FIGURE 2. Employment and Projected Employment of Selected Health-Care Occupations



Source: BLS 2017b.

This movement toward fully authorized SOP is not without controversy. Legislative battles typically pit physicians against other provider groups: these providers seek to expand the set of tasks they are legally authorized to perform (and the autonomy they have while performing them), while physicians attempt to maintain their exclusive right to those same tasks (and the supervision requirements that limit autonomy).

Proponents of fully authorized SOP contend that PAs, APRNs, and other health professionals provide care that is similar in quality to that of physicians, while improving the efficiency of the system and reducing costs substantially. Opponents contend that quality of care may suffer under the direction of a nonphysician practitioner, citing the shorter length of training and clinical experience required. Their argument is that restrictions are necessary to protect public health. However, as we describe below, the academic literature finds no evidence of harm to patients associated with less-restrictive SOP laws. When no harm is present, the restrictions serve only to generate artificial barriers to care that ultimately provide physicians with protection from competition, prevent the attainment of system-wide efficiencies, and constrain overall provider capacity.

TYPES OF SCOPE OF PRACTICE RESTRICTIONS

Although SOP laws pertain to a wide range of health-care providers, we focus our remaining discussion on physician assistants and advanced practice registered nurses, including certified nurse midwives. Nationally, spending on office-based nurse and nurse practitioner (APRNs) services (\$21.7 billion) in 2014 was far less than spending for physicians in an office

setting (\$236.8 billion), while spending on PA services equaled \$4.9 billion (Agency for Healthcare Research and Quality 2018). It is quite likely that these spending levels do not reflect the actual combination of labor from physician and APPs due to incident-to-billing.³ Most important, the types of restrictions placed on these providers could be preventing efficiency in the system. These restrictions differ across providers; we describe these restrictions on SOP below along with a definition of each type of provider. See appendix figures 1–3 for maps with data on each state’s SOP status for each provider type.

Physician Assistants

A PA is a nationally certified state-licensed medical professional who works on a health-care team with physicians and other providers (American Academy of PAs [AAPA] 2018). Unlike APRNs, PAs must practice medicine under the supervision of a physician, but the required nature of that supervision varies by state. When in practice, PAs face three main types of restrictions or requirements on their SOP.

- **SOP determination:** There is variation across states as to the entity that actually determines the PA’s SOP: the tasks and procedures they are allowed to perform. The SOP may be determined at the practice level, by the state medical board, or by state law, depending on the state in which the PA works.
- **Supervision requirements:** Provides details of the required supervisory relationship between a PA and a physician. Requirements may include collaborative work plans that outline the procedures the PA is allowed to

BOX 1.

Recent Policy Actions at the State Level

South Dakota and Illinois Grant Full Practice Authority

In 2017 South Dakota’s governor signed Senate Bill 61, which removed the requirement of a collaborative practice agreement for nurse practitioners (NPs) and CNMs and established full practice authority for these practitioners following 1,040 hours of practice in collaboration with qualified practitioners. The state also granted NPs and CNMs prescriptive authority for all controlled substances. South Dakota still requires certified registered nurse anesthetists (CRNAs) and clinical nurse specialists (CNSs) to collaborate with a physician although no written agreement is required.

Also in 2017, Illinois enacted Public Act 100-0513, which gave full practice authority to NPs, CNMs, and CNSs among APRNs, following a transition period that includes 250 hours of continuing education/training and 4,000 hours of clinical experience in collaboration with a physician. This authority does not extend, however, to Schedule II controlled substance narcotics and benzodiazepines.

Georgia Fails to Remove Anticompetitive Barriers

APRNs in Georgia currently practice under delegative authority with protocols. During the 2018 legislative session, Senate Bill 351 amended the practice act to allow APRNs to order radiographic imaging tests, which had previously been allowed only in life-threatening situations. The bill also raised the number of APRNs with which a physician can enter into a protocol agreement from four to eight. The bill passed the Senate, but was never considered by the Georgia House of Representatives and the legislation failed.

perform and statements of required amount of physician contact, consulting, and monitoring.

- **Prescription authority:** Prescription authority specifies if certain medications are excluded from authority, and at what level that authority is determined (practice level, state medical board, or state law).

The relative restrictiveness of SOP for PAs varies by state and even within states if it is set at the practice level. The least restrictive SOP environment for PAs is one of optimal team practice, defined as “Practice with access to physicians and other qualified medical professionals for collaboration, consultation, and referral, as indicated by the patient’s condition and consistent with the standard of care, and in accordance with the PA’s education, training, and experience” (AAPA 2017, 7). Under this model, the PAs work in teams with physicians and the details of the arrangement are made at the practice level. Currently, 37 states allow SOP determination at the practice level, while only 29 states and the District of Columbia allow practices to determine the details of the supervisory relationship (see appendix figure 1).

Advanced Practice Registered Nurses

An APRN is a registered nurse who has completed a bachelor of science in nursing (BSN) and at least a master of science in nursing (MSN). There are four types of APRNs, each with distinct educational curricula: nurse practitioners (NP), clinical nurse specialists (CNS), certified nurse midwives (CNM), and certified registered nurse anesthetists (CRNA). SOP for these providers is largely established through a legislative process, but the nature of this process varies by state, and SOP may differ across types of APRNs within a state (see appendix A). APRNs face two main types of restrictions on their SOP.

- **Practice authority:** SOP laws specify the degree of practice independence for APRNs that range from no specific requirements, to collaborative or consultative arrangements, to supervisory relationships. Details can include collaborative practice agreements with or without protocols, delegated authority, and requirements for physician supervision. Allowable ratios of physicians to supervised APRNs within a state may also be specified.
- **Prescription authority:** States’ SOP laws may grant prescription authority, specify the types or schedule of drugs allowed, and spell out requirements for physician oversight for prescription of drugs, which can be different from that of practice authority.

It is straightforward to identify the unproductive administrative burdens and costs that restrictive SOP laws impose. Examples of such burdens include requiring additional documentation (e.g., cosignatures on charts and orders); delays in care for

patients receiving treatments and medications such as these that occur when physicians must be contacted to order tests, medications, or treatments; and disruptions of care continuity when medical results or consultation reports are sent to the physician of record and not to the actual care provider. Restrictive SOP laws can add to provider costs when physician chart reviews and oversight meetings are legally required. In addition, APRNs might have to pay fees to physicians to participate in collaborative practice agreements.

The restrictive SOP laws and the administrative and cost-based burdens they generate can negatively affect practitioner employment and earnings while raising health-care costs and limiting patient access to care. As discussed below, the academic research suggests that these costs come with no associated benefit for quality of care and public health.

IMPACT OF SCOPE OF PRACTICE RESTRICTIONS ON THE LABOR MARKET

We now discuss the issues surrounding restrictions on practice and the pathways through which they affect the supply and demand for providers’ services, along with the academic evidence on implications of reducing the restrictiveness of SOP laws. We describe the mechanisms through which these effects can occur and discuss evidence from the academic literature shown in appendix table 1. The discussion of the literature focuses on recent high-quality work that spans time periods when states began shifting from highly restrictive to less-restrictive practice environments. We report only on studies that examine changes in SOP laws, which is a more rigorous method of identifying the effects of these laws than simply comparing outcomes in the presence and absence of laws.

The pathways through which SOP laws can affect labor markets and health service markets are complex, but work through the basic laws of supply and demand. In order to evaluate the net effects on earnings and employment, we need to consider both the supply and the demand for providers’ services, and how each responds to legal restrictions that affect the productivity of providers.⁴ In freely functioning labor markets, employers will seek an efficient mix of different types of labor. However, in health-care labor markets where the SOP dictates that the practitioners work jointly, employers are less able to substitute among providers to obtain the most cost-effective and most productive mix of practitioners. Box 2 discusses some of the possible channels through which increased efficiency would benefit patients, taxpayers, and providers.

It is not clear that the combined effect of these market forces would necessarily generate a substitution away from physician services. The effect could be to increase demand by bringing more people into the market—those who may have otherwise forgone or delayed care. To the extent that loosening SOP restrictions reduces wait times for all practitioners and allows

BOX 2.

Who Captures the Potential Efficiency Gains from Less-Restricted Scope of Practice?

There are gains in efficiency if more or better output is achieved for the same cost, or alternatively, if the same output is achieved at a lower cost.

Beneficiaries of Gains from Increased Output

Patients' access to care is increased. This increased access can take the form of an expanded supply of primary care providers or the opening of new health-care facilities. This can also mean reduced waiting times or increased face time with providers as reduced administrative burdens free up their time. In addition, government programs can more readily serve growing patient populations.

Beneficiaries of Lower Costs of Production

Given the current complexities of third party insurance, administered prices in government programs, and incident-to-billing in Medicare and most commercial plans, it is difficult to predict who would gain from this source of increased efficiency.

Patients gain if lower costs can be translated into lower prices for patients. Some potential mechanisms for these savings include:

- Patients paying out of pocket to meet high deductibles could gain more than patients with low deductibles.
- Medicare enrollees could directly see these savings because their coinsurance is based on 20 percent of the providers' prices (allowed amount).
- Savings could be passed on to patients in the form of lower premiums.
- Patients and public/private payers could gain financially if APPs start their own financially viable, independent practices.
- Patients and public/private payers gain if unnecessary services are avoided.

Other groups may also see benefits:

- Taxpayers gain if the costs of public programs are lowered or grow more slowly.
- Physicians gain if lower costs mean higher profits in their practice setting.
- Under accountable care organizations (ACOs), gains are shared between providers and insurers, including the government.
- Physician malpractice premiums could fall when APRNs and PAs become covered under their own policies.

them to spend more time with patients, the effect could be an overall higher quality of care.

Employment

SOP laws impact labor markets by affecting entry and exit not only into the profession itself, but also in the states in which workers practice. Beginning with training, SOP laws may discourage people from entering the profession if they know they will be faced with barriers to providing the care for which they are fully trained. A similar argument can be made for people currently working in the profession who may restrict their hours, move into administrative or other related functions, or exit the profession under restrictive SOP work environments. Restrictive regulation—involving collaborative practice agreements with physicians and payment of fees associated with maintaining such relationships—could also encourage migration of these providers to states with more-favorable practice environments.

Effects on labor supply are even more direct in the case of legislated supervision ratios that specify maximum numbers of PAs or APRNs that a physician may legally supervise. This serves to legislatively limit the supply of these advanced practitioners who can legally work in the state.

More generally, requirements related to collaborative agreements, collaborative fees, supervisory relationships, and supervision ratios all effectively serve as a protection for physicians who are not required by law to enter into any of these relationships. In the extreme case in which no physician agrees to participate in these arrangements, no APP would be able to legally practice and all patient care would be funneled directly to physicians.

The academic literature provides some evidence that restrictions on SOP negatively impact labor markets and that fully authorized SOP promotes employment and mobility of resources (see appendix table 1).⁵ For example, McMichael

(2017) finds that states with independent SOP for NPs have higher rates of NPs working compared with states with nonindependent SOP, and that counties within the SOP independent states have a reduced likelihood of containing areas designated as a health professional shortage area (HPSA). Xue et al. (2018) confirm the positive employment effects among rural and HPSA counties. Kleiner et al. (2016) find that independent prescription authority is associated with small increases in NP hours worked, although the authors find no relationship between independence in practice authority and NP hours worked. Regarding mobility, Perry (2012) tracks migration and finds NPs are less likely to move from a state in which they have prescription authority. However, the above results all pertain to NPs. There is no evidence that fully authorized SOP laws affect the employment levels of CNMs (Markowitz et al. 2017), or of PAs (McMichael 2017).

Wages and Earnings

When SOP generates unproductive administrative burdens, workers will necessarily spend more time in these activities rather than in patient care, leading to decreased productivity of both physicians and APPs. In addition, SOP restrictions may affect the relative productivity of physicians and APPs by limiting the scope of APPs' services and consequently their value to employers.

Any policy that expands the supply of health-care workers would place downward pressure on wages, if the demand for workers remains static.⁶ However, because the effect of eliminating restrictive SOP also increases the demand for these practitioners, the net effect on wages is ambiguous and depends on whether the supply or the demand effect is stronger. The effects on earnings are also ambiguous.

Only one study in Appendix table 1 examines compensation (Kleiner et al. 2016). This study finds that independence in practice authority is associated with increases in NP hourly earnings and decreases in physician hourly earnings. The study shows no effects on earnings for independence in NP prescription authority. More generally, the academic research on effects of SOP laws on wages and earnings is lacking, primarily due to insufficient data.

IMPACT OF SCOPE OF PRACTICE RESTRICTIONS ON ACCESS TO CARE

Under a less-restrictive SOP environment, the combined effects of expanded supply and demand predict greater employment of PAs and APRNs. Conversely, restrictions on SOP may result in lower employment of advanced practitioners; this has direct implications for system capacity and patient access to care. Access to health care can mean seeing a provider in a timely fashion. It can also refer to the presence or absence of any provider within a given geographic area; health care is often more difficult to access in rural areas, for example. It

also encompasses the composition of care, such as undergoing scheduled outpatient procedures as opposed to urgent or emergency care visits. While the evidence depends on the types of services being researched, studies point to either no effects or slight increases in realized access, or utilization, as a result of expanding the SOP of NPs or PAs.

The literature (see Appendix table 1) provides some evidence that restrictive SOP hinders labor markets through the types of pathways noted above and that fully authorized SOP promotes employment and worker mobility. However, there exists only limited evidence regarding effects on substitution between the types of providers seen by patients. Kleiner et al. (2016) shows no changes in NP or physician hours worked, and Traczynski and Udalova (2018) shows no change in the number of primary care physicians associated with a change in state law allowing NP independence in practice authority. However, two studies on CNMs show an increased probability of a CNM-attended birth in independent versus more restrictive SOP states, implying a substitution between obstetricians and CNMs (Markowitz et al. 2017; Yang et al. 2016).

Markowitz et al. (2017) focuses on CNMs, showing that states that allow CNMs to practice with no barriers to care have lower observed probabilities of labor inductions and Caesarean section deliveries (or C-sections) as compared to states with high barriers. They also observe an increase in the use of CNMs as birth attendants, along with an increase in the use of freestanding birth centers in the no-barrier states. These findings are consistent with the narrative that access and/or the demand for CNM services is increasing and obstetricians are changing their practice approach in response to the threat of competition from CNM services that are formally untethered to the physician practice.

While access to care is difficult to quantify, there is evidence from the academic literature shown in Appendix table 1 regarding changes in utilization of services resulting from changes in SOP laws. For example, Kurtzman et al. (2017) shows no effects of expanded NP SOP laws on physical examinations, imaging, and return visits among patients in community health-care centers. However, a recent study by Traczynski and Udalova (2018) finds that among a broad patient population, NP independence increases the probabilities of a routine check-up, having access to a usual source of care, and being able to get an appointment when wanted, along with decreasing the probability of emergency department visits for ambulatory care sensitive conditions. Similarly, Stange (2014) shows that NP prescription authority is associated with a modest increase in office-based visits, and Spetz et al. (2013) shows that independent NP prescribing is associated with higher probability of prescriptions being filled by patients.

For PAs there are only two studies that evaluate the effects of SOP on access/utilization. Timmons (2017) finds no effects on total care days received by Medicaid patients and Stange (2014) finds no effects on the probability of patients having a usual source of care.

HEALTH OUTCOMES

In the literature on the effects of SOP laws, the categorization of SOP laws and methods used to study them differ by the practitioner studied, data sources, time period studied, and statistical methods. Despite this, the literature is consistent in terms of finding no evidence of harm to patients associated with the degrees of restrictiveness of the laws. For example, Perloff et al. (2017) find no effects of SOP laws for NPs on a variety of outcomes including chronic disease management, cancer screening, and ambulatory care-sensitive hospital admissions. Regarding infant and maternal health, Yang et al. (2016) and Markowitz et al. (2017) both find that independent SOP for CNMs is associated with lower probabilities of labor induction and C-section delivery, and slight improvements in infant health metrics (birth weight, gestation). Independent SOP laws for NPs in prescribing drugs are found to have no effects on infant mortality rates (Kleiner et al. 2016).

Below, we consider the other side of the coin for consumers and the general public: SOP effects on prices and overall health-care expenditures.

Transaction Prices

Actual costs of production are not readily observed in health services data. Provider charges are sometimes observed, but these reflect some level of mark-up and are not reliable measures of true production costs. Moreover, only a portion of sticker prices (charges) are paid, because insurance companies negotiate lower allowed amounts. However, amounts paid by private and public insurers constitute transaction prices and these data are more readily available to researchers. The terms “allowed amounts,” “claims,” and “transaction prices” are often used interchangeably, but all refer to the actual dollar amounts that providers receive for their services. The literature evaluating transaction prices for health-care services concludes that they are lower when APRNs and PAs have few or no SOP restrictions on their practice.

When consumers are insured by Medicare or Medicaid, we note that transaction prices are set largely by administrative fee schedules. The administered prices within the Medicare fee-for-service part of this program (still about two-thirds of enrollees) are illustrative. PAs are paid at 85 percent of the Medicare physician fee schedule, CRNAs are paid at 80 percent of the anesthesia fee schedule, NPs are paid at 85 percent of the Medicare physician fee schedule, and CNSs are paid at 85 percent of the Medicare physician fee schedule. Only CNMs are paid at 100 percent of the Medicare physician

BOX 3.

What Is Incident-to Billing and Why Does It Matter?

For Medicare, incident-to billing occurs when office or outpatient-based services provided by APPs (including NPs, PAs, and CNMs) are billed under physicians’ national provider identification numbers and are paid according to the physician fee schedule.

While not all services are subject to incident-to billing, for those that are, Medicare rules include a requirement that the services are provided under the direct supervision of the physician, meaning that the physician must be on site and available at the time of the service. Under the rules, for example, NPs cannot see and bill for a new patient or a patient with a new problem, regardless of the states’ SOP. Most commercial payers have established similar reimbursement policies, thus rendering this form of billing a prevailing industry practice for APPs.

Incident-to billing effectively means that practices are paid at physician rates when services are provided by APPs. Moreover, under incident-to billing, APPs are essentially subject to two layers of SOP—one for their state and one for the insurance companies. Removing this billing requirement would result in billing by the actual service provider and reimbursement based on the relevant fee schedule. Currently, when PAs and NPs bill directly they are reimbursed at 85 percent of the Medicare physician fee schedule. Removing incident-to billing has the potential to generate cost savings for the Medicare program and its beneficiaries.

Because services are billed under the physician identification number, incident-to billing practices result in a lack of data on actual utilization and transaction prices for APP services, which makes monitoring and analyzing the use and outcomes of these providers extremely difficult.

fee schedule as per the ACA. However, reimbursement under Medicare and private insurance companies are complicated by incident-to billing rules. See box 3 for details.

Kleiner et al. (2016) uses information from private insurance claims and estimates that the price of child well-care visits is lower by a range of 3–16 percent in environments where there is independent SOP for NPs. Timmons (2017) finds that expanded SOP for PAs is associated with a 12–14 percent reduction in the dollar amount of outpatient claims among Medicaid patients. Spetz et al. (2013) examines care provided in retail clinics (i.e., health-care organizations housed within larger retail stores and pharmacies) as recorded from a large

private insurance company and finds that both total payments and prescription payments are lowest in retail clinics located in states where NPs practice independently, although *total* prescription payments in these clinics are higher where NPs can prescribe independently.

Health-Care Expenditures

By expenditures, we mean the transaction prices paid by consumers directly and/or through their insurance plans multiplied by the quantity of services received. In other words, these are total dollar amounts spent on the receipt of services. When considering the effects of expanded SOP on expenditures for health-care services, both the effects on transaction prices and quantity of services provided are relevant.

If there is a substitution away from higher-cost physician providers, then transaction prices could be reduced as APPs bill and are paid by insurers at a lower price than physicians. Medicare enrollees could directly see these savings because their coinsurance is based on 20 percent of the providers' price (the allowable amount). This will lower total expenditures, assuming that quantities of services do not change. However, if demand for services increases as patients enter the market rather than forgoing care, then we could see an increase in quantity along with decreased transaction prices, rendering the effect on total expenditures ambiguous. However, we could observe lower total expenditures in the long run if the increase in quantity occurs in primary care and this increase serves to prevent more-severe and more-expensive health episodes later on.

One study directly examined the total labor costs per visit across different types of labor combinations within a managed care organization. Using data from Kaiser Permanente Georgia, Roblin et al. (2004) reported that labor costs per visit were lower for practices that more extensively used PAs and NPs in providing care than practices that made less-extensive use of PAs and NPs. Average annual practitioner labor costs per visit at the 75th percentile of PA and NP use were 6.1 percent lower, and average annual total labor costs per visit were 3.1 percent lower than costs per visit for a practice at the 25th percentile.⁷ These savings accumulated across all primary care visits in the U.S. could be significant. However, this study points to the importance of the business model and the economic incentives of the practice, which help determine pricing decisions and the extent to which substitution of types of labor can occur. Kaiser is a vertically integrated, large managed care organization with built-in incentives for efficiencies that differ from those in many physicians' practices.

An important addition to the literature on total expenditures comes from a recent study by Traczynski and Udalova (2018). They estimate that eliminating restrictions on NP's SOP would result in an annual national cost savings of \$543 million (a 11.6 percent reduction) in emergency room use for ambulatory care-sensitive conditions (conditions that are preventable or treatable by effective outpatient care). Similarly, Markowitz et al. (2017) estimate that fully authorized state SOP among CNMs would produce a savings of \$101 million a year from reductions in C-sections for first births. This represents a 7.5 percent reduction in the \$1.3 billion in excess costs incurred by payers for C-sections compared to vaginal deliveries.

Chapter 3. The Proposal

The evidence supports reducing legally mandated physician oversight requirements for PAs and APRNs. Consistent with the recommendations of the Federal Trade Commission (FTC; 2014), we propose that state policymakers enable APRNs and PAs to be fully authorized to practice in accordance with their education, training, and experience. This would enhance competition in the health-care sector by mitigating the anticompetitive consequences of administratively burdensome SOP laws.

When a physician and a nonphysician practitioner are both qualified to perform certain procedures, each should specialize in the service in which they are most productive—that is, the service in which they have a comparative advantage. By doing so, the overall efficiency in the system can be improved and costs lowered. However, when SOP laws prevent this type of

specialization, resources are not put to their most efficient use, higher prices ensue, and consumers are made worse off.

The overriding goal of this proposal is to enable labor markets for health-care providers to work uninhibited by unnecessary state-based SOP restrictions. This would encourage competition among providers as they respond to the demand of patients and payers to increase patient access to care at more affordable prices. CNMs—a type of APRN who provide prenatal, delivery, and post-partum care—are of particular interest to state legislators, given that Medicaid pays for almost half of the births in the nation and for more than half in some states.

Specifically, reducing restrictions for APRNs entails eliminating supervisory or delegative practice arrangements, eliminating formal collaborative practice agreements and

BOX 4.

Actions at the Federal Level: The Case of the U.S. Department of Veterans Affairs

A major change was recently made by the U.S. Department of Veterans Affairs (VA) when it issued a final rule amending its medical regulations to permit full practice authority to APRNs working within the Veterans Health Administration (VHA), effective January 13, 2017. The definition here of APRNs includes NPs, CNS, and CNMs, but explicitly excludes CRNAs. As stated in the *Federal Register*, the purpose of this rule is to expand veterans' access to VA health care, to reduce their wait times, and to allow the VA to use its resources more effectively, while maintaining quality health care. Before this rule, APRNs' practice authority within the VHA was dictated by the laws of the state in which the facility is located. This led to high variability in the regulations under which VHA APRNs practiced. This new rule improves efficiency by standardizing the practice environment and allowing for flexibility in substitution of labor.

The exclusion of CRNAs from this rule stemmed from intense lobbying from the American Society of Anesthesiologists who argued that granting CRNAs full practice authority would violate the VHA's policy of team-based care, and that full practice authority is not needed since there is no shortage of physician anesthesiologists and the current system allows for flexibility in staffing. The VA disagreed with the first point but agreed with the second. The exclusion of the CRNAs from the final rule leaves in place the mixed practice environment based on states' SOP laws ("Advanced Practice Registered Nurses" 2016, 90201).

After the publication of the final rule, Bruce Weiner, president of the American Association of Nurse Anesthetists, criticized the VA's decision (Weiner 2017). He cited a news report describing a situation at the Denver Veterans Affairs Medical Center where a large number of surgeries had been postponed or cancelled because of a shortage of anesthesiologists and CRNAs (Migoya 2017).

This reform by the VA has the potential to be influential given its national reach and the number of veterans this system serves. However, the implementation of changes of this sort will take time and can be influenced by local facilities and delivery systems as well as by reactions of the affected provider groups.

protocols, enabling APRNs to prescribe medicines, and eliminating APRN-to-physician ratio requirements. State policymakers should also encourage the ongoing collaborative relationships between APRNs and physicians, since these are already the norm in the professions.

All states currently require PAs to have a supervising physician. We propose to set the level of interaction between the physician and the PA at the practice level. This would eliminate legislated capped PA-to-physician supervision ratios and allow for fluidity in substitution between these two types of labor that best satisfy consumer or employer demand. It would also include the elimination of legislated rigid requirements for numbers of face-to-face meetings and visits to remote sites and would allow individual PAs and physicians to freely determine the details of their working relationship. These changes would let physicians and PAs decide on the optimal arrangement within the organizational and market environments in which they work. This is especially important given that supply and demand forces vary markedly across urban and rural market areas, as well as across the changing organizational structures (e.g., large group practices, ACOs, multihospital systems) within which these professionals work.

In the process of loosening restrictions on the practice of APRNs or PAs, states will need to recognize how their laws governing

medical liability affect the incentives that physicians face in entering into these collaborative relationships. Under state laws that mandate physicians' supervision or collaboration, the physician may incur malpractice liability. In the case of NPs, McMichael et al. (2017, 2) explain, "NPs can be held directly liable for malpractice just like physicians, but depending on the SOP laws in place, NPs may pass a substantial portion of their liability to their supervising physicians."

This means physicians likely hesitate to enter into collaborative relationships without a direct supervisory role, particularly in states with pro-plaintiff malpractice environments. A similar situation would hold in regard to PAs. As the AAPA (2017, 10) points out, "If a physician agrees to enter into the supervisory agreement now required by states for PA practice, the physician will still incur the potential malpractice liability that accompanies that agreement."

As states move to eliminate supervisory relationships and APRNs or PAs are able to purchase their own malpractice insurance, the physician will eventually be insulated from this liability burden. There is evidence for this claim in McMichael et al. (2017), who find lower malpractice rates (defined as the number of physician malpractice payouts per 1,000 practicing physicians) in states that have eliminated supervisory requirements for NPs.

BOX 5.

Actions at the Federal Level: The Case of North Carolina State Board of Dental Examiners v. Federal Trade Commission

In the 1990s dentists in North Carolina began providing teeth-whitening services. They soon faced competition for this service from non-dentists who provided the same service at a lower price. Many dentists began complaining to the North Carolina State Board of Dental Examiners (NC Board) about the competition, citing the lower prices charged as the source of concern, making little mention of any harm to consumers (*North Carolina State Board of Dental Examiners v. Federal Trade Commission* 2015). The NC Board began issuing cease-and-desist letters to the non-dentists, warning that the unlicensed practice of dentistry is a crime. This action resulted in non-dentist providers leaving the market for teeth whitening services, effectively eliminating the dentists' competition for that service.

In 2010 the FTC filed an administrative complaint alleging that the NC Board's actions were anticompetitive under the Federal Trade Commission Act of 1914. The NC Board countered that it had state-action immunity, meaning that it was protected from antitrust violations as an agent of the state. The FTC argued that, to claim immunity, the NC Board must be actively supervised by the state. The NC Board, consisting of six dentists, a dental hygienist, and a consumer, could not demonstrate active state supervision. The FTC also rejected the NC Board's claim of protecting public health, given evidence that non-dentist teeth whitening is safe. In October 2014 the Supreme Court affirmed the FTC determination that the NC Board violated federal antitrust laws.

This decision has direct relevance for the state boards that regulate APRNs and PA. State boards of nursing typically regulate the practice of APRNs, although boards of medicine are also frequently involved in oversight, particularly when collaborative practice agreements are required.

In the wake of this decision, the FTC published guidelines regarding antitrust compliance for state boards that regulate occupations. The FTC (2015, 2) advises, "A state legislature should empower a regulatory board to restrict completion only when necessary to protect against a credible risk of harm." The FTC (2015, 5) further advises, "Antitrust issues may arise where an unsupervised board takes actions that restrict market entry or restrain rivalry."

There also exists a role for the federal government to support changes in states' SOP for APPs. One important way that the federal government can assist is to disseminate and encourage the adoption of best practices at the state level (Institute of Medicine 2010). The federal government can also support these proposals by funding research on the effects of restrictive SOP, particularly in areas where data are lacking, such as professional school enrollment, employment and migration decisions, and wages of APRNs and PAs. Notably, launching research of the impact of the incident-to billing requirements is essential. These billing requirements make it difficult to collect data on actual utilization and transaction prices for APRN and PA services. It also affects who pays what and obscures whether or not ACOs, for example, are achieving savings through a more efficient mix of labor. Without more research on utilization, actual labor combinations, and true production costs, it is difficult to observe what helps and what hurts productivity. In addition, federal agencies themselves can take actions to relax SOP requirements and improve outcomes for the populations they serve, as described in box 4. Finally, federal policymakers could encourage states to follow the recommendations of the FTC and seek the FTC's input when debating changes to SOP laws. The 2015 Supreme Court decision in favor of the FTC in *North Carolina State Board of Dental Examiners v. Federal Trade Commission* has focused attention on SOP implications for market competition (see box 5).

SCOPE OF PRACTICE REQUIREMENTS AND HEALTH-CARE REFORM

It is important to consider these SOP recommendations in the context of ongoing policy efforts to make health-care delivery systems more efficient (e.g., managed care, Accountable Care Organizations (ACOs), patient-centered care, value-based purchasing, and bundling of payments). Fully authorized SOP would help set professional practice norms that include collaborations. In this working environment, flexibility in filling staffing needs is critical. As noted by the FTC (2014, 32), however, under existing arrangements, "Providers may be constrained in their ability to develop and implement more variable or flexible models of team-based care, consultation, and oversight, according to patient needs and institutional needs and resources." The FTC (2014, 32–33) also points out that "restrictions on the permissible physical distance between APRNs and supervising doctors may restrict providers' ability to develop new models of networked or telemedicine-facilitated collaboration."

Accountable Care Organizations

Initiatives in the Medicare program can be used by the federal government to help improve efficiency in the health-care system. A key effort is the encouragement of a newer type of health-care delivery model, ACOs, which were encouraged by the ACA (see box 6). These organizations are groups of providers who work together to give coordinated care to

BOX 6.

The Patient Protection and Affordable Care Act and Health-Care Sector Efficiency

Key elements of the ACA were intended to improve the efficiency of the production and consumption of health-care services or, as some have said, to bend the cost curve. These efforts were focused, by necessity, on the Medicare program where the tools (ACOs, performance payments to hospitals, etc.) could be implemented on a national basis. While these efforts have helped slow the rate of growth in Medicare spending (Cubanski and Neuman 2017) researchers note that enrollment of healthier Medicare beneficiaries has also played a role. The newer payment models being tested and used in Medicare have not been implemented throughout the system, and some changes by the new administration may weaken these efforts. The so-called Cadillac tax that was intended to reduce incentives for employees to buy increasingly generous health insurance packages, another factor seen as impeding efficiency, has again been delayed. If national efforts to bend the cost curve are discontinued or prove unsuccessful, pressure to improve efficiency will increase and private payers as well as policymakers will look farther afield for ways to gain improvements in health outcomes or to reduce the amount of taxpayer funds spent on health-care services.

a defined patient population. A key characteristic of this model is the requirement that the ACO meet a specified list of quality metrics. Under the ACA, when these groups achieve cost savings without sacrificing quality of care along these metrics, the group is able to share in the savings generated. Documenting their labor mix and so-called true savings, however, is complicated by the incident-to billing and the measurement problems this raises.

To date, however, the results indicate that the ACOs meet quality metrics but achieve modest or no savings (Muhlestein, Saunders, and McClellan 2016). This study highlighted the difficulties in achieving savings and the variation in quality/savings across individual ACOs, though it did not consider the SOP environment. In contrast to expectations, it was often the smaller, physician-led ACOs that were more likely to improve quality and lower costs enough to earn shared savings.

One of the goals of the ACO program is to avoid duplicative and/or unnecessary services. Some SOP-required supervisory tasks may run counter to this goal and indeed could hinder the formation of these ACOs in some states or settings. In addition, as an increasing percentage of physicians become

salaried or participate within this type of delivery model, their economic incentives to enter into formal agreements with other advanced practitioners may be diminished. State laws maintaining strict SOP oversight likely make it more difficult to efficiently implement and manage ACOs.

Bundled Payments, Retail Clinics, and Other Reforms

Another payment model that was initially outlined and incentivized by the ACA is bundled payments. The most recent version of this idea is the Bundled Payments for Care Improvement (BPCI) initiative, which combines payments for all health-care provider services into one bundled payment for the treatment of selected clinical episodes. This includes payments to physicians, hospitals, nurses, laboratories, and others. Under this model a hospital or physician group has strong incentives to substitute toward lower-cost providers in order to provide access and lower costs. SOP restrictions make it difficult for these substitutions to take place and for these groups to achieve cost savings.

As noted earlier, a powerful tool the federal government has is its evaluation and revision of the incident-to billing requirements of the Medicare fee schedule. While there may be substitutions of labor between NPs and PAs taking place within ACOs or, eventually, within the BPCI initiative as practices start to comply, these will not be observed. The incident-to billing obscures the employers' (physicians, physician groups, hospitals, etc.) decisions to use APRNs and PAs in medical care as well as the rate at which employers pay them. Changing the requirements for incident-to billing could lower the costs of episodes of care. Moreover, if this change alters the profit incentive for physicians to employ APRNs or PAs, it could lead to less resistance to loosening states' SOP laws among physicians and their advocacy organizations.

In the past many of the payment and delivery system changes made under Medicare to address inefficiencies have been adopted by other payers, including state Medicaid programs. While the SOP laws underlay the Medicare program, Medicaid

programs match their states' SOP laws through their state plans and NPs, for example, can bill under their own provider ID if they are in a state allowing a fully authorized practice. Within the Medicaid program, managed care organizations already function within a tighter budget constraint than other such entities due to relatively lower levels of administered prices. These managed care organizations likely recognize the need for substitution away from higher-cost providers but must make these decisions within the constraints of the state's SOP laws.

If states move toward less restriction on PAs and APRNs, state plans and provider manuals will reflect these newer provisions and, to the extent possible, should reward those managed care organizations achieving the same quality of care at lower costs. While the use of ACOs in state Medicaid programs has developed only to some extent, states have become even more experimental in terms of providing global budgets, developing value-based payment systems, etc. to achieve Medicaid savings. Most of this has been done through Section 1115 waivers that allow the states to waive some requirements for Medicaid in order to either cover more enrollees at the same costs or to lower the costs of enrollees already eligible (Medicaid.gov n.d.). The new director of the Centers for Medicare and Medicaid Services has sent a clear message that the agency is open to state waivers that are innovative in terms of obtaining more value for health-care dollars spent. These efforts, however, are also restricted by the SOP legal environment of each state.

Apart from these many considerations, state restrictions on SOP may inhibit the growth of retail clinics, entities that have the potential to reduce provider shortages, increase system capacity, and provide primary care at lower transaction prices, as noted earlier. Last, innovations related to telemedicine are also potentially hindered by conflicting state SOP laws because the provider must adhere to the rules and regulations of the state in which the patient is located (Telehealth Resource Centers 2018).

Chapter 4. Questions and Concerns

1. Given the benefits (and lack of costs) that you outline, why haven't all states moved to fully authorized SOP for APRNs?

SOP laws are determined by state legislatures, who are very often informed and influenced by practitioner advocacy groups. There exists a misperception that the move to fully authorized SOP is a zero-sum game in which physicians lose when APRNs gain. Research indicates that the capacity of the health-care system can expand, benefiting a wide range of stakeholders. A second misperception is that the restrictions are necessary to protect the public health. The academic research shows no difference in a variety of health outcomes when comparing fully authorized SOP to restrictive SOP laws. We do note that each state's political, economic, and provider capacity influences debates regarding proposed moves to less-restrictive SOP, but the general trend has been to reduce SOP barriers for APRNs.

2. Patients' needs and the capabilities of APRNs are very similar across the country. Would it be preferable to have a national SOP policy?

No. Occupational licensing and related SOP rules are clearly in the purview of the states. States can, however, follow the model of the Nurse Licensure Compact and pass legislation that adopts a standard set of rules and regulations applicable to all participants in the compact. Given that many insurance

carriers and health-care systems (e.g., Kaiser Permanente) have patient clientele in different states, this type of standardization can facilitate the types of efficiency gains discussed in this proposal.

3. You propose to eliminate formal collaborative practice agreements and physician-APRN minimum required ratios. Would this reduce physician-APRN collaboration? Would PAs and APRNs be able to start their own practices?

The proposal would not interfere with or eliminate physician-APRN collaboration. Even where APRNs have fully authorized SOP, standards require that APRNs consult and collaborate with other health-care professionals as necessary to meet their patients' needs.

PAs and APRNs may be allowed to start their own practices even under less than fully authorized SOP, provided that they comply with the SOP requirements. However, many states have laws—separate from the SOP practice and prescription authorities discussed in this document—that specifically regulate ownership of practices. In addition, APP-owned practices (like all provider practices) have to be financially viable, and it might be difficult for new businesses to achieve the required patient volume. APP-owned practices will also face the usual overhead and administrative costs inherent in such an endeavor.

Chapter 5. Conclusion

As the nation addresses the need to improve the efficiency of the health-care sector, it is essential to remove policy impediments to full competition in the sector. State SOP requirements limit the ability to use labor inputs in the most efficient ways possible, raising costs without any corresponding improvement in quality of care. In this report we have described the benefits of loosening the restriction on states' SOP laws: eliminating supervisory, delegative, and collaborative agreements; eliminating formal collaborative practice agreements and protocols; enabling APPs to prescribe medicines in accordance with their education and training; and eliminating APP-to-physician ratio requirements. To the extent that APRNs and PAs provide health care that is equal in quality at a lower cost—as the existing research demonstrates—removing restrictions on their practice can help alleviate shortages and improve efficiency.

In addition, broader system savings can be obtained if greater use of APRNs and PAs can reduce the costs of episodes of care by lowering avoidable costs such as those from emergency department visits and/or ambulatory care-sensitive conditions. Particularly important is the shorter length of training required for APPs, which will allow these providers to respond more quickly to changes in the demand for their services. PAs, in particular, have the flexibility to complete on-the-job training and/or accredited postgraduate training

programs in a variety of specialty areas in as few as 12 to 24 months.

It is very important to note the context in which the U.S. is seeking these efficiencies. Delivery systems that group physicians, APPs, and hospitals together under a payment method that rewards them as a group will allow more fluidity in the mix of practitioners used to deliver services. ACOs or expansions of the Kaiser Permanente model fit this example while others, such as the potential merger of CVS and Aetna, move providers into yet another realm of financial incentives and working relations. Removing unnecessary SOP requirements will allow these delivery systems to achieve efficiencies where possible.

Finally, it is quite likely there are other unobserved benefits from moving from restrictive to less-restrictive SOP. For example, when the administrative time burden is reduced, both physicians and advanced practitioners will have more time available for patients. These effects could in turn result in greater patient satisfaction and other positive patient outcomes that are harder to measure. It will be important for the research community to keep abreast of these developing systems so that the monetary and nonmonetary effects of changes in SOP are better understood and can be used to further guide policy decisions at both the state and federal levels.

Appendix A. Scope of Practice for Nonphysician Health-Care Providers

PHYSICIAN ASSISTANTS

A PA is a nationally certified state-licensed medical professional who works on a health-care team with physicians and other providers (AAPA 2018). Unlike APRNs, PAs must practice medicine under the supervision of a physician, with the required nature of that supervision varying from state to state. PAs have graduate medical training typically consisting of 26 months of combined classroom and clinical rotations in hospital and outpatient clinical settings; they are awarded a master's degree upon completion. The required training for a PA consists of a broad, generalist education that prepares them to practice in primary care as well as diagnose, treat, and prescribe medicines. There are also voluntary postgraduate residency training programs that further focus PA training in a particular specialty area (e.g., cardiology practice).

In order to become certified, which is required for licensure in all states, a graduate from an accredited PA program must pass a national certifying examination. When in practice, PAs face three main types of restrictions on their SOP:

1. Scope of Practice Determination

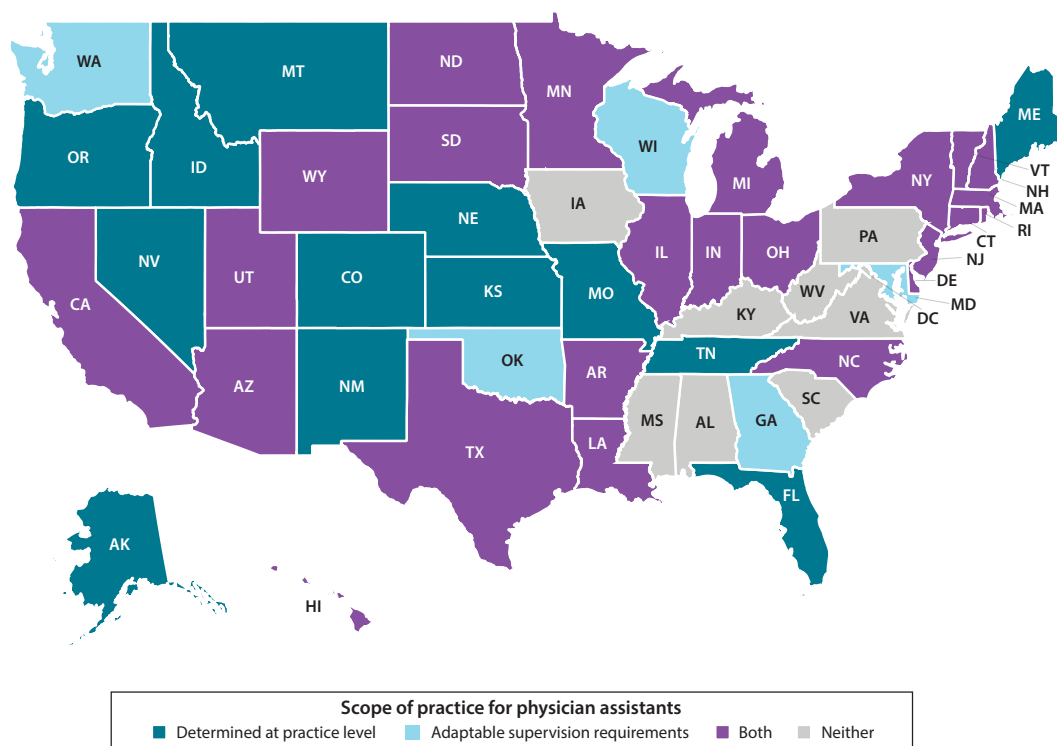
There is variation across states as to the entity that actually determines the PA's SOP, meaning the services that the PA can perform. Their SOP may be determined at the practice level (i.e., by the employer), by the state medical board, or by state law, depending on the state in which the PA works.

2. Supervision Requirements

Provides details of the required supervisory relationship between a PA and a physician. Requirements may include collaborative work plans that outline the procedures the PA

APPENDIX FIGURE 1.

Scope of Practice for Physician Assistants



Source: Barton Associates 2018; Scope of Practice Policy n.d.

Note: States in gray do not have SOP determined at the practice level or adaptable supervision requirements in 2017. States with adaptable supervision requirements allow the supervisory relationship to be determined at the practice level.

is allowed to perform, as well as statements of the required amount of physician contact, consulting, and monitoring.

3. Prescription Authority

Allows for prescription authority and specifies if certain medications are excluded from that authority, and at what level that authority is determined (practice level, state medical board, or state law).

The relative restrictiveness of SOP for PAs varies by state and even within states, given that SOP can be set at the practice level. The least-restrictive SOP environment for PAs is one of optimal team practice, defined as, “Practice with access to physicians and other qualified medical professionals for collaboration, consultation, and referral, as indicated by the patient’s condition and consistent with the standard of care, and in accordance with the PA’s education, training, and experience” (AAPA 2017, 7). Under this model the PAs work in teams with physicians but without the legal requirement of the supervisory agreement. In this situation, decisions about the nature of the collaboration are made at the practice level rather than by the state medical board or state law. Currently, 37 states allow SOP determination at the practice level, while only 30 states allow practices to determine the details of the supervisory relationship (see appendix figure 1).

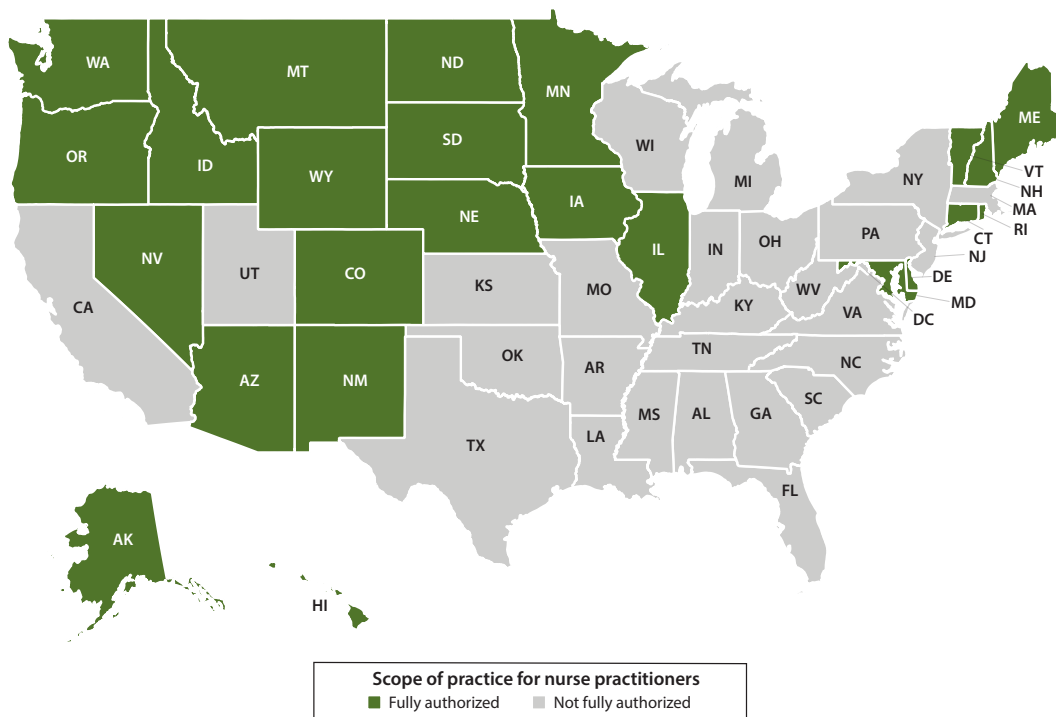
ADVANCED PRACTICE REGISTERED NURSES

An APRN is a registered nurse who has completed a Bachelor of Science in Nursing (BSN) and at least a Master’s Degree in Nursing (MSN). There are four types of APRNs, each with distinct educational curricula: NPs, CNSs, CNMs, and CRNAs. After completing the required education, an APRN must pass a national board certification exam in the specific area of focus. SOP for these providers is largely established through a legislative process, but the nature of this process varies by state. SOP may also differ for the different types of APRNs within a state. APRNs face two main types of restrictions on their SOP:

- **Practice Authority:** SOP laws specify the degree of practice independence for APRNs. These range from no specific requirements, to collaborative or consultative arrangements with physicians, to supervisory relationships. Collaborative practice agreements may or may not include protocols, delegated authority, and requirements for physician supervision. Allowable ratios of physicians to supervised APRNs within a state are sometimes also specified.
- **Prescription Authority:** SOP laws may grant prescription authority, specify the types or schedule of drugs allowed, and include requirements for physician oversight for prescription of some drugs.

APPENDIX FIGURE 2.

Fully Authorized Scope of Practice for Nurse Practitioners



Source: Policy Surveillance Program 2017.

Note: The map shows states with fully authorized SOP for both practice and prescription authority in 2017.

Appendix B. Summary of Recent Studies on Scope of Practice Laws for Physician Assistants and Advanced Practice Registered Nurses

APPENDIX TABLE 1.

Summary of Recent Studies on Scope of Practice Laws for Physician Assistants and Advanced Practice Registered Nurses

Study	Kleiner et al. (2016)	Kurtzman et al. (2017)	Markowitz et al. (2017)	McMichael (2017)
Scope of practice law	Independence in practice authority. Level of prescription authority (supervised/delegated; limited; independent).	Independence in practice authority. Independence in prescription authority.	Level of barriers to care (none, low, moderate, high) as defined by SOP-based barriers in practice authority and prescriptive authority.	NPs: Categories of SOP (independent in practice, prescription supervision only, full supervision). PAs: Categories of SOP (remote practice allowed, restricted practice, onsite supervision).
Practitioner group(s)	Nurse Practitioners (NPs)	Nurse practitioners	Certified nurse midwives	Nurse Practitioners and Physician Assistants
Findings: Health outcomes	Independence in prescription has no effect on infant mortality rates.	No effects on quality indicators (smoking cessation, depression treatment, statin prescriptions).	Laws have no effect on maternal health behaviors (early prenatal care, smoking, drinking, adequate weight gain). States with no barriers show small improvements in infant health (birth weight, gestation). States with no barriers have fewer labor inductions and C-sections.	
Findings: Employment	Independence in practice authority has no effects on NP or physician hours worked. Independent prescription authority is associated with small increases in NP hours worked and no effects on physician hours.		Laws have no effect on number of licensed CNMs and number of employed CNMs.	NP independent practice increases supply of NPs and reduces probability of health provider shortage area designation. No effects of laws for PAs.
Findings: Wages	Independence in practice authority associated with increases in NP hourly earnings and decrease in physician hourly earnings. There are no effects for prescription authority.			
Findings: Health-care utilization		No effects on physical examinations, imaging, and return visits.	States with no barriers have higher probability of CNM attended births	
Findings: Transaction price (as measured by allowed amounts)	Transaction price of child well-care visits is lower under independent SOP for prescription authority. Practice authority is not evaluated.			

APPENDIX TABLE 1. (CONTINUED)

Summary of Recent Studies on Scope of Practice Laws for Physician Assistants and Advanced Practice Registered Nurses

Study	Perloff et al. (2017)	Perry (2012)	Reagan and Salsberry (2013)	Spetz et al. (2013)	Stange (2014)
Scope of practice law	Categories of SOP (full, reduced, or restricted) based on practice authority and prescription authority.	Some level of controlled substance prescriptive authority	Categories of SOP restrictions (none, some, most) based on practice authority and prescription authority	Independent practice authority and independent prescription authority	Independent SOP for prescription authority
Practitioner group(s)	Nurse practitioners	Nurse practitioners	Nurse practitioners	Nurse practitioners	Nurse Practitioners and Physician Assistants
Findings: Health outcomes	No effects of full practice authority on various measures of quality (chronic disease management, cancer screening, ambulatory care-sensitive hospital admissions, and adverse outcomes).				
Findings: Employment		NPs are less likely to move from a state with prescriptive authority	States with some and most restrictions have lower numbers of NPs and a reduced growth rate in NPs.		
Findings: Wages					
Findings: Health-care utilization				Independent NP prescribing is associated with higher probability of prescriptions being filled.	NP prescription authority is associated with modest increases in office-based visits. Effects of PA prescription authority on visits are inconclusive. No effects for either group's SOP laws on patients having a usual source of care.
Findings: Transaction price (as measured by allowed amounts)				Total payments (valued at transaction prices) are lower in retail clinics located in states where NPs practice independently. Prescription payments (valued at transition prices) are higher where NPs can prescribe independently.	NP and PA prescription authority has no effects on prices of office visits. Prices are measured by both transaction prices and charges.

APPENDIX TABLE 1. (CONTINUED)

Summary of Recent Studies on Scope of Practice Laws for Physician Assistants and Advanced Practice Registered Nurses

Study	Timmons (2017)	Traczynski and Udalova (2018)	Xue et al. (2018)	Yang et al. (2016)
Scope of practice law	<p>Prescription authority</p> <p>PAs: Number of years legally allowed to prescribe</p> <p>NPs: Prescribe with/without supervision</p>	Full independence in both practice and prescription authority	Level of barriers to care (restricted, reduced, full) as defined by SOP-based barriers in practice authority and prescriptive authority.	Autonomous practice. No requirements for physician supervision or collaborative practice agreements for overall practice.
Practitioner group(s)	Nurse Practitioners and Physician Assistants	Nurse Practitioners	Nurse Practitioners	Certified nurse midwives
Findings: Health outcomes		Independence increases the probability of reporting self-reporting health status as excellent		Autonomous CNM practice is associated with lower probabilities of labor induction, C-section delivery, preterm birth, and low birth weight.
Findings: Employment		Independence is not associated with changes in number of primary care physicians; physicians increase patient care time and decrease administrative time	Rural counties with full SOP also have a larger supply of NPs.	
Findings: Wages				
Findings: Health-care utilization	No effects on total number of care days for Medicaid patients	Independence increase the probabilities of a routine checkup, usual source of care, and being able to get an appointment when wanted; Decreased probability of ER visits for ambulatory care-sensitive conditions		Autonomous CNM practice is associated with higher probability of CNM-attended birth.
Findings: Transaction price (as measured by allowed amounts)	<p>No effects of NP or PA prescription laws on total Medicaid claims (\$) valued at transaction prices and prescription drug claims valued at transaction prices.</p> <p>PA prescription authority associated with reductions in Medicaid outpatient claims (\$) valued at transaction prices.</p>			

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Endnotes

1. While there were many cost control measures included in the ACA, and health-care inflation has dropped both in level and relative to core CPI growth, health-care prices are still rising above the rate of overall CPI. Given the share of health-care spending of the overall economy and future government budgets, any steps to further reduce costs would be helpful.
2. Physicians are subject to obtaining clinical privileges as part of the health-care system credentialing process and their credentialing is dependent on documentation of continuing medical education and/or numbers of particular procedures conducted.
3. The incident-to requirement means that office or outpatient services provided by APPs are billed under the physicians' identifications. This makes monitoring and analyzing the use and outcomes of APPs difficult because the data for these providers are largely unobserved for Medicare and most commercial plans.
4. We make a distinction between the demand for labor and the demand for medical services. The former addresses consideration from the employers' viewpoint—for example, the hospitals or clinics that hire PAs and APRNs. The latter considers the consumer's or patient's viewpoint. Less-restrictive laws with no oversight requirements could encourage the opening of new health-care facilities staffed primarily by PAs and APRNs. As consumers experience an increase in the availability of these providers and a decrease in the monetary or nonmonetary costs (shorter distances, lower out-of-pocket costs, less waiting time), the demand for these services will increase. If the lessening of restrictions also brings an expansion of allowable services such as the ability of these providers to write prescriptions, consumers' preferences for seeing advanced practitioners via a signal of legitimacy and quality might again lead to increased demand for their services.
5. Many authors use the term "independent" to describe fully authorized SOP. We have preserved the authors' choice of words when describing the academic literature.
6. In regard to health-care markets, the terms reflecting monetary values are often used imprecisely. We use the term "wages" to refer to a negotiated wage rate that is earned by an advanced practitioner via a contractual relationship with a provider or facility (a doctor, hospital, HMO, or some other entity). Wages could be set regardless of the number of patients seen or services billed but it is not uncommon for APPs to be granted a bonus based on productivity, thus allowing them to earn more if they see more patients. Earnings represent net revenue earned by independent practitioners (physicians or APPs practicing independently). Earnings will fluctuate with number of hours worked, number of patients seen, and services billed, depending on the contractual arrangements.
7. The extent to which these savings flow to consumers or the payers of health-care costs would depend on the pricing models and the extent of competition in the health-care industry in a given region.

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Highlights

E. Kathleen Adams and Sara Markowitz explain how scope of practice restrictions on physician assistants and advanced practice registered nurses, embedded in occupational licensing rules, limit competition and contribute to increased health-care costs. They propose state and federal efforts to shift to fully authorized scope of practice for these practitioners.

The Proposals

STATE REFORM

Allow the details of the physician assistant–physician relationship to be determined at the practice level. In particular, this would entail elimination of maximum physician assistant–physician ratios imposed by states.

Implement fully authorized scope of practice for advanced practice registered nurses. This would entail elimination of supervisory or delegative practice requirements, elimination of requirements for formal collaborative practice agreements and protocols, provision of prescription authority, and elimination of APRN-to-physician ratio requirements.

FEDERAL REFORM

Institute fully authorized SOP at federal agencies that provide medical services.

Disseminate and encourage the adoption of best practices at the state level, while also funding research on the effects of restrictive scope of practice.

Benefits

Allowing fully authorized scope of practice for physician assistants and advanced practice registered nurses would alleviate health-care shortages while improving efficiency and productivity in the delivery of health care. Loosening scope of practice restrictions would not have adverse effects on patient outcomes, and would strengthen competitive pressures in the health-care sector.



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