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The Access-to-Care Epidemic

Benjamin McMichael

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Benjamin J. McMichael[*]

Among the many challenges it has created, the COVID-19 pandemic has exacerbated the United States' access-to-care problem. While millions of individuals have confronted this problem for years in the context of chronic disease management, mental illness, and other diseases and injuries, many Americans are facing serious access-to-care issues for the first time during the pandemic. Recognizing the acuity of this problem, states adopted temporary policies to combat it. One of the most important policy solutions has been the relaxation of state scope-of-practice laws that inhibit the ability of many healthcare providers, such as nurse practitioners, to deliver healthcare. These temporary relaxations offer insight into longer-term solutions to the longstanding access-to-care issues that pervade the American healthcare system.

While some states have changed their scope-of-practice laws to allow nurse practitioners to practice independently (on a permanent basis), many states have refused to do so, citing patient safety concerns. To evaluate these concerns, this Article examines the impact of relaxing these laws in the context of another familiar public health crisis—the opioid epidemic. This purported tension, between access and safety, is most directly studied in the context of the opioid epidemic, which arose within the healthcare system itself and is intimately connected to patient safety. The opioid epidemic is, therefore, an ideal setting in which to evaluate patient safety concerns.

Analyzing a restricted-access dataset of all opioid-related deaths between 2005 and 2017, I find no empirical evidence to support the contention that relaxing scope-of-practice laws

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endangers patient safety. Instead, I find consistent and statistically significant evidence that eliminating scope-of-practice restrictions reduces opioid-related deaths by between 5 and 11 percent. These results demonstrate that, had all states allowed nurse practitioners to practice independently, five thousand fewer people would have died of an opioid overdose in 2018 alone. This evidence supports (1) making the temporary relaxations of scope-of-practice laws permanent and (2) expanding these relaxations to other states that have always maintained restrictive laws. Not only will removing legal barriers to the provision of care ameliorate the effects of the current pandemic, but also it will address many of the pervasive problems that predate, and will postdate, COVID-19. This Article engages with the results of the empirical analysis to explore several state and federal policy options to relax scope-of-practice laws and meaningfully improve access to care permanently.

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INTRODUCTION

For the first time in their lives, many Americans experienced a lack of access to healthcare during the COVID-19 pandemic. By this, I do not mean an inability to pay for healthcare or the problems of un- and underinsurance. I instead refer to the more fundamental problem of an inability to obtain any care at all. Many people with private insurance could not access the care they needed because there were simply not enough healthcare providers to supply it.[1] Thus, the COVID-19 pandemic effectively democratized the access-to-care problem. The pandemic forced millions of Americans in wealthy, urban areas to (briefly) experience what millions more in rural and impoverished communities have experienced for years: an inability to access care because of a lack of providers.[2] In other words, the pandemic elucidated the longstanding and fundamental problem of unequal access to healthcare providers in the United States.[3]

I do not mean to downplay or understate the problem of access to health insurance. I do, however, mean to draw a sharp distinction that has largely been absent from the health law and policy debate over the past twenty years: the difference between access to *health insurance* and access to *healthcare*. In the age of the Affordable Care Act, policymakers and scholars often treat access to healthcare as coextensive with access to health insurance.[4] But the COVID-19 pandemic has demonstrated that access to healthcare necessarily requires access to healthcare providers and the medical resources they need to provide care.[5] The quality of someone's health insurance is irrelevant if a person cannot find a healthcare provider to deliver the care they need. As the nation solves the specific problems resulting from COVID-19, it could also take the opportunity to address the access-to-care problem within the healthcare system

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1. Olivia Goldhill, *'People Are Going to Die': Hospitals in Half the States Are Facing a Massive Staffing Shortage as Covid-19 Surges*, STAT (Nov. 19, 2020), https://www.statnews.com/2020/11/19/covid19-hospitals-in-half-the-states-facing-massive-staffing-shortage/.

2. Samrachana Adhikari et al., *Assessment of Community-Level Disparities in Coronavirus Disease 2019 (COVID-19) Infections and Deaths in Large US Metropolitan Areas*, JAMA NETWORK OPEN (July 28, 2020), https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2768723 ("Urban counties in large metropolitan areas in the United States are among the most affected by the coronavirus disease 2019 (COVID-19) pandemic.").

3. Alvin Powell, *The Costs of Inequality: Money = Quality Healthcare = Longer Life*, HARV. GAZETTE (Feb. 22, 2016), https://news.harvard.edu/gazette/story/2016/02/money-quality-health-care-longer-life/.

4. *See* Benjamin J. McMichael, *Occupational Licensing and the Opioid Crisis*, 54 U.C. DAVIS L. REV. 887, 889 (2020) (noting that the "treatment of access to healthcare as effectively coextensive with access to health insurance has obscured a more fundamental problem with access to care").

5. *See* BETHANY COLE, NAT'L ACAD. OF SOC. INS., THE IMPACT OF THE COVID-19 PANDEMIC ON ACCESS TO HEALTHCARE 1 (2020).

more generally. And the potential solutions addressing ways to confront this pervasive problem can be found within the emergency responses to this most recent pandemic.

These emergency responses have targeted a number of specific problems, but the most important issue they have addressed is a lack of healthcare providers to care for patients. This problem, which is the root cause of many access-to-care deficiencies, is the focus of this Article. In March 2020, for example, the governor of Kentucky issued an executive order suspending or modifying provisions of state law that could impede the ability of healthcare providers to deliver care.[6] Many of the provisions selected for suspension concerned the scope of practice ("SOP") of healthcare providers, such as nurse practitioners ("NPs") and physician assistants ("PAs").[7] The Kentucky executive order suspended state laws requiring NPs to "have collaborative agreements with physicians as a prerequisite for the prescribing of legend drugs and controlled substances."[8]

Legal scholars, health policy researchers, and economists alike have criticized restrictive SOP laws for their propensity to hinder the ability of qualified providers to care for patients and to restrict access to care more generally.[9] In particular, these scholars and researchers have emphasized that SOP laws requiring physicians to supervise NPs or PAs impede the ability of providers to care for patients and decrease access to care.[10] Consistent with these criticisms, Kentucky's governor used his executive authority to eliminate these legal barriers to care and expand the capacity of the healthcare workforce. Officials in other states similarly eliminated restrictive SOP laws to better enable NPs and other providers to care for patients.[11] And Kentucky's approach in abrogating restrictive SOP laws embodies the policy changes that many have recommended for

6. *See* COMMONWEALTH OF KY., OFFICE OF THE GOVERNOR, ORDER (Mar. 31, 2020), https://governor.ky.gov/attachments/20200331_Nursing-Documents.pdf.

7. *See id.*

8. *Id.*

9. *See, e.g.*, PETER BUERHAUS, NURSE PRACTITIONERS: A SOLUTION TO AMERICA'S PRIMARY CARE CRISIS 1–2 (2018) (noting problems with restrictive SOP laws); Barbara J. Safriet, *Closing the Gap Between* Can *and* May *in Health-Care Providers' Scopes of Practice: A Primer for Policymakers*, 19 YALE J. ON REGUL. 301, 311–23 (2002) (same); Jeffrey Traczynski & Victoria Udalova, *Nurse Practitioner Independence, Health Care Utilization, and Health Outcomes*, 58 J. HEALTH ECON. 90, 103–04 (2018) (explaining the benefits of less restrictions on NPs' scopes of practice).

10. *See* E. KATHLEEN ADAMS & SARA MARKOWITZ, THE BROOKINGS INST., THE HAMILTON PROJECT, IMPROVING EFFICIENCY IN THE HEALTH-CARE SYSTEM: REMOVING ANTICOMPETITIVE BARRIERS FOR ADVANCED PRACTICE REGISTERED NURSES AND PHYSICIAN ASSISTANTS 6, 11 (2018).

11. *See infra* Subpart II.A.

the healthcare system on a more permanent basis.[12] For example, the Obama and Trump administrations, the National Academy of Medicine, and other national organizations have urged states to relax their SOP laws.[13]

Relaxing these laws may seem like an obvious solution to an important problem, which extends beyond the COVID-19 pandemic. But physician organizations have raised important objections to long-term legal changes to this effect.[14] They argue that allowing NPs to practice independently of physicians may endanger patient safety.[15] They note, for example, that NPs complete much less training than that of physicians, which they argue makes NPs incapable of independently providing safe and high-quality care.[16] While the available clinical evidence does not generally support this

12. *See* ADAMS & MARKOWITZ, *supra* note 10, at 6 (recommending similar action on a permanent basis); BUERHAUS, *supra* note 9, at 17 (same).

13. *See* INST. OF MED., THE FUTURE OF NURSING: LEADING CHANGE, ADVANCING HEALTH 278 (2011); U.S. DEP'T OF HEALTH & HUM. SERVS. ET AL., REFORMING AMERICA'S HEALTHCARE SYSTEM THROUGH CHOICE AND COMPETITION 36 (2018); U.S. DEP'T OF TREASURY, OFF. OF ECON. POL'Y ET AL., OCCUPATIONAL LICENSING: A FRAMEWORK FOR POLICYMAKERS 31–32, 46–47 (2015); *see also, e.g.*, NAT'L GOVERNORS ASS'N, THE ROLE OF NURSE PRACTITIONERS IN MEETING INCREASING DEMAND FOR PRIMARY CARE 1 (2012) (noting the National Governors Association's preference for NP independence).

14. *See* AM. MED. ASS'N, RESOLUTION 214. APRN COMPACT 238 (2017), https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/hod/i17-resolutions.pdf ("Our [American Medical Association], in the public interest, opposes enactment of legislation to authorize the independent practice of medicine by any individual who has not completed the state's requirements for licensure to engage in the practice of medicine and surgery in all of its branches."); *see also* PA. MED. SOC'Y, EDUCATION AND TRAINING MATTERS 1 (2019), https://www.pamedsoc.org/docs/librariesprovider2/pamed-documents/advocacy-priorities/425_educationtraingmatters_print.pdf (articulating the physicians' objections to relaxing the SOP laws governing NPs); Letter from Austin I. King, President, Tex. Med. Ass'n, to James W. Johnston, Gen. Couns., Tex. State Bd. of Nursing (June 30, 2014) (on file at https://www.texmed.org/uploadedFiles/Current/Advocacy/Scope_of_Practice/TBN-APRN-rules-063014.pdf) (same).

15. *See, e.g.*, *CMA Objects to Federal Scope Expansion Under President's Executive Order*, CAL. MED. ASS'N (Oct. 14, 2019), https://www.cmadocs.org/newsroom/news/view/ArticleId/28183 (noting that the California Medical Association "opposes any attempts to remove physician oversight over [NPs] and believes that doing so would put the health and safety of patients at risk").

16. Letter from James L. Madara, Exec. Vice President & CEO, Am. Med. Ass'n, to Hon. Gavin Newsom, Governor, State of Cal. (Sep. 10, 2020) (on file at https://searchlf.ama-assn.org/letter/documentDownload?uri=%2Funstructured%2Fbinary%2Fletter%2FLETTERS%2FAMA-Letter-to-Governor-Newsom-Oppose-AB890-FINAL.pdf) ("[W]ith only two to three years of education, no residency requirement and only 500–720 hours of clinical training, [NPs] are not trained to practice independently. By sharp contrast, physicians complete four years of medical school plus three to seven years of residency, including 10,000-16,000 hours of clinical training.").

conclusion,[17] proponents of restrictive SOP laws have recently pointed to another public health crisis to bolster their arguments—the opioid epidemic.[18] Until the COVID-19 pandemic, the opioid epidemic, which has resulted in the deaths of hundreds of thousands of Americans,[19] was hailed as the defining public health crisis of the current generation.[20] Proponents of restrictive SOP laws argue that allowing NPs and other providers to practice without physician supervision will deepen this crisis because unsupervised NPs will inappropriately overprescribe opioids.[21] These, and related,

17. *See* ADAMS & MARKOWITZ, *supra* note 10, at 12 (reviewing the evidence and concluding that NPs can safely provide care); BUERHAUS, *supra* note 9, at 9–10, 15–16 (reaching the same conclusion).

18. *See* Letter from James L. Madara to Hon. Gavin Newsom, *supra* note 16, at 1–3.

19. Throughout this Article, I will refer to the COVID-19 crisis as a "pandemic" and the opioid crisis as an "epidemic." While there is no clear definition that separates pandemic from epidemic, the former generally refers to a disease that affects people throughout multiple regions and the latter generally refers to a disease affecting people within a community. At the risk of abusing these terms, calling the COVID-19 crisis a pandemic and the opioid crisis an epidemic will help separate these two public health crises. *See Epidemic Disease Occurrence*, CDC, https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section11.html (last reviewed May 18, 2012) (defining a pandemic); Jamie Ducharme, *World Health Organization Declares COVID-19 a 'Pandemic.' Here's What That Means*, TIME (Mar. 11, 2020, 12:39 PM), https://time.com/5791661/who-coronavirus-pandemic-declaration/ (discussing the "fuzzy" differences between pandemics and epidemics).

20. *See* NAT'L ACADS. OF SCIS., ENG'G, & MED., PAIN MANAGEMENT AND THE OPIOID EPIDEMIC: BALANCING SOCIETAL AND INDIVIDUAL BENEFITS AND RISKS OF PRESCRIPTION OPIOID USE 187 (Richard J. Bonnie, Morgan A. Ford & Jonathan K. Phillips eds., 2017) ("Not since the HIV/AIDS epidemic has the United States faced as devastating and lethal a health problem as the current crisis of opioid misuse and overdose and opioid use disorder."); *Drug Overdose Deaths*, CDC, https://www.cdc.gov/drugoverdose/data/statedeaths.html (last reviewed Aug. 25, 2021).

21. *See* Letter from James L. Madara to Hon. Gavin Newsom, *supra* note 16, at 2 (arguing that granting independence to NPs will increase opioid prescriptions). These arguments have also been discussed in the popular press and academic literature. *See, e.g.*, Carole R. Myers & Jill Alliman, *Updates on the Quest for Full Practice Authority*, 14 J. FOR NURSE PRACS. 559, 561 (2018); Lori Schirle & Brian McCabe, *State Variation in Opioid and Benzodiazepine Prescriptions Between Independent and Nonindependent Advanced Practice Registered Nurse Prescribing States*, 64 NURSING OUTLOOK 86, 87 (2016); Virgil Dickson, *Expanded Scope: Nurse Practitioners Making Inroads*, MOD. HEALTHCARE (Feb. 20, 2016, 12:00 AM), https://www.modernhealthcare.com/article/20160220/MAGAZINE/302209981.

arguments prove effective in encouraging states to maintain restrictive SOP laws.[22]

Thus, the issues that lie at the heart of the two most salient public health crises this country has faced in the last several decades establish the conflict that is the focus of this Article. On the one hand, the COVID-19 pandemic has elucidated the importance of access to healthcare providers and the ability to increase the capacity of the healthcare workforce by eliminating restrictive SOP laws. On the other hand, the more familiar and longer-standing opioid epidemic, which arose from within the healthcare system itself and is intimately connected with patient safety concerns, has highlighted the importance of maintaining laws that protect patients from dangerous providers.[23]

This Article engages with this conflict in two ways. First, it provides a new and critically important empirical analysis of the claims made in connection with SOP laws and the opioid epidemic. Examining a comprehensive dataset that includes information on every opioid-related death in the United States between 2005 and 2017, I find no evidence that relaxing NPs' SOP laws exacerbates the opioid epidemic. To the contrary, with opioid-related deaths declining by 9.3% when states relax their SOP laws, the results demonstrate that removing these barriers mitigates the effects of the opioid epidemic. By evaluating the claims made about the role of restrictive SOP laws in the context of the opioid epidemic, this Article directly addresses the patient safety arguments made by proponents of restrictive SOP laws in the context of a crisis rooted in patient safety. Because of the breadth of the SOP law debate, it would prove impossible to evaluate all SOP laws in a single analysis. Accordingly, the analysis here focuses on the role of NPs' SOP laws in the opioid epidemic. While the laws governing other healthcare professionals are certainly important, the NP profession has made the most progress towards removing restrictive laws.[24] And the debate over NPs' SOP laws has become a microcosm of the debate over SOP laws for healthcare providers more generally.

Second, this Article uses the empirical evidence developed in the context of the opioid epidemic to engage with the emergency measures

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22. *See State Practice Environment*, AM. ASS'N NURSE PRACS., https://www.aanp.org/advocacy/state/state-practice-environment (last updated Jan. 1, 2021) (mapping SOP laws in the United States and its territories).

23. *See* Jennifer L. Doleac & Anita Mukherjee, The Moral Hazard of Lifesaving Innovations: Naloxone Access, Opioid Abuse, and Crime 8 (Mar. 31, 2019) (unpublished manuscript) (on file at https://ssrn.com/abstract=3135264) ("Individuals are prescribed these drugs to treat pain, but many patients develop addictions that lead them to illegal use of prescription opioids and cheaper substitutes such as heroin.").

24. *See* Fran Kritz, *Removing Practice Barriers*, 118 AM. J. NURSING 22, 22 (2018).

taken to combat the COVID-19 pandemic. It argues that the emergency measures designed to increase access to care in this pandemic should be extended permanently. Linking the evidence developed from the opioid epidemic to the emergency measures passed in the COVID-19 pandemic demonstrates that these measures will not endanger patient safety if maintained in the long term. Of course, the empirical evidence developed in this Article is not, by itself, sufficient to warrant such sweeping changes. This evidence contrasts with the important new argument that relaxing NPs' SOP laws will exacerbate the opioid crisis. When combined with existing evidence that NPs provide safe and effective healthcare and expand access to care to underserved groups,[25] the evidence developed here can justify salient changes in the regulation of healthcare providers. Thankfully, the COVID-19 pandemic will not last forever, but increasing access to care can solve many other problems unrelated to COVID-19. This pandemic, despite the tragic harms it has inflicted, can catalyze meaningful healthcare changes going forward if policymakers take the emergency measures already implemented seriously.

This Article proceeds in four parts. Part I details the existing state of healthcare workforce regulation, engaging with the role of regulation on access to care. Part II examines the arguments made for and against expanding access to care by relaxing SOP laws. These arguments are sharpened with examples from both the COVID-19 pandemic and the opioid epidemic. Part III reports the empirical analysis of the effect of SOP laws on opioid-related deaths. This analysis reveals that removing physician supervision requirements for NPs reduces opioid-related deaths and can directly inform the patient safety arguments against relaxing SOP laws. Part IV relies on this evidence to develop specific policy recommendations that will increase access to care. These policy recommendations flow directly from the emergency measures implemented to combat the COVID-19 pandemic. A brief conclusion follows.

I. THE ROLE OF HEALTHCARE WORKFORCE REGULATION IN ACCESS TO CARE

Traditionally, the American healthcare system has been physician-centric. Physicians have historically provided much of the healthcare in this country, and they have been the primary decision makers within the healthcare system.[26] Other providers, like registered nurses, have always played indispensable roles in the delivery of care, but physicians are responsible for the majority of

25. *See infra* Subpart I.A (discussing this evidence).

26. David I. Auerbach et al., *Growing Ranks of Advanced Practice Clinicians—Implications for the Physician Workforce*, 378 NEW ENG. J. MED. 2358, 2358 (2018).

healthcare in the United States.[27] This trend, however, has begun to reverse in recent decades. New types of providers, like NPs, PAs, respiratory therapists, and advanced practice pharmacists, have played increasingly important roles in delivering healthcare.[28] NPs, in particular, play an outsized role in supplementing the physician workforce in ensuring access to care.[29] This trend is likely to continue as the growth rate of NPs far outstrips that of physicians.[30] This Part discusses the role of NPs within the healthcare system and the role of SOP laws in inhibiting or augmenting their ability to provide care.

A. Emerging Members of the Healthcare Workforce

As the supply of physicians has become inadequate to meet the needs of the population,[31] new members of the healthcare workforce are playing increasingly prominent roles in the healthcare system.[32] These professions include NPs, certified registered nurse anesthetists, PAs, advanced practice pharmacists, and others.[33] Though they have sometimes been (pejoratively) referred to as "mid-level providers,"[34] this group of professions is more accurately called "advanced practice providers."[35] The educational and training requirements vary between individual professions, but all advanced practice providers complete some amount of postgraduate work.[36]

An aspiring NP must complete a bachelor's degree and the requirements to become a registered nurse.[37] Most future NPs work several years as registered nurses before completing an additional

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27. *Id.*

28. *Id.*

29. Edward Salsberg, *Changes in the Pipeline of New NPs and RNs: Implications for Health Care Delivery and Educational Capacity*, HEALTH AFFS. BLOG (June 5, 2018), https://www.healthaffairs.org/do/10.1377/hblog20180524.993081/full/.

30. *Id.*

31. *See* ASS'N OF AM. MED. COLLS., THE COMPLEXITIES OF PHYSICIAN SUPPLY AND DEMAND: PROJECTIONS FROM 2017 TO 2032, at 1 (2019) (estimating a shortage of as many as 121,900 physicians by 2032).

32. *See* DEP'T OF THE TREASURY, OFF. OF ECON. POL'Y ET AL., *supra* note 13, at 31–32 (discussing the various healthcare professionals that are increasingly supplying healthcare).

33. These new professions practice alongside professionals, such as registered nurses, that have a long history of providing care in conjunction with physicians. *Id.*

34. Catherine S. Bishop, *Advanced Practitioners Are Not Mid-Level Providers*, 3 J. ADVANCED PRAC. ONCOLOGY 287, 287–88 (2012).

35. Erin Sarzynski & Henry Barry, *Current Evidence and Controversies: Advanced Practice Providers in Healthcare*, 25 AM. J. MANAGED CARE 366, 366 (2019), https://www.ajmc.com/view/current-evidence-and-controversies-advanced-practice-providers-in-healthcare.

36. *Id.*

37. ADAMS & MARKOWITZ, *supra* note 10, at 9.

two to four years of education and training to become NPs.[38] This additional education results in a professional master's or doctoral degree, and it includes clinical and classroom training that prepares future NPs to diagnose and treat patients, order and interpret tests, and prescribe medications.[39] After they complete their training, NPs practice in a wide array of healthcare settings across all fifty states, but their practice choices differ substantially from those of physicians.[40] Unlike medical school graduates, who predominantly choose to practice in non-primary care settings,[41] over sixty percent of NPs choose to practice some form of primary care.[42] NPs care for underserved populations and Medicaid beneficiaries at higher rates than physicians,[43] and NPs are more likely to provide care in rural and isolated areas than physicians.[44]

38. BUERHAUS, *supra* note 9, at 4.

39. *Id.* at 4.

40. *See id.*

41. Julie P. Phillips et al., *Trends in US Medical School Contributions to the Family Physician Workforce: 2018 Update from the American Academy of Family Physicians*, 51 FAM. MED. 241, 241 (2019).

42. *See* Grant R. Martsolf et al., *Employment of Advanced Practice Clinicians in Physician Practices*, 178 JAMA INTERNAL MED. 988, 989 (2018) (providing an overview of the practice choices made by NPs); *see also NP Fact Sheet*, AM. ASS'N NURSE PRACS., https://www.aanp.org/about/all-about-nps/np-fact-sheet (last updated May 2021).

43. *See* Peter I. Buerhaus et al., *Practice Characteristics of Primary Care Nurse Practitioners and Physicians*, 63 NURSING OUTLOOK 144, 150 (2015) ("Compared with [primary care physicians] who worked with or without [primary care NPs], [primary care NPs] also provided proportionally more care to Medicaid enrollees and vulnerable populations."); Martsolf et al., *supra* note 42, at 988 (finding that one in three primary care practices employed a primary care NP or physician assistant); Benjamin J. McMichael, *Beyond Physicians: The Effect of Licensing and Liability Laws on the Supply of Nurse Practitioners and Physician Assistants*, 15 J. EMPIRICAL LEGAL STUD. 732, 759–64 (2018) (finding that NPs are more likely to practice in health professional shortage areas following the relaxation of SOP laws).

44. *See* Hilary Barnes et al., *Rural and Nonrural Primary Care Physician Practices Increasingly Rely on Nurse Practitioners*, 37 HEALTH AFFS. 908, 908 (2018) ("We found increasing NP presence in both rural and nonrural primary care practices in the period 2008–16."); *see also* Buerhaus et al., *supra* note 43, at 146 ("[Primary care NPs] are significantly more likely than [primary care physicians] to practice in urban and rural areas, whereas [primary care physicians] are more likely to practice in suburban locations."); McMichael, *supra* note 43, at 759–64 (finding that NPs are more likely to practice in health professional shortage areas following the relaxation of SOP laws); Ying Xue et al., *Primary Care Nurse Practitioners and Physicians in Low-Income and Rural Areas, 2010-2016*, 321 JAMA 102, 102–04 (2019).

The Bureau of Labor Statistics estimates that there are approximately 211,280 NPs practicing in the United States.[45] Given this high number and the fact that the NP profession is growing more quickly than the medical profession, scholars and policymakers have looked to NPs to fill critical healthcare needs in an era of physician shortages.[46] The Association of American Medical Colleges estimates that the United States will face a physician shortage of 90,000 in the next five years.[47] This shortage will impact the country in general, but research has shown that physician shortages will have the biggest impact in rural areas.[48] These areas already rely heavily on NPs, and this reliance will only increase as the physician shortage worsens.[49] Currently, NPs outnumber family and general practice physicians,[50] and NPs are the principal source of healthcare in many areas.[51] Importantly, however, the ability of NPs to deliver care in these areas depends on the state SOP laws that govern their practices.

B. Scope of Practice

State SOP laws are a subset of the more familiar occupational licensing laws that govern every profession—not just healthcare professions. While occupational licensing laws generally regulate everything from entry requirements[52] to continuing education requirements,[53] SOP laws regulate the services that members of a profession can provide and the conditions under which they may

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45. *Occupational Employment and Wages, May 2020*, U.S. BUREAU LAB. STAT., https://www.bls.gov/oes/current/oes291171.htm (last updated Mar. 31, 2021).

46. *See, e.g.*, Press Release, Ass'n Am. Med. Colls., New AAMC Report Confirms Growing Physician Shortage (June 26, 2020) (on file at https://www.aamc.org/news-insights/press-releases/new-aamc-report-confirms-growing-physician-shortage).

47. ASS'N AM. MED. COLLS., THE COMPLEXITIES OF PHYSICIAN SUPPLY AND DEMAND: PROJECTIONS FROM 2018 TO 2033, at viii (2020), https://www.aamc.org/media/45976/download.

48. Lucy Skinner et al., *Implications of an Aging Rural Physician Workforce*, 381 NEW ENG. J. MED. 299, 300 (2019).

49. Buerhaus et al., *supra* note 43, at 145–46.

50. *See* Auerbach et al., *supra* note 26, at 2358–59; David I. Auerbach, *Will the NP Workforce Grow in the Future?: New Forecasts and Implications for Healthcare Delivery*, 50 MED. CARE 606, 607–08 (2012).

51. *Id.* at 607–09; Auerbach et al., *supra* note 26, at 2358–59; Christine M. Everett et al., *Primary Care Physician Assistant and Advance Practice Nurses Roles: Patient Healthcare Utilization, Unmet Need, and Satisfaction*, 4 HEALTHCARE 327, 328–31 (2016).

52. The bar examination for attorneys is a familiar example.

53. *See generally* MORRIS M. KLEINER, THE BROOKINGS INST., THE HAMILTON PROJECT, REFORMING OCCUPATIONAL LICENSING POLICIES (2015), https://www.brookings.edu/research/reforming-occupational-licensing-policies/ (discussing occupational licensing requirements, including continuing education).

practice.[54] Unlike physicians who see, at most, minor differences from state to state in the laws regulating their practices, NPs face substantial variation in the state SOP laws that govern them.[55] Prior work has developed several classification schemes to categorize NP SOP laws.[56] These various classification schemes each have advantages and disadvantages, but they often arrive at categorizations that are highly correlated with one another.[57]

Throughout this Article, I rely on an existing classification scheme developed after extensive statutory and regulatory research.[58] This approach minimizes the risk of misclassification that may arise when relying on potentially inconsistent secondary sources. Importantly, the scheme adopted here isolates specific statutes and regulations that embody two key aspects of SOP laws: physician supervision requirements and prescription authority.[59] Collectively, these two aspects of SOP laws—especially the physician supervision requirements—have the largest impact on the ability of NPs to deliver care.[60]

Under this classification scheme, each state, in each year, is categorized as either allowing NPs to practice independently or restricting NPs from practicing independently. A state allows "independent practice" if it (1) lacks a requirement that physicians supervise NPs and (2) grants NPs full prescription authority (i.e., allows NPs to prescribe the same range of medications as physicians).[61] States that require physician supervision of NPs or restrict NPs' prescription authority fall into the "restricted practice"

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54. ADAMS & MARKOWITZ, *supra* note 10, at 6.

55. *Id.* at 7–9.

56. *See, e.g.*, Morris M. Kleiner et al., *Relaxing Occupational Licensing Requirements: Analyzing Wages and Prices for a Medical Service*, 59 J.L. & ECON. 261, 266–67 (2016) (classifying states based on whether they granted NPs "limited prescription authority," "supervised or delegated prescription authority," or "independent prescription authority"); Sara Markowitz et al., *Competitive Effects of Scope of Practice Restrictions: Public Health or Public Harm?*, 55 J. HEALTH ECON. 201, 203–04 (2017) (categorizing states as imposing "no barriers," "low barriers," "moderate barriers," or "high barriers").

57. Benjamin J. McMichael, *Healthcare Licensing and Liability*, 95 IND. L.J. 821, 831 (2020).

58. Benjamin J. McMichael & Sara Markowitz, *Toward a Uniform Classification of Nurse Practitioner Scope of Practice Laws* 24–29 (Nat'l Bureau of Econ. Rsch., Working Paper No. 28192, 2020), https://www.nber.org/papers/w28192.

59. *See* McMichael, *supra* note 57, at 831–32.

60. *See id.* at 831–34, 880–81 (discussing the importance of supervision laws and prescription authority laws); *see also* Ky. Exec. Order No. 2020-215 (Mar. 31, 2020), https://governor.ky.gov/attachments/20200331_Nursing-Documents.pdf (suspending statutes that "require that Advanced Practice Registered Nurses (APRNs) have collaborative agreements with physicians as a prerequisite for the prescribing of legend drugs and controlled substances").

61. McMichael & Markowitz, *supra* note 58, at 5, 10.

category.[62] When classifying states based on physician supervision requirements, I treat statutes that require "collaboration" or "collaborative practice agreements" as the equivalent of statutes requiring "supervision." While "supervision" and "collaboration" may have slightly different connotations, their legal effect is the same in that they both prohibit NPs from providing care without physician oversight.[63]

During the period covered by the dataset analyzed here—2005 through 2017—twenty-five states restricted the practices of NPs.[64] Of the remaining twenty-five states and the District of Columbia,[65] eleven allowed NPs to practice independently throughout the entire data period, and fifteen changed their laws to move from restricted practice to independent practice.[66] These fifteen states that changed their laws are key because it is the variation in SOP laws that forms the basis of the empirical analysis detailed below.

As indicated by the fifteen states that have changed their laws, the trend in NPs' SOP laws has been decidedly in favor of greater independence.[67] This trend, however, has not continued unopposed. Both opponents and proponents of restrictive SOP laws have vigorously pressed their arguments in state capitols across the country. The next Part engages with these arguments, which coincide nearly perfectly with the two most recent public health crises faced by the United States.

II. SCOPE-OF-PRACTICE ARGUMENTS AND PUBLIC HEALTH CRISES

The response of various states to the COVID-19 pandemic clearly illustrates one of the primary arguments for relaxing SOP laws—increasing access to care. Facing this crisis and realizing they needed to increase the capacity of their healthcare workforce, states abrogated their restrictive SOP laws. Proponents of liberalizing SOP laws have long made similar arguments in less acute contexts, noting that clinical and economic research demonstrates the ability of independent NPs to increase access to care.[68] They have similarly

62. *See* McMichael, *supra* note 57, at 825, 848.

63. McMichael & Markowitz, *supra* note 58, at 5–6.

64. *See id.* at 24–29.

65. Here and throughout my analysis, I treat the District of Columbia as a state since it is a distinct jurisdiction that determines its own SOP laws separately from all other states. *See* D.C. Mun. Regs. tit. 17, §§ 5900–5999 (2017).

66. These states (with the year of the law change) include: Hawaii (2009), Colorado (2010), Maryland (2010), North Dakota (2011), Vermont (2011), Rhode Island (2012), Nevada (2013), Connecticut (2014), New York (2015), Minnesota (2015), Nebraska (2015), Delaware (2015), Utah (2016), West Virginia (2016), and South Dakota (2017). McMichael & Markowitz, *supra* note 58, at 24–29.

67. *Id.* (highlighting that as of 2020, thirty states allow full practice authority for NPs, with three states changing their laws in favor of greater independence post-2017).

68. *See* Buerhaus, *supra* note 9, at 11–16.

emphasized evidence that relaxing SOP laws can lower the cost of care. On the other side of the debate, opponents of granting NPs more authority and autonomy have argued that restrictive SOP laws are necessary for the protection of patient safety.[69] Though opponents have long made general arguments to this effect, these arguments reached their zenith in the context of the opioid epidemic—a public health crisis that began within the healthcare system itself and that has patient safety at its core.[70] This Part engages with both sides of the SOP law debate, using the COVID-19 pandemic and the opioid epidemic to provide context for the arguments proffered by each side.

A. COVID-19 and Access to Care

The COVID-19 pandemic first appeared in the United States in Washington, with the first diagnosed case on January 20, 2020.[71] The virus rapidly spread across the country, and the World Health Organization declared COVID-19 a global pandemic on March 11, 2020.[72] By the end of April 2020, the total number of cases in the United States had crossed the one million threshold, with nearly sixty thousand of those cases resulting in death.[73] By the end of 2020, over twenty million cases had been reported, and the number of deaths had easily surpassed three hundred fifty thousand.[74]

The COVID-19 pandemic and its tragic consequences spurred a number of states to take action. Perhaps the most familiar actions taken by many states concern orders to shelter in place or self-quarantine.[75] But states also realized that critical shortages of

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69. *See generally* PA. MED. SOC'Y, *supra* note 14, at 1–2 (articulating physicians' objections to relaxing the SOP laws governing NPs).

70. *See* NAT'L ACADS. OF SCIS., ENG'G, & MED., *supra* note 20, at 25–30.

71. Melissa M. Arons et al., *Presymptomatic SARS-CoV-2 Infections and Transmission in a Skilled Nursing Facility*, 382 NEW ENG. J. MED. 2081, 2082 (2020).

72. Megan L. Ranney et al., *Critical Supply Shortages — The Need for Ventilators and Personal Protective Equipment during the Covid-19 Pandemic*, 382 NEW ENG. J. MED. e41(1), e41(1) (2020).

73. *See COVID Data Tracker: United States COVID-19 Cases and Deaths by State*, CDC, https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html (last visited July 15, 2021).

74. *See COVID Data Tracker: Data Table for Case Total and Rate per 100,000 - United States*, CDC, https://covid.cdc.gov/covid-data-tracker/#trends_totalandratedeathstotalrate (last visited July 15, 2021); *COVID Data Tracker: Data Table for Death Total and Rate per 100,000 - United States*, CDC, https://covid.cdc.gov/covid-data-tracker/#trends_totalandratede-athstotalrate (last visited July 15, 2021).

75. *See generally* Cal. Exec. Order N-33-20 (Mar. 19, 2020), https://www.gov.ca.gov/wp-content/uploads/2020/03/3.19.20-attested-EO-N-33-20-COVID-19-HEALTH-ORDER.pdf (ordering citizens of California to stay at home unless they were working in one of sixteen essential infrastructure sectors); Conn. Exec. Order No. 7III (July 21, 2020), https://portal.ct.gov/-/media/Office-of-

healthcare providers could impede efforts to combat the pandemic and took action to increase access to care by eliminating restrictive NPs' SOP laws. For example, New York eliminated the requirement that NPs practice under physician supervision,[76] and Wisconsin suspended the state regulation that requires NPs to "work in a collaborative relationship with a physician."[77] Similarly, Kentucky suspended statutes requiring "that [NPs] have collaborative agreements with physicians as a prerequisite for the prescribing of legend drugs and controlled substances . . . ."[78] Louisiana "suspended" all "collaborative practice agreement[s],"[79] and New Jersey suspended various "statutory provisions that may serve to limit the scope of practice of [NPs]," including a requirement that NPs have a collaborative agreement with a supervising physician.[80]

A robust literature of clinical and economic evidence supports the use of these orders as an effective means to increase access to care. In general, states with less restrictive SOP laws "overall had more geographically accessible" NPs[81] because "restrictive licensing laws limit the growth in the supply of [NPs] who could deliver care in communities with relatively few practicing physicians."[82] Even with a fixed supply of NPs, relaxing restrictive SOP laws can increase access to care by "maximizing [the] capacity of the NP workforce," which can provide more healthcare services when not burdened by these laws.[83] A recent analysis from the Brookings Institution[84] explained that the increase in the capacity of the NP workforce stems from "[a]chieving productivity gains" by allowing NPs to provide care

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the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7III.pdf (ordering travelers from states with a positive test rate higher than ten per one hundred thousand residents to self-quarantine for a period of fourteen days from the day of last contact with the affected state).

76. N.Y. Exec. Order No. 202.10 (Mar. 23, 2020), https://www.governor.ny.gov/news/no-20210-continuing-temporary-suspension-and-modification-laws-relating-disaster-emergency.

77. WIS. ADMIN. CODE N § N 8.10(7) (2019); *see* Wis. Emergency Order No. 16 (Mar. 27, 2020), https://content.govdelivery.com/attachments/WIGOV/2020/03/27/file_attachments/1413356/DSPS%20_%20Reduced.pdf (suspending, *inter alia*, Wis. Admin. Code N § 8.10(7)).

78. Ky. Exec. Order No. 2020-215 (Mar. 31, 2020).

79. La. Exec. Order No. 38 JBE 2020 (Mar. 31, 2020).

80. N.J. Exec. Order No. 112 (Apr. 1, 2020).

81. John A. Graves et al., *Role of Geography and Nurse Practitioner Scope-of-Practice in Efforts to Expand Primary Care System Capacity: Health Reform and the Primary Care Workforce*, 54 MED. CARE 81, 82–84 (2016).

82. McMichael, *supra* note 43, at 765.

83. Ying Xue et al., *Full Scope-of-Practice Regulation Is Associated with Higher Supply of Nurse Practitioners in Rural and Primary Care Health Professional Shortage Counties*, 8 J. NURSING REGUL. 5, 5 (2018).

84. *About Us*, THE BROOKINGS INST., https://www.brookings.edu/about-us/ (last visited July 15, 2021).

within their training and education.[85] This, in turn, allows physicians to concentrate on providing more complex care. The importance of relaxed SOP laws in increasing the capacity of the healthcare workforce was particularly apparent following Medicaid expansion. Among states that expanded Medicaid, all saw an increase in the use of emergency departments for primary care.[86] States that allowed NPs to practice independently, however, saw a significantly smaller increase in emergency department usage because newly insured patients could more readily access healthcare services and obtain the care they needed from NPs.[87]

A recent economic analysis of SOP laws found that liberalization of these laws can meaningfully improve access to care across multiple dimensions.[88] For example, granting independence to NPs increases the frequency of routine checkups.[89] Moreover, in states that allow NPs to practice independently, patients are more likely to obtain an appointment with a healthcare provider when they need one and to receive care when they are sick.[90] Patients in these states similarly report that they are more likely to have a usual source of healthcare than patients in states restricting the practices of NPs.[91] While some of the effects of NP independence are more germane to a public health emergency than others—particularly relevant is the increase in the ability to obtain care when sick—the results of this thorough analysis are clearly consistent with the reasoning underlying the various state executive orders. Allowing NPs to practice independently increases access to care.

Relaxing SOP laws may increase access to care through various mechanisms, but one important mechanism—albeit more important outside of a public health crisis—is a reduction in the cost of care.[92] Multiple studies have found that NP independence reduces the cost of care. One study found that NP independence reduced the price of a common medical examination by between 3% and 16%.[93] Separate economic analyses concluded that granting NPs more autonomy could save $543 million and $101 million annually in emergency department visits and childbirth costs, respectively.[94] While not

85. ADAMS & MARKOWITZ, *supra* note 10, at 5–6.

86. Benjamin J. McMichael et al., *The Association of Nurse Practitioner Scope-of-Practice Laws with Emergency Department Use: Evidence from Medicaid Expansion*, 57 MED. CARE 362, 365–67 (2019).

87. *Id.*

88. Traczynski & Udalova, *supra* note 9, at 103–04.

89. *Id.* at 97.

90. *Id.*

91. *Id.*

92. *Id.* (noting that "NP independence may increase" access to care "by reducing . . . costs").

93. Kleiner et al., *supra* note 56, at 276–77, 286.

94. Markowitz et al., *supra* note 57, at 211; Traczynski & Udalova, *supra* note 9, at 100.

every study has found strong evidence of reductions in the cost of care,[95] an analysis by Federal Trade Commission ("FTC") economists concluded that NP independence reduces costs and increases access to care.[96] Indeed, this and similar studies by the FTC led the agency to routinely urge states to relax their SOP laws.[97]

Similarly, after reviewing the available evidence, the National Academy of Medicine concluded "that access to quality care can be greatly expanded by increasing the use of [NPs] in primary, chronic, and transitional care."[98] Both the Obama and Trump administrations touted the ability of NP independence to increase access to care.[99] For example, an Obama administration report concluded that "easing scope of practice laws for [NPs and others] represents a viable means of increasing access to certain primary care services."[100] Despite these conclusions, a majority of state governments restrict the practices of NPs—and even more restrict the practices of other advanced practice providers, such as PAs.[101] These decisions are often rooted in a desire to protect patient safety, though lobbying efforts by groups who stand to benefit economically from restrictive SOP laws also factor into states' decisions.[102]

B. Opioids, Patient Safety, and Quality of Care

Protecting patient safety has served as a motivating factor in many of the statutes and regulations that govern the healthcare

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95. *See* MEDICARE PAYMENT ADVISORY COMM'N, JUNE 2019, REPORT TO THE CONGRESS: MEDICARE AND THE HEALTH CARE DELIVERY SYSTEM 149 (2019) (discussing evidence that the increased use of NPs may increase costs). *But see* Tomer Begaz et al., *Differences in Test Ordering Between Nurse Practitioners and Attending Emergency Physicians when Acting as Provider in Triage*, 35 AM. J. EMERGENCY MED. 1426, 1427–29 (2017) (finding no evidence that NPs increase costs); Hangsheng Liu et al., *The Impact of Using Mid-level Providers in Face-to-Face Primary Care on Health Care Utilization*, 55 MED. CARE 12, 14–17 (2017) (same).

96. DANIEL J. GILMAN & TARA ISA KOSLOV, FED. TRADE COMM'N, POLICY PERSPECTIVES: COMPETITION AND THE REGULATION OF ADVANCED PRACTICE NURSES 1–4 (2014).

97. *See id.* at 18 (noting the FTC's involvement on the side of relaxing SOP laws in Connecticut, Florida, Kentucky, Louisiana, Massachusetts, Texas, and West Virginia).

98. INST. OF MED., *supra* note 13, at 27.

99. U.S. DEP'T OF THE TREASURY, OFF. OF ECON POL'Y ET AL., *supra* note 13, at 31–32; Cal. Med. Ass'n, *supra* note 15.

100. U.S. DEP'T OF THE TREASURY, OFF. OF ECON POL'Y ET AL., *supra* note 13, at 31–32; *see also* U.S. DEP'T OF HEALTH & HUMAN SERVS. ET AL., *supra* note 13, at 31–36 (articulating the benefits of relaxed SOP laws).

101. McMichael, *supra* note 57, at 876.

102. Benjamin J. McMichael, *The Demand for Healthcare Regulation: The Effect of Political Spending on Occupational Licensing Laws*, 84 S. ECON. J. 297, 299 (2017).

system,[103] and NPs' SOP laws have been no exception.[104] Proponents of restrictive NPs' SOP laws emphasize patient safety in urging states to maintain these laws. For example, the California Medical Association has stated that it "opposes any attempts to remove physician oversight over [NPs] and believes that doing so would put the health and safety of patients at risk."[105] Advocates of restrictive NPs' SOP laws often use this safety-based argument when responding to evidence that relaxing NPs' SOP laws will increase access to care. The California Medical Association further argues that "[w]e must ensure that every American, regardless of age or economic status, has access to a trained physician who can provide the highest level of care. Expanding access to care should not come at the expense of patient safety and we will not support unequal standards of care . . . ."[106] In making these arguments, physician organizations often emphasize the difference in training completed by NPs relative to physicians.[107] The Pennsylvania Medical Society has stated, for example, that NP "education and training fails to provide an adequate clinical foundation for independent practice."[108] And the Texas Medical Association has argued that physicians must supervise NPs "[d]ue to the limited training and experience required in the abbreviated programs leading to licensure of [NPs] (as compared to the required education and training of licensed physicians)."[109]

These groups are correct that physicians complete more education and training than NPs and that physicians can provide a wider range of services (i.e., NPs do not perform surgery). A difference in education by itself, however, does not demonstrate that, when providing services within their education and training, NPs require supervision or provide care of a lower quality than physicians.[110] Advocates of greater NP autonomy have responded to

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103. *See, e.g.*, Riegel v. Medtronic, Inc., 552 U.S. 312, 323 (2008) (explaining that, under federal law, the Food and Drug Administration "may [approve a medical device] after it determines that a device offers a reasonable assurance of *safety* and effectiveness" (emphasis added)).

104. *See* U.S. DEP'T OF THE TREASURY, OFF. OF ECON POL'Y ET AL., *supra* note 14, at 7 ("When designed and implemented appropriately, licensing can benefit practitioners and consumers through improving quality and protecting public health and safety.").

105. Cal. Med. Ass'n, *supra* note 15.

106. *Id.*

107. *See generally* PA. MED. SOC'Y, *supra* note 14, at 1–2.

108. *Id.*

109. Letter from Austin I. King to James W. Johnston, *supra* note 14, at 5.

110. *See* Kim Curry et al., *PAs and NPs are Not Interchangeable*, 33 J. AM. ACAD. PHYSICIAN ASSISTANTS 13, 14 (2020) ("We have often heard physicians cite their more time-consuming educational programs as a rationale for prohibiting those following other educational paths from delivering many types of healthcare. Unfortunately for the people arguing this position, no studies have identified an ideal length of training for any particular type of patient care . . . .").

the indirect argument that NPs provide lower quality care or unsafe services by pointing to studies that directly address the quality and safety issues.[111] For example, clinical investigations have found that NPs and physicians achieve similar results when providing primary care,[112] delivering critical care,[113] prescribing medications,[114] treating HIV,[115] and managing diabetes.[116] Large studies of various clinical outcomes revealed similar evidence. One study of over thirty million patient visits found that NPs achieved outcomes that were equal to or better than outcomes achieved by physicians on various quality metrics.[117] And a systematic review of eighteen randomized control trials found that NPs achieved patient outcomes that were equal to or better than the patient outcomes achieved by physicians.[118]

Not every study has found that NPs provide care as good as that provided by physicians. For example, some studies have found that physicians rely less on diagnostic tests,[119] make fewer specialist referrals,[120] and prescribe antibiotics more responsibly.[121] And recent

111. ADAMS & MARKOWITZ, *supra* note 10, at 8–9; BUERHAUS, *supra* note 9, at 6–10; MIRANDA LAURANT ET AL., NURSES AS SUBSTITUTES FOR DOCTORS IN PRIMARY CARE 21–22 (2018).

112. *See* Mary O. Mundinger et al., *Primary Care Outcomes in Patients Treated by Nurse Practitioners or Physicians: A Randomized Trial*, 283 JAMA 59, 59 (2000).

113. Herman G. Kreeftenberg et al., *Impact of the Advanced Practice Provider in Adult Critical Care: A Systematic Review and Meta-Analysis*, 47 CRITICAL CARE MED. 722, 722 (2019).

114. Shiyin Jiao et al., *Quality of Prescribing by Physicians, Nurse Practitioners, and Physician Assistants in the United States*, 38 PHARMACOTHERAPY 417, 424–26 (2018).

115. Ira B. Wilson et al., *Quality of HIV Care Provided by Nurse Practitioners, Physician Assistants, and Physicians*, 143 ANNALS INTERNAL MED. 729, 729 (2005).

116. George L. Jackson et al., *Intermediate Diabetes Outcomes in Patients Managed by Physicians, Nurse Practitioners, or Physician Assistants: A Cohort Study*, 169 ANNALS INTERNAL MED. 825, 825 (2018); Yihan Yang et al., *Nurse Practitioners, Physician Assistants and Physicians Are Comparable in Managing the First Five Years of Diabetes*, 131 AM. J. MED. 276, 278 (2018).

117. Ellen T. Kurtzman & Burt S. Barnow, *A Comparison of Nurse Practitioners, Physician Assistants, and Primary Care Physicians' Patterns of Practice and Quality of Care in Health Centers*, 55 MED. CARE 615, 618–20 (2017).

118. LAURANT ET AL., *supra* note 111, at 69–83.

119. Danny R. Hughes et al., *A Comparison of Diagnostic Imaging Ordering Patterns Between Advanced Practice Clinicians and Primary Care Physicians Following Office-Based Evaluation and Management Visits*, 175 JAMA INTERNAL MED. 101, 106 (2015).

120. Yong-Fang Kuo et al., *Diabetes Mellitus Care Provided by Nurse Practitioners vs Primary Care Physicians*, 63 J. AM. GERIATRIC SOC'Y 1980, 1985 (2015).

121. Johanna E. Bellon, et al., *Comparing Advanced Practice Providers and Physicians as Providers of e-Visits*, 21 TELEMEDICINE & E-HEALTH 1019, 1022–26 (2015).

reviews of various studies similarly highlighted additional studies finding that NPs may not always perform at the same level as physicians.[122] These studies are relatively few in number, however, and analyses by multiple national organizations,[123] federal agencies,[124] and presidential administrations[125] have concluded that NPs can safely provide care. These analyses have similarly concluded that restrictive SOP laws are generally not necessary to ensure patient safety.[126]

Unfortunately, many of these analyses reached their conclusions prior to realizing the depth of the opioid epidemic. And physician groups have recently relied on this epidemic in their arguments that granting NPs independence will endanger patient safety.[127] Before delving into these arguments and the limited evidence of their validity, it is important to understand the opioid epidemic itself. Unlike the COVID-19 pandemic, which has unfolded along similar lines as previous public health crises stemming from infectious diseases, the origins and progression of the opioid epidemic prove

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122. *See* Sarzynski & Barry, *supra* note 35, at 367 ("Although perceptions of care quality may vary by profession, studies comparing outcomes between physicians and [NPs] offer mixed results."); MEDICARE PAYMENT ADVISORY COMM'N, JUNE 2019 REPORT TO THE CONGRESS 149 (2019) (discussing some studies that have indicated problems with the increased use of NPs).

123. *See* ADAMS & MARKOWITZ, *supra* note 10, at 2 ("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."); BUERHAUS, *supra* note 9, at 4 ("Increasingly, researchers, workforce analysts, and organizations that influence health policy support expanding the role of nurse practitioners (NPs) to fill the void left by the lack of primary care physicians and to improve the uneven geographic distribution of primary care. This report presents results from original research projects that support this view and document the evidence base for an expanded role for NPs in remedying these pressing and growing access problems.").

124. GILMAN & KOSLOV, *supra* note 96, at 2 (noting that "FTC staff has consistently urged state legislators to avoid imposing restrictions on APRN scope of practice unless those restrictions are necessary to address well-founded patient safety concerns").

125. AM. MED. ASS'N, *supra* note 14, at 238.

126. U.S. DEP'T OF HEALTH & HUMAN SERVS. ET AL., *supra* note 13, at 35 ("Extremely rigid collaborative practice agreements and other burdensome forms of physician . . . supervision are generally not justified by legitimate health and safety concerns."); U.S. DEP'T OF THE TREASURY, OFF. OF ECON. POL'Y ET AL., *supra* note 13, at 46–47 (urging states to relax SOP laws).

127. Dickson, *supra* note 21; Myers & Alliman, *supra* note 21, at 561, 563; Schirle & McCabe, *supra* note 21, at 86; Letter from James L. Madara to Hon. Gavin Newsom, *supra* note 16, at 1–2.

much more complicated.[128] As opposed to arising from natural causes, the opioid epidemic arose within the healthcare system itself.[129]

Until the COVID-19 pandemic, the opioid epidemic was considered the most significant public health crisis of this generation.[130] At the epidemic's peak in 2017, one American died every eleven minutes from an opioid drug overdose.[131] Unlike the COVID-19 pandemic, the influenza epidemic of the late 1910s and early 1920s, or the spread of HIV in the 1980s and 1990s, the opioid epidemic has its genesis in the healthcare system itself.[132] One former director of the Food and Drug Administration ("FDA") has gone so far as to say that the opioid epidemic "started in doctor's offices and hospitals."[133] The White House Commission that recommended the opioid epidemic be declared a national emergency similarly acknowledged that the "enormous problem" of opioid overuse "is often not beginning on street corners"; instead, "it is starting in doctor's offices and hospitals in every state in our nation."[134]

The opioid epidemic began in earnest around 2000, and by 2015 the number of opioid prescriptions had quadrupled,[135] creating "the worst drug crisis in American history."[136] By 2015, over 63% of the 52,404 drug overdose deaths recorded by the Centers for Disease Control and Prevention ("CDC") involved an opioid.[137] Of the seven hundred thousand deaths from drug overdoses between 1999 and

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128. *See generally* Elissa Philip Gentry & Benjamin J. McMichael, *Contaminated Relationships in the Opioid Crisis*, 72 HASTINGS L.J. 827, 827 (2021) (discussing the development of the opioid crisis).

129. *Id.*

130. NAT'L ACADS. OF SCIS., ENG'G, & MED., *supra* note 20, at 187 ("Not since the HIV/AIDS epidemic has the United States faced as devastating and lethal a health problem as the current crisis of opioid misuse and overdose and opioid use disorder.").

131. *The Evolution of the Opioid Crisis: 2000–2018,* NAT'L INST. FOR HEALTH CARE MGMT., https://nihcm.org/publications/the-evolution-of-the-opioid-crisis-2000-2018 (last visited July 15, 2021).

132. *See* Gentry & McMichael, *supra* note 128, at 827.

133. THE PRESIDENT'S COMM'N ON COMBATING DRUG ADDICTION & THE OPIOID CRISIS, FINAL REPORT 115 (Nov. 1, 2017), https://www.doh.wa.gov/Portals/1/Documents/2300/2017/PresidentsCommissionOnCombatingDrugAddictionOpioidCrisis.pdf.

134. *Id.*

135. Rose A. Rudd et al., *Increases in Drug and Opioid Overdose Deaths—United States, 2000–2014*, 16 AM. J. TRANSPLANTATION 1323, 1326 (2016).

136. Julie Bosman, *Inside a Killer Drug Epidemic: A Look at America's Opioid Crisis*, N.Y. TIMES (Jan. 6, 2017), https://www.nytimes.com/2017/01/06/us/opioid-crisis-epidemic.html.

137. Rose A. Rudd et al., *Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010-2015*, 65 MORBIDITY & MORTALITY WKLY. REP. 1145, 1145 (2016).

2017, four hundred thousand involved an opioid,[138] and forecasts have predicted that the opioid epidemic will kill as many as six hundred fifty thousand people in the next decade.[139] The COVID-19 pandemic has only exacerbated the opioid epidemic, with estimates suggesting "that the pandemic and recession were associated with a 10 to 60 percent increase in deaths of despair [which includes opioid-related deaths] above already high pre-pandemic levels."[140] Increased opioid use has also contributed to increases in opioid addiction rates,[141] opioid-related traffic accidents,[142] admissions to facilities for substance abuse,[143] opioid-related emergency room visits,[144] and opioid-related hospital admissions.[145] The overall cost of the opioid epidemic has been estimated at over $500 billion,[146] and opioid-related harms have been the primary cause of decreasing life expectancy in the United States for several years.[147]

Multiple factors interacted with one another to ignite the opioid epidemic two decades ago. Around 2000, healthcare providers acknowledged pain as a "fifth vital sign" and began to treat it more

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138. *Opioid Data Analysis and Resources*, CDC, https://www.cdc.gov/drugoverdose/data/analysis.html#anchor_data_analysis (last reviewed Mar. 10, 2021).

139. Max Blau, *STAT Forecast: Opioids Could Kill Nearly 500,000 Americans in the Next Decade*, STAT (June 27, 2017), https://www.statnews.com/2017/06/27/opioid-deaths-forecast/.

140. Casey B. Mulligan, *Deaths of Despair and the Incidence of Excess Mortality in 2020* 1–2 (Nat'l Bureau of Econ. Rsch., Working Paper No. 28303, 2020).

141. Andrew Kolodny et al., *The Prescription Opioid and Heroin Crisis: A Public Health Approach to an Epidemic of Addiction*, 36 ANN. REV. PUB. HEALTH 559, 560 (2015).

142. Guohua Li & Stanford Chihuri, *Prescription Opioids, Alcohol and Fatal Motor Vehicle Crashes: A Population-Based Case-Control Study*, 6 INJ. EPIDEMIOLOGY 1, 1–2 (2019).

143. Andrew S. Huhn et al., *A Hidden Aspect of the U.S. Opioid Crisis: Rise in First-Time Treatment Admissions for Older Adults with Opioid Use Disorder*, 193 DRUG & ALCOHOL DEPENDENCE 142, 142 (2018).

144. Christopher M. Jones & Jana K. McAninch, *Emergency Department Visits and Overdose Deaths from Combined Use of Opioids and Benzodiazepines*, 49 AM. J. PREVENTIVE MED. 493, 497–500 (2015).

145. Hilary Mosher et al., *Trends in Hospitalization for Opioid Overdose among Rural Compared to Urban Residents of the United States, 2007-2014*, 12 J. HOSP. MED. 925, 925 (2017); Jennifer P. Stevens et al., *The Critical Care Crisis of Opioid Overdoses in the United States*, 14 ANNALS AM. THORACIC SOC'Y 1803, 1808 (2017).

146. COUNCIL OF ECON. ADVISERS, THE UNDERESTIMATED COST OF THE OPIOID CRISIS 7–8 (2017), https://www.hsdl.org/?view&did=806029.

147. Rob Stein, *Life Expectancy Drops Again as Opioid Deaths Surge in U.S.*, NPR (Dec. 21, 2017, 12:01 AM), https://www.npr.org/sections/health-shots/2017/12/21/572080314/life-expectancy-drops-again-as-opioid-deaths-surge-in-u-s.

aggressively.[148] This led to a "marked[] increase[]" in the use of prescription opioids.[149] At the same time, pharmaceutical companies stepped up their advertising—including advertising that has since been labeled false or misleading—to encourage providers to prescribe more opioids.[150] Since the beginning of the crisis, the opioid epidemic has unfolded in three separate waves.[151] The first wave began in the healthcare system around 2000, as deaths involving commonly prescribed opioids sharply increased.[152] In 2010, prescription opioid deaths remained high, but the second wave of the epidemic began with deaths involving illegal opioids, like heroin, exploding.[153] The third wave began around 2013 as deaths involving synthetic opioids, like fentanyl, began to increase exponentially.[154]

With the healthcare system playing such an important role in the opioid epidemic, it is not surprising that patient safety concerns often arise in connection with this epidemic.[155] Physician groups opposed to NP independence have used this epidemic as an important illustration for their argument that NPs should not be allowed to practice without physician supervision. The reasoning offered by these groups is simple: If NPs can prescribe opioids without physician supervision, then they will inappropriately overprescribe opioids and deepen the ongoing opioid epidemic.[156] Given the severity of the opioid epidemic, these arguments have attracted the attention of state legislators keen on avoiding the exacerbation of an already debilitating crisis.[157]

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148. D. Andrew Tompkins et al., *Providing Chronic Pain Management in the "Fifth Vital Sign" Era: Historical and Treatment Perspectives on a Modern-Day Medical Dilemma*, 173 DRUG & ALCOHOL DEPENDENCE (SPECIAL ISSUE) S11, S13 (2017).

149. Scott G. Weiner et al., *The Opioid Crisis and Its Consequences*, 101 TRANSPLANTATION 678, 679 (2017).

150. *Id.* *See also* Gentry & McMichael, *supra* note 128, at 839–40.

151. *See Understanding the Epidemic*, CDC, https://www.cdc.gov/drugoverdose/epidemic/index.html (last updated Mar. 17, 2021).

152. *Id.*

153. *Id.*

154. *Id.*

155. *See* Rudd et al., *supra* note 137, at 1450 (explaining that "[t]he misuse of prescription opioids is intertwined with that of illicit opioids"); Janet Currie et al., *U.S. Employment and Opioids: Is There a Connection?* 2 (Nat'l Bureau of Econ. Rsch., Working Paper No. 24440, 2019) (noting that "the majority of users start taking opioids that are prescribed by their physicians, even if they later progress to illicit or illegal opioid use").

156. Dickson, *supra* note 21; Myers & Alliman, *supra* note 21, at 561; Schirle & McCabe, *supra* note 22, at 86–87 (2016).

157. *See, e.g.*, Myers & Alliman, *supra* note 21, at 562–64 (describing legislative concerns in Tennessee and referencing changes in other states); *State Practice Environment*, *supra* note 22 (providing a survey of current state laws and regulations).

Unfortunately for these physician groups and state legislators, existing empirical evidence on the critically important claim that relaxing SOP laws will deepen the opioid epidemic is scant, and the evidence that does exist is conflicting. One early study found evidence that relaxing NPs' SOP laws reduces the number of opioid prescriptions by between 9.8% and 15%.[158] A more recent study that evaluated nearly the universe of opioid prescriptions between 2011 and 2018 concluded that relaxing NPs' SOP laws reduces opioid prescriptions by 4.4%.[159] But these results contrast with a third study that found relaxing NPs' SOP laws increases opioid prescriptions by about 5%.[160] Adding to the confusion are two studies that focused on opioid prescriptions written by NPs, without considering the impact of SOP laws on these prescriptions.[161] The first of these two studies considered opioids prescribed to Medicare beneficiaries and found that NPs were less likely to prescribe opioids to beneficiaries, but were more likely to prescribe a higher dose than physicians.[162] The second of the two studies, which examined 20% of Medicare enrollees, found that "NPs/PAs practicing in states with independent prescription authority were [more than twenty] times more likely to overprescribe opioids than NPs/PAs in prescription-restricted states."[163] Because this study considered only a single year of data, it could not account for the effect of different SOP laws on NPs, and was limited to examining associations between SOP laws and prescribing patterns at a snapshot in time.[164]

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158. Morris Hamilton, Three Essays in Health Economics 16–17 (2017) (unpublished Ph.D. dissertation, University of Michigan) (on file with Deep Blue Repositories, University of Michigan).

159. McMichael, *supra* note 4, at 893.

160. Diane Alexander & Molly Schnell, *Just What the Nurse Practitioner Ordered: Independent Prescriptive Authority and Population Mental Health*, 66 J. HEALTH ECON. 145, 159 (2019); *see also* Anca M. Grecu & Lee C. Spector, *Nurse Practitioner's Independent Prescriptive Authority and Opioids Abuse*, 28 HEALTH ECON. 1220, 1220 (2019) (finding that relaxing NPs' SOP laws was "associated with an increase in treatment admissions for opioid misuse and a decrease in opioid related mortality only when Mandatory Prescription Drugs Monitoring Programs are in place"); Ulrike Muench et al., *Opioid-prescribing Outcomes of Medicare Beneficiaries Managed by Nurse Practitioners and Physicians*, 57 MED. CARE 482, 482 (2019) (concluding that NPs were less likely to prescribe opioids to Medicare beneficiaries but were more likely to prescribe a higher dose than physicians).

161. *See* M. James Lozada et al., *Opioid Prescribing by Primary Care Providers: A Cross-Sectional Analysis of Nurse Practitioner, Physician Assistant, and Physician Prescribing Patterns*, 35 J. GEN. INTERNAL MED. 2584, 2590 (2020); Muench et al., *supra* note 160, at 488.

162. Muench et al., *supra* note 160, at 482.

163. Lozada et al., *supra* note 161, at 2584.

164. *See id.* at 2590 ("Limitations include analysis of only 2015 Medicare claims data, a time near the peak of opioid prescribing in the USA.").

Only one study has systematically evaluated outcomes beyond opioid prescriptions. That study concluded that relaxing NPs' SOP laws was "associated with an increase in treatment admissions for opioid misuse and a decrease in opioid related mortality only when Mandatory Prescription Drugs Monitoring Programs are in place."[165] But that study was limited to state level data and did not evaluate different types of opioid-related deaths separately (i.e., it did not evaluate deaths involving a prescription opioid separately from deaths involving an illegal opioid).

Overall, the existing evidence on the role of NPs' SOP laws in the opioid epidemic is mixed. Given the importance of understanding this role generally, as well as the fact that states may be relying on a misunderstanding of this role to maintain restrictive SOP laws, it is critically important to better understand the effect of NP independence on the opioid epidemic. If NP independence does, in fact, worsen opioid-related outcomes, then physician groups may be right to oppose relaxing SOP laws. On the other hand, if NP independence has no effect on opioid-related outcomes or improves them, then states should be more willing to expand on their emergency orders in connection with the COVID-19 pandemic and grant NPs independence on a long-term basis. The next Part provides an empirical analysis geared toward resolving this important debate.

III. EMPIRICAL ANALYSIS

To examine the effect of NP independence on the opioid epidemic, I conducted an empirical analysis of opioid-related deaths. Prior work has focused on opioid prescriptions, and the analysis here extends that work by examining the outcome that has marked the opioid epidemic as a public health crisis—deaths. Certainly, opioid prescriptions are important—and these prescriptions have been recognized as igniting the opioid crisis—but the opioid epidemic gained the "crisis" moniker from the number of deaths it has caused.[166] By focusing on opioid-related deaths, the analysis presented below provides a more clear and complete picture of the role of SOP laws in the opioid epidemic than has previously been available.[167] This Part begins by distilling the evidence on and various arguments about the effect of relaxing SOP laws on the opioid epidemic into testable hypotheses. It then outlines the dataset and empirical methodology used to test those hypotheses before reporting the results of the analysis.

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165. Grecu & Spector, *supra* note 160, at 1220.

166. *See Opioid Overdose Crisis*, NAT'L INST. ON DRUG ABUSE (Mar. 11, 2021), https://www.drugabuse.gov/drug-topics/opioids/opioid-overdose-crisis.

167. *See* discussion *infra* Subpart IV.C.

A. Testing Competing Hypotheses

Distilling the available evidence and arguments on NP independence and the opioid epidemic into testable hypotheses first requires considering the effect of this independence on healthcare delivery specifically and the healthcare system more generally. Granting NPs more autonomy may impact the healthcare system in a number of (potentially interacting) ways, but overall more autonomy means NPs will treat more patients.[168] This increase in patients treated may occur via two separate mechanisms. First, the "substitution effect" describes the substitution of NPs for physicians as patients' healthcare providers once the former can practice independently.[169] Once granted independence, NPs can better meet patients' demands for care, and the overall supply of NPs will increase.[170] This may result in some patients switching from physician-supplied care to NP-supplied care. Second, the "[a]ccess [e]ffect" describes the greater ability of individuals to access care when NPs can practice independently.[171] A larger supply of NPs who can provide more services may facilitate patients' ability to access NP-supplied care.[172] Relatedly, physician-supplied care may also become easier to access because some patients who previously obtained care from physicians may switch to NPs, freeing up capacity among the physician workforce for new patients.

Combined, these two effects mean that NPs will treat more patients following a grant of independence. Whether that translates into a deepening of the opioid crisis depends on which group is correct about NPs and the need for supervision. If proponents of restrictive SOP laws are correct, then an increase in the number of patients treated by NPs will translate into more opioid-related deaths. Groups in favor of restrictive SOP laws argue that NPs will inappropriately overprescribe opioids without physician supervision.[173] Over-prescription of opioids should lead to more deaths involving prescription opioids. Over-prescription may also lead to more deaths involving illegal or synthetic opioids, as patients who initially become

168. *See generally* NAT'L GOVERNORS ASS'N, *supra* note 13, at 1–11 (discussing the option for states to grant NPs more autonomy under their SOP laws to meet the growing demand for healthcare).

169. *See* Hamilton, *supra* note 158, at 1–8 (defining the "Substitution Effect").

170. *See* GILMAN & KOSLOV, *supra* note 96, at 20–35; McMichael, *supra* note 43, at 744–55.

171. *See* Hamilton, *supra* note 158, at 1, 7–9 (discussing the "Access Effect").

172. *See* GILMAN & KOSLOV, *supra* note 96, at 20–30.

173. *See* Doleac & Mukherjee, *supra* note 23 and accompanying text; Grecu & Spector, *supra* note 160, at 1220–21.

addicted to prescription opioids progress to these other types and die as a result.[174]

On the other hand, if those in favor of relaxing SOP laws are correct, then opioid-related deaths will remain steady or decrease when NPs treat more patients. Studies in various medical contexts have found evidence that NPs choose fewer and less intensive treatments than physicians, with equal or better patient outcomes.[175] In the context of opioids, this means that NPs should prescribe fewer opioids than physicians.[176] With fewer opioids prescribed, the number of deaths involving prescription opioids should not increase and may even decline. Similarly, fewer patients becoming addicted to prescription opioids may mean that fewer individuals become addicted to illegal or synthetic opioids, decreasing opioid-related deaths generally. Additionally, with the capacity of the healthcare system increased following NP independence, those addicted to opioids may be able to better access treatment for this dependence.[177] This treatment may avert some deaths that otherwise would have occurred.

In general, the overall change in opioid-related deaths depends on whether advocates or opponents of restrictive SOP laws are correct about the impact of NP independence on various aspects of healthcare delivery. The next section details the data and empirical methodology used to determine whether proponents or opponents of NP independence are correct in their assertions about the effect of NP independence on patient safety and opioid-related deaths.

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174. Moreover, these types of deaths may increase if NPs inappropriately discontinue prescription opioids without physician supervision, causing those already addicted to seek opioids from other sources.

175. *See* Markowitz et al., *supra* note 56, at 209–11 (finding that relaxing the SOP laws governing certified nurse midwives reduces the use of caesarean sections with no change in health outcomes); Jennifer Perloff et al., *Comparing the Cost of Care Provided to Medicare Beneficiaries Assigned to Primary Care Nurse Practitioners and Physicians*, 51 HEALTH SERVS. RES. 1407, 1407, 1412–20 (2016) (finding that payments for outpatient patients cared for by NPs were 29% less than those for patients cared for by physicians and that payments for inpatient patients cared for by NPs were 18% less); Kimberly Groover, Effects of Occupational Licensing for Nurse Practitioners on Prescription Use and Quality 1 (Oct. 26, 2018) (unpublished paper) (on file at https://drive.google.com/file/d/1ThQr4daEvmKyZwkytopcHekz7VnDZGvX/view) ("I find that expanded prescriptive authority for nurse practitioners reduces the number of prescriptions filled per year by 8% and the number of unique medications received by 9%.").

176. Hamilton, *supra* note 158, at 2–6; McMichael, *supra* note 4, at 949. *But see* Alexander & Schnell, *supra* note 160, at 153–55 (finding that NP independence may increase opioid prescriptions among Medicaid beneficiaries).

177. *See* Joanne Spetz et al., *Nurse Practitioner and Physician Assistant Waivers to Prescribe Buprenorphine and State Scope of Practice Restrictions*, 321 JAMA 1407, 1408 ("The results of this study suggest that states in which NP practice is restricted may be less able to expand the opioid treatment workforce.").

B. Data and Empirical Methodology

The dataset analyzed here comes from the United States' National Vital Statistics System, which is maintained by the National Center for Health Statistics ("NCHS") and the CDC. Because the opioid epidemic has unfolded very differently in different parts of the country—indeed, it has unfolded differently in different counties within the same state—I obtained permission from the NCHS to analyze the restricted-use mortality files.[178] These files contain detailed information on all deaths occurring in the United States between 2005 and 2017 at the county level.[179] Thus, I am able to examine the role of NP independence on opioid-related deaths in specific geographic areas. Each observation represents an individual death, and information on that death appearing in the dataset comes directly from the certificate of death issued by the relevant state.

Included among the information available for each death is the decedent's year of death, state and county of death, and cause of death as indexed by the International Classification of Diseases (Tenth Revision) ("ICD-10") codes. The ICD-10 coding system provides a standardized method for categorizing causes of death and offers a comprehensive scheme to isolate specific causes of death.[180] Using this system and guidance from the CDC,[181] I isolate all deaths associated with opioid overdoses.[182] In addition to a general opioid-related category for deaths, I also isolate all deaths associated with prescription opioids,[183] illegal opioids,[184] and synthetic opioids.[185] Doing so allows me to separately analyze the class of opioids

178. Documentation to this effect is on file with the author.

179. At the time I submitted the data request, 2017 was the most recently available year of data.

180. *International Classification of Diseases, Tenth Revision (ICD-10)*, CDC, https://www.cdc.gov/nchs/icd/icd10.htm (last reviewed Feb. 13, 2020).

181. *See generally* CDC, PRESCRIPTION DRUG OVERDOSE DATA & STATISTICS: GUIDE TO ICD-9-CM AND ICD-10 CODES RELATED TO POISONING AND PAIN (2013), https://www.cdc.gov/drugoverdose/pdf/pdo_guide_to_icd-9-cm_and_icd-10_codes-a.pdf (providing "a list of the Internal Classification of Disease ("ICD") version 10 (ICD-10) and the ICD version 9 Clinical Modification (ICD-9-CM) codes for poisoning and pain").

182. The following ICD-10 codes are associated with fatal opioid overdoses: T40.0 (opium), T40.1 (heroin), T40.2 (other opioids), T40.3 (methadone), T40.4 (other synthetic narcotics), and T40.6 (other/unspecified narcotics). SAMSHA'S CTR. FOR THE APPLICATION OF PREVENTION TECHS., USING INTERNATIONAL CLASSIFICATION OF DISEASES (ICD) CODE TO ASSESS OPIOID-RELATED OVERDOES DEATHS 3–4 (2018), https://mnprc.org/wp-content/uploads/2019/01/using-icd-10-codes-to-assess-opioid-related-overdose-deaths.pdf.

183. ICD-10 codes for prescription opioid overdoses include T40.2 (other opioids), T40.3 (methadone), T40.4 (other synthetic narcotics). *Id.*

184. ICD-10 codes for illegal opioid overdoses include T40.0 (opium) and T40.1 (heroin). *Id.*

185. The ICD-10 code T40.4 identifies deaths involving synthetic opioids. *Id.*

associated with each of the three waves of the opioid epidemic as identified by the CDC.[186]

With these different categories of opioid-related deaths isolated from all other deaths, I construct counts of opioid-related deaths for each county and year in the dataset.[187] I then match this dataset to information derived from the Area Health Resources Files ("ARHFs").[188] The AHRFs are compiled by the Health Resources and Services Administration and contain demographic and health information at the county level.[189] Using the AHRFs, I add the following information to the dataset of opioid-related deaths: county population, number of hospitals, median income, unemployment rate, and rural status.

Using this combined dataset, I construct the following measures of opioid-related deaths: (1) opioid-related deaths per one hundred thousand county residents, (2) prescription opioid-related deaths per one hundred thousand county residents, (3) illegal opioid-related deaths per one hundred thousand county residents, and (4) synthetic opioid-related deaths per one hundred thousand county residents.[190] These four measures are the primary outcomes of interest throughout my empirical analysis. The first corresponds to the opioid epidemic generally and captures all opioid-related deaths that have been reported to the CDC. The following three outcomes correspond to the three separate waves of the opioid epidemic.[191] I use the remaining information from the AHRFs to construct a series of control variables for use in my empirical analysis.

This analysis consists of a series of difference-in-differences regression models. These econometric models can isolate the causal impact of NPs' SOP laws on opioid-related deaths from other factors that may influence these deaths.[192] In an ideal world, I would conduct a laboratory-like experiment in which some providers were randomly assigned to practice under NP independence and some providers were assigned to a restricted practice regime. While this approach would facilitate a straightforward analysis, randomly assigning providers to different SOP laws is not possible for a variety of ethical, legal, logistical, and financial reasons. I cannot conduct a laboratory experiment, but the goal of my empirical analysis is to closely mimic

186. *See supra* notes 151–54 and accompanying text. The categories of deaths described here are not mutually exclusive. A death may involve multiple types of opioids (e.g., heroin and synthetic opioids), and I count fatalities involving a specific type of opioid in each relevant category described above.

187. *See infra* Subpart IV.C.2.

188. *Area Health Resources Files*, HEALTH RES. & SERVS. ADMIN., https://data.hrsa.gov/topics/health-workforce/ahrf (last updated July 31, 2020).

189. *Id.*

190. *See infra* Subpart III.C.2.

191. *See infra* Subpart III.B.

192. *See infra* Subpart III.C.

such an experiment by eliminating as many potential confounding factors as possible in an effort to isolate the effect of NPs' SOP laws. And prior work has shown that difference-in-differences models can accomplish this goal.[193]

Difference-in-differences models rely on state variation in the adoption of NP independence to estimate the impact of these laws on opioid-related deaths. Instead of simply comparing states with NP independence to those with restricted practice, or comparing states before and after the adoption of NP independence, difference-in-differences models compare trends in opioid-related deaths in states adopting NP independence to trends in states that are not.[194] This allows the models to account for how death rates would have trended over time as a result of many other factors, and thereby isolate the role of NP independence from those other factors. Difference-in-differences models assume that states adopting NP independence follow trends that parallel those states that are not adopting NP independence.[195] Under this assumption, these models use the nonadopting states as a control group to provide a valid counterfactual account of what would have happened in the states that did adopt NP independence if they had continued to restrict the practices of NPs. In doing so, these models effectively "net out" the effect of unobservable factors that may influence opioid-related deaths.[196] Thus, the difference-in-differences models can estimate the causal effect of NP SOP laws on opioid-related deaths.

More technically, the difference-in-differences models I estimate are a specific type of regression model and take a specific form to effectively net out the effects of other confounding factors.[197] The dependent variable in these models is one of the four measures of

193. *See* Marianne Bertrand et al., *How Much Should We Trust Difference-in-Differences Estimates?*, 119 Q.J. ECON. 249, 249–52 (2004) (discussing the conditions under which difference-in-differences models can provide reliable estimates of causality).

194. *See infra* Subpart III.C.3.

195. I verify the validity of this assumption below. More importantly, I conduct a series of robustness checks on the primary empirical models that relax the parallel trends assumption. *See infra* Subpart III.C.3.

196. Michael D. Frakes, *The Surprising Relevance of Medical Malpractice Law*, 82 U. CHI. L. REV. 317, 365–66 (2015) (discussing difference-in-differences models).

197. Throughout the analysis, I estimate ordinary least squares regression models with the following general specification: $Y_{cst} = \beta\,(NP\ Independence_{st}) + x_{cst} + \delta_c + \tau_t + \varepsilon_{cst}$. In this model, c indexes counties, s indexes states, and t indexes time as measured in years. The dependent variable, Y, is one of the four outcome variables for opioid-related deaths described in this section. The variable, *NP Independence*, is an indicator variable that equals one in counties located in states that allowed NPs to practice independently. The vector x_{cst} includes control variables described below. The vectors δ_c and τ_t include county and year fixed effects.

opioid-related deaths.[198] The independent variable of interest is an indicator variable for whether NPs are allowed to practice independently in a given county and year.[199] The coefficient on this indicator variable represents the causal effect of NP independence on the relevant measure of opioid-related deaths.

In addition to the independent variable of interest, each model includes several control variables. Prior work has demonstrated that local economic conditions can impact drug abuse,[200] so I include control variables for the county-level median household income and unemployment rate.[201] I also control for the number of hospitals in each county to account for differential access to acute care.[202] In addition to controlling for economic and healthcare conditions, I include several variables to control for different legal regimes that may affect opioid-related deaths. For example, prior work has found that cannabis access laws,[203] prescription drug monitoring

198. All four measures of opioid-related deaths exhibit substantial right skews. It is standard practice in the literature to take the natural logarithm of a variable to transform it from a skewed distribution to a more normal distribution. J. Shahar Dillbary et al., *Why Exempting Negligent Doctors May Reduce Suicide: An Empirical Analysis*, 93 IND. L.J. 457, 484 n.148 (2018); Frakes, *supra* note 196, at 368; Benjamin J. McMichael et al., *"Sorry" is Never Enough: How State Apology Laws Fail to Reduce Medical Malpractice Liability Risk*, 71 STAN. L. REV. 341, 375 n.155 (2019). I follow that practice here. I also follow the practice of adding one to each variable prior to applying the natural logarithmic transformation. This is necessary because the natural logarithm is undefined at zero and is also standard practice in the literature. Joni Hersch & W. Kip Viscusi, *Punitive Damages: How Judges and Juries Perform*, 33 J. LEGAL STUD. 1, 14 n.14 (2004); McMichael, *supra* note 4, at 926 n.195.

199. Benjamin McMichael, *Scope-of-Practice Law and Patient Safety: Evidence from the Opioid Crisis* 20 (Ala. L. Sch., Working Paper, Paper No. 3300365, 2018).

200. *See, e.g.*, Christopher S. Carpenter et al., *Economic Conditions, Illicit Drug Use, and Substance Abuse Disorders in the United States*, 52 J. HEALTH ECON. 63, 68–72 (2017) (finding that local economic conditions affect drug abuse); Alex Hollingsworth et al., *Macroeconomic Conditions and Opioid Abuse*, 56 J. HEALTH ECON. 222, 225–32 (2017) (same).

201. Both of these variables are derived from information in the AHRFs.

202. I transform this variable to the logarithm of the number of hospitals per capita.

203. Benjamin J. McMichael et al., *The Impact of Cannabis Access Laws on Opioid Prescribing*, 69 J. HEALTH ECON. 1, 1 (2020) ("[W]e find that recreational and medical cannabis access laws reduce the number of morphine milligram equivalents prescribed each year by 11.8 and 4.2 percent."); Hefei Wen & Jason M. Hockenberry, *Association of Medical and Adult-Use Marijuana Laws with Opioid Prescribing for Medicaid Enrollees*, 178 JAMA INTERNAL MED. 673, 675–78 (2018) (finding that medical and recreational cannabis access laws reduce opioid prescriptions among Medicaid beneficiaries).

programs,[204] and pain clinic legislation[205] can impact the opioid epidemic in various ways. I include a series of indicator variables for whether a county is located in a state that allows access to medical cannabis, allows access to recreational cannabis, maintains a "must-access" prescription drug monitoring program, and features pain clinic legislation.[206] I also include an indicator variable for whether a state has expanded Medicaid, since access to insurance may influence opioid-related deaths.[207]

In addition to these variables of interest and control variables, every model includes a full set of indicator variables for individual counties and years. The county variables control for observed and unobserved characteristics of individual counties.[208] Counties may differ in their health outcomes for many reasons other than SOP laws, and including these indicator variables allows the models to net out these other factors. Year fixed effects control for any linear or nonlinear trends in health outcomes over time. The county and year variables absorb much of the idiosyncratic variation present in opioid-related deaths, and therefore allow the models to isolate the role of NPs' SOP laws.[209] The inclusion of these county and year variables obviates the need for many other control variables.[210]

My primary analysis relies on the econometric models described in this Part. I conduct a secondary analysis designed to estimate the impact of NP independence in rural areas that have less access to healthcare, because prior work has demonstrated that NPs are particularly important to these underserved areas.[211] To do so, I rely on information in the AHRFs that identifies rural counties. This secondary analysis is described in more detail following the primary analysis. Following that secondary analysis, I discuss several sensitivity analyses designed to probe the robustness of the primary results.

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204. Thomas C. Buchmueller & Colleen Carey, *The Effect of Prescription Drug Monitoring Programs on Opioid Utilization in Medicare*, 10 AM. ECON. J.: ECON. POL'Y 77, 109 (2018) ("[W]e do find evidence that "must access" [prescription drug monitoring programs] have the desired effect of curbing certain types of extreme [opioid] utilization.").

205. *See id.* at 102 (discussing pain clinic legislation).

206. These variables are defined exactly the same as in McMichael et al., *supra* note 203, at 8. Each takes the value one in a state and year that had the relevant law in place.

207. This variable is also defined the same as in previous work. *Id.*

208. *See infra* Figure 2 and note 232.

209. *Id.*

210. Throughout the analysis, I calculate standard errors clustered at the county level to correct for serial autocorrelation.

211. Buerhaus et al., *supra* note 43, at 144 (finding that NPs are more likely to care for Medicaid patients, vulnerable populations, and rural populations).

C. *Results and Discussion*

This Part begins by presenting the primary results before turning to the secondary analysis. In the interest of clarity and succinctness, all results from individual regression models are presented in graphical form.[212] Each graph reports the effect of NP independence in terms of the percentage change in the relevant measure of opioid-related deaths.[213] Standard regression results in tabular format are available in the appendix.

1. Relaxing Scope-of-Practice Laws

Figure 1 reports the results from four separate regression models—one each for deaths involving any opioids, deaths involving prescription opioids, deaths involving illegal opioids, and deaths involving synthetic opioids.[214] Each bar represents the percentage change in the indicated outcome caused by NP independence.[215] For example, the first bar indicates that allowing NPs to practice independently reduces all opioid-related deaths by approximately 9.3%. In 2018, the CDC calculated that the opioid-related death rate in the United States was 20.7 per 100,000 people.[216] Combined with the results from Figure 1, this suggests that allowing NPs to practice independently across the United States would have averted approximately 5,000 opioid-related deaths in 2018 alone.[217]

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212. An appendix follows the main text and reports full regression results for all results reported in graphical form.

213. Because all models are log-linear models, the coefficients can be interpreted as the percent change in the dependent variable that results from allowing NPs to practice independently. The marginal effect of an indicator variable with coefficient β is approximately $((\exp(\beta) - 1)(100))\%$. *See generally* Robert Halvorsen & Raymond Palmquist, *The Interpretation of Dummy Variables in Semilogarithmic Equations*, 70 AM. ECON. REV. 474 (1980) (describing the proper interpretation of indicator variables in log-linear models).

214. *See infra* Figure 1.

215. The error bars represent the 95% confidence intervals for the effect of NP independence on different outcomes. If an error bar does not cross the zero line, then the associated effect is statistically significant. In the primary analysis reported in Figure 1, all effects are statistically significant.

216. *Drug Overdose Deaths*, CDC, https://www.cdc.gov/drugoverdose/data/statedeaths.html (last reviewed Mar. 3, 2021).

217. This number represents the total number of deaths that would have been averted in 2018 if all states that restricted NP practices in 2017 had granted NPs independence in 2018. This number includes only deaths that would have been averted in states that restricted NP practices in 2018 (since the other states already benefited from NP independence).

FIGURE 1. EFFECT OF SCOPE-OF-PRACTICE LAWS ON OPIOID-RELATED DEATHS[218]

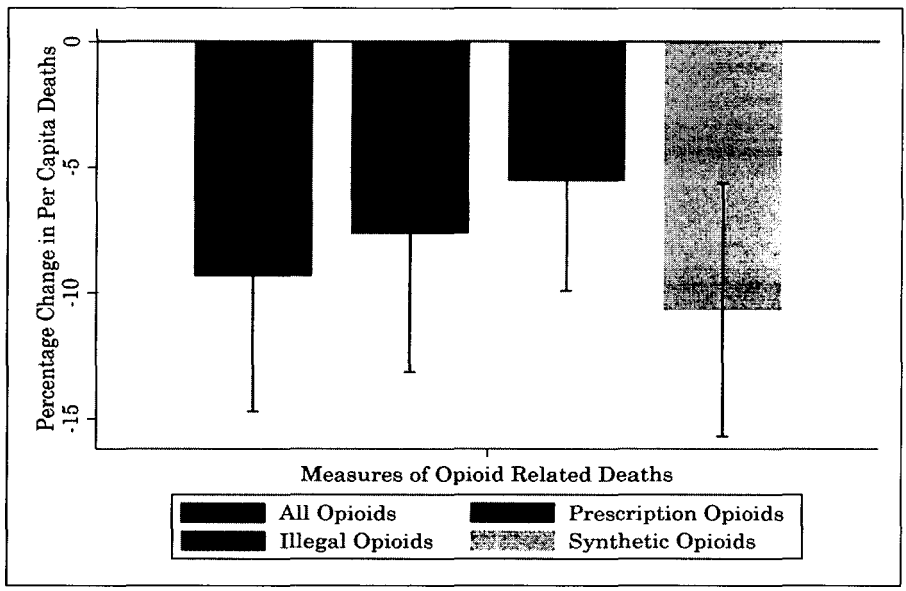


Figure 1 reports similar evidence for the types of opioid-related deaths that drive each of the separate phases of the opioid crisis. NP independence reduces prescription opioid-related deaths by approximately 7.6%. Independence reduces illegal opioid-related deaths and synthetic opioid-related deaths by approximately 5.5% and 10.7%, respectively.[219] In general, none of the evidence reported in Figure 1 supports the contentions that allowing NPs to practice independently endangers patient safety or exacerbates the opioid epidemic. Instead, the evidence consistently demonstrates that granting NPs independence has statistically significant effects directly contrary to the aforementioned contentions.[220] Depending on the type of opioid-related death, NP independence reduces the death rate by between 5% and 11%.

218. Each bar represents the marginal effect of NP independence on the outcome listed below. Each dependent variable is the logarithmic transformation of the per capita opioid-related deaths for the type of opioid indicated below. 95% confidence intervals are reported as capped lines for each bar. Each estimate is derived from a separate regression model. All regression models include a full set of county and year fixed effects and control variables for median household income, unemployment rate, and number of hospitals. Additionally, each model includes indicator variables for whether a state features a mandatory prescription drug monitoring program, allows access to recreational cannabis, allows access to medical cannabis, features a law regulating pain clinics, and features expanded Medicaid.

219. *Supra* Figure 1.

220. *See supra* Figure 1.

While the available data on opioid-related deaths do not allow me to disaggregate the effect of NP independence into different mechanisms, several back-of-the-envelope calculations are nonetheless illuminating. In general, allowing NPs to practice independently may reduce opioid-related deaths by (1) reducing the number of opioid prescriptions and (2) facilitating access to treatment for opioid addiction. The results presented in Figure 1 represent the joint effect of these two mechanisms—reducing prescriptions and facilitating treatment. But examining prescription opioid-related deaths and illegal opioid-related deaths can elucidate the separate effects of these mechanisms. Both a reduction in prescribing opioids and the provision of access to opioid-addiction treatment work to reduce prescription opioid-related deaths.[221] Fewer opioid prescriptions mean a lower likelihood of overdose, and greater access to treatment similarly means fewer deaths. But because NPs do not prescribe illegal opioids, only the effect of NP independence in increasing access to treatment operates to reduce illegal opioid-related deaths.

Assuming that the 5.5% reduction in illegal opioid-related deaths stems almost entirely from increasing access to opioid treatment programs and comparing the reduction in these deaths to the reduction in prescription opioid-related deaths, the data would suggest that 5.5% of the 7.6% reduction in prescription opioid-related deaths is similarly due to increased access to addiction treatment.[222] This would imply that the remaining 2.1% reduction in prescription opioid-related deaths is due to decreased opioid prescribing in the wake of NP independence.[223] Interestingly, a separate, earlier study found that allowing NPs to practice independently results in exactly a 2.1% reduction in the total day's supply of prescription opioids.[224]

Of course, the percentage reductions are not directly comparable, but these simple back-of-the-envelope calculations demonstrate a remarkable consistency in results across multiple studies. While future work with different data should disaggregate the mechanisms of effect of NP independence more precisely, the consistency observed between the results presented here and those in prior studies provides greater confidence in both sets of results. In general, this

221. *Infra* note 223.

222. *See supra* Figure 1.

223. Under the assumption that the entirety of the illegal-opioid death rate is due to increased access to treatment programs, this would imply that 5.5% of the total 7.6% reduction in the prescription-opioid death rate is similarly due to increased access to treatment programs. This leaves 2.1 percent (i.e., 7.6 – 5.5 = 2.1) attributable to a reduction in opioid prescribing as a result of NP independence.

224. McMichael, *supra* note 4, at 930. This work showed slightly larger and smaller reductions in other measures of prescription opioid use. *Id.*

consistency indicates that allowing NPs to practice independently has a meaningful impact on ameliorating the opioid epidemic.

2. The Role of Scope-of-Practice Laws in Rural Areas

To further investigate the role of NP independence in opioid-related deaths, I extend the above analysis to examine rural areas separately. As noted above, NPs often play larger roles in delivering healthcare in more rural communities, with some rural communities relying primarily on NPs for care.[225] This suggests that granting NPs independence may have a different effect in rural communities. To investigate this possibility, I separately re-estimate all of the above models for rural areas.

To define a particular county as rural, I rely on the United States Department of Agriculture's ("USDA") rural-urban continuum codes.[226] Under this system, the USDA assigns a code between one and nine to each county in the United States based on population density and proximity to urban areas.[227] In general, more rural counties receive higher codes. Metropolitan counties receive codes between one and three, and nonmetropolitan counties receive codes between four and nine.[228] While more counties receive a nonmetropolitan designation, metropolitan counties include a greater percentage of the United States' population.[229] Counties with the highest rural-urban continuum codes (i.e., seven or above), are the most rural.[230] While NPs may have an impact in these counties, they are so sparsely populated that any results for these counties may suffer from problems. Accordingly, the analysis here focuses on counties that receive a rural-urban continuum code of four, five, or six.

Figure 2 reports the results from twelve separate models, which are limited to rural counties with a mid-range rural-urban continuum code. These models are identical to those estimated in the primary

225. *See supra* note 44 and accompanying text.

226. *Rural-Urban Continuum Codes: Documentation*, USDA, https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/documentation/ (last updated Dec. 10, 2020).

227. *Id.*

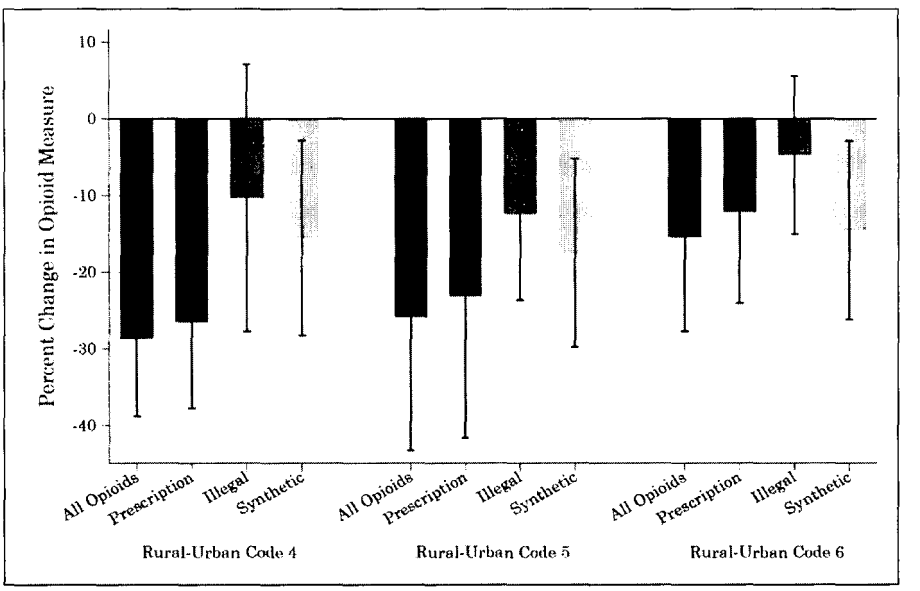
228. The codes and the counties to which they apply are as follows: (1) "Counties in metro areas of 1 million population or more"; (2) "Counties in metro areas of 250,000 to 1 million population"; (3) "Counties in metro areas of fewer than 250,000 population"; (4) "Urban population of 20,000 or more, adjacent to a metro area"; (5) "Urban population of 20,000 or more, not adjacent to a metro area"; (6) "Urban population of 2,500 to 19,999, adjacent to a metro area"; (7) "Urban population of 2,500 to 19,999, not adjacent to a metro area"; (8) "Completely rural or less than 2,500 urban population, adjacent to a metro area"; and (9) "Completely rural or less than 2,500 urban population, not adjacent to a metro area." *Id.*

229. *Id.*

230. *Id.*

analysis, but they include only counties with a specified rural-urban continuum code.[231] As above, each bar reports the result from a separate regression model. The type of opioid-related death captured by each model is reported below, and the models are grouped by rural-urban continuum codes.

FIGURE 2. EFFECT OF SCOPE-OF-PRACTICE LAWS ON OPIOID-RELATED DEATHS IN RURAL AREAS[232]



Except for deaths related to illegal opioids, the effect of NP independence on opioid-related deaths is uniformly statistically significant in Figure 2. Importantly, the magnitudes of these effects are considerably larger than those reported in Figure 1 above.[233] For

231. The error bars represent the 95% confidence intervals for the effect of NP independence on different outcomes. If an error bar does not cross the zero line, then the associated effect is statistically significant. *See infra* Figure 2.

232. Each bar represents the marginal effect of NP independence on the outcome listed below. Each dependent variable is the logarithmic transformation of the per capita opioid-related deaths for the type of opioid indicated below. 95% confidence intervals are reported as capped lines for each bar. Each estimate is derived from a separate regression model. Each regression is limited to only counties that fall into the rural-urban continuum code listed below each group of results. All regression models include a full set of county and year fixed effects and control variables for median household income, unemployment rate, and number of hospitals. Additionally, each model includes indicator variables for whether a state features a mandatory prescription drug monitoring program, allows access to recreational cannabis, allows access to medical cannabis, features a law regulating pain clinics, and features expanded Medicaid.

233. *Compare* Figure 1 *supra*, *with* Figure 2 *supra*.

example, NP independence reduces all opioid-related deaths by between 14% and 28% in rural counties. Across all counties, NP independence reduces all opioid-related deaths by 9.3%.[234] In other words, NP independence has a stronger effect in rural counties than in counties generally.

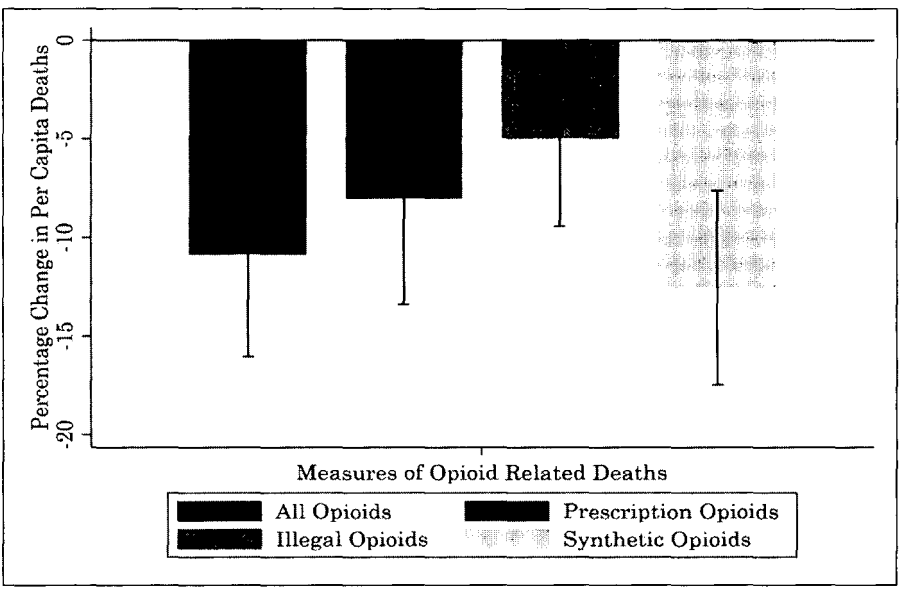
Overall, the results for rural counties conform to prior studies of NPs' SOP laws. NP independence has a more salient effect in nonmetropolitan counties, consistent with these counties relying more on NPs for healthcare services than metropolitan counties.[235] In the context of the opioid epidemic, this pattern of effects is particularly relevant, and it suggests that allowing NPs to practice independently may alleviate the rural-urban divide in access to healthcare. Before delving into this and other policy implications in detail, however, the next Subpart discusses a series of robustness checks designed to probe the validity of the results reported above.

3. Robustness of the Results

In the interest of succinctness, this Subpart reports the results from the primary robustness checks. First, to test the sensitivity of the estimated effects to the inclusion of control variables, I re-estimate the primary models but omit all control variables. Figure 3 reports the results of these models.[236] In general, the results are remarkably similar to the primary results reported above.[237] Though the point estimates change slightly, all effects remain statistically significant. I also re-estimate all the rural models without control variables. These results are omitted in the interest of brevity, but they similarly track the results reported above. The point estimates change somewhat, but the qualitative nature of the results and the conclusions that can be drawn from them remain the same.

234. *See supra* Figure 2.
235. *See supra* note 44 and accompanying text.
236. *See infra* Figure 3.
237. *Compare supra* Figure 1, *with infra* Figure 3.

FIGURE 3. EFFECT OF SCOPE-OF-PRACTICE LAWS ON OPIOID-RELATED DEATHS (WITH CONTROL VARIABLES OMITTED)[238]



Second, and more relevant to my empirical strategy, I test the validity of the parallel trends assumption underlying the difference-in-differences models that form the core of that strategy. In particular, all difference-in-differences models require that the trend in the outcome of interest is the same in the control group and treatment group prior to treatment.[239] If the treatment group exhibits a change in opioid deaths prior to the adoption of NP independence that the control group does not experience, then that result could suggest that the results of my analysis simply reflect differences in the relevant underlying trends, as opposed to true effects of NP independence.

The underlying trends in opioid-related deaths in states that did and did not adopt NP independence may differ for many reasons. Particularly problematic is the possibility that states have previously adopted NP independence to reduce opioid-related deaths or for similar reasons.[240] But extensive research has found evidence that

238. Each bar represents the marginal effect of NP independence on the outcome listed below. Each dependent variable is the logarithmic transformations of the per capita opioid-related deaths for the type of opioid indicated below. 95% confidence intervals are reported as capped lines for each bar. Each estimate is derived from a separate regression model. All regression models include a full set of county and year fixed effects.

239. *See* Bertrand et al., *supra* note 193, at 251.

240. *See* Markowitz et al., *supra* note 56, at 207 ("Policy endogeneity is another potential concern. This endogeneity can be either statistical (correlation

political idiosyncrasies and reasons unrelated to healthcare policy have driven states to change their NPs' SOP laws.[241] Consistent with this evidence, multiple studies have employed difference-in-differences models to estimate the impact of NP independence on various healthcare outcomes.[242] While this consistent approach offers some comfort in the reliability of the above results, I nonetheless formally test the validity of the assumptions underlying my empirical models.

In particular, I follow the econometric methodology outlined by Clément de Chaisemartin and Xavier D'Haultfœuille.[243] Their approach provides a specific test for whether the parallel trends assumption is satisfied, and it relaxes the assumption that NP independence has a constant effect across states and time.[244] The results of the de Chaisemartin and D'Haultfœuille event-study model for opioid-related deaths are reported in Figure 4. Each point along the line represents the effect of NP independence at the given time before or after enactment, and each error bar represents the 95% confidence interval around each estimated effect.[245] The focus of this analysis is not the statistical significance of any single point estimate but the overall trend of the effect of NP independence.[246]

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with the error term) or structural (when laws are altered as a result of the outcomes under consideration).").

241. *See id.* ("Using our data, we conducted an event study analysis and found no evidence of policy endogeneity."); McMichael, *supra* note 102, at 313–14 ("The findings presented here suggest that political spending by professional interest groups plays a role in states' choices of occupational licensing laws."); Traczinsky & Udalova, *supra* note 9, at 93 ("As discussed above, state laws on NP practice are often the result of state board regulatory decisions made by political appointees, attorney general opinions, or other factors related to political bargaining rather than health concerns.").

242. *See supra* Subpart II.A. (discussing these studies).

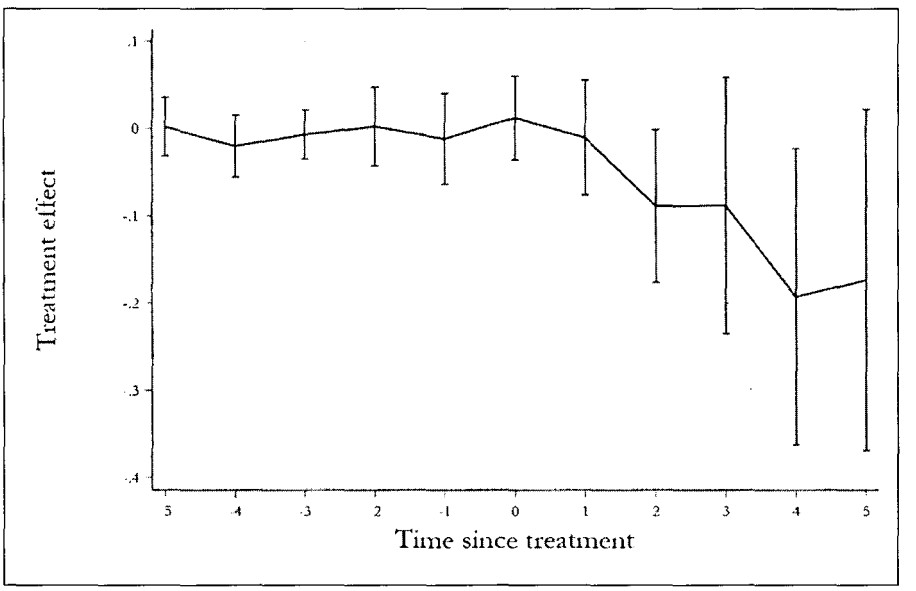
243. *See* Clément de Chaisemartin & Xavier D'Haultfœuille, *Two-way Fixed Effects Estimators with Heterogeneous Treatment Effects*, 110 AM. ECON. REV. 2964, 2965 (2020) ("[W]e propose a new estimator, DID_M, that is valid even if the treatment effect is heterogeneous over time or across groups. It estimates the average treatment effect across all the (g, t) cells whose treatment changes from t-1 to t. It relies on [a variant of the standard] common trends assumption on both potential outcomes. Those conditions are partly testable, and we propose a test that amounts to looking at pretrends.").

244. *Id.* at 2.

245. *See infra* Figure 4.

246. *See, e.g.*, Ronen Avraham & Max Schanzenbach, *The Impact of Tort Reform on Intensity of Treatment: Evidence from Heart Patients*, 39 J. HEALTH ECON. 273, 278–82 (2015) (focusing similarly on the nature of the trend in their event study models as opposed to the statistical significance of any single effect).

FIGURE 4. EVENT-STUDY RESULTS FOR THE EFFECT OF SCOPE-OF-PRACTICE LAWS ON OPIOID-RELATED DEATHS[247]



For the years leading up to NP independence, the line tracing the coefficient estimates is generally flat, suggesting that the trends in the treatment and control groups were parallel. Indeed, the coefficient estimates prior to the adoption of NP independence are remarkably stable. The flat line prior to adoption demonstrates that the parallel trends assumption is not violated and that the use of difference-in-differences models throughout my analysis is appropriate.[248] The clear decline following the enactment of NP independence elucidates a phasing in period. This is not surprising, as one would expect that it would take time for newly independent NPs to meaningfully impact opioid-related deaths.

In addition to testing the parallel trends assumption, the approach developed by de Chaisemartin and D'Haultfœuille addresses a separate concern with traditional difference-in-differences models. Recent research, which is focused on the

247. Each point represents the coefficient on *NP independence* for the indicated time period relative to the enactment of NP independence, which occurs at time zero. The dependent variable is the natural logarithm of opioid-related deaths. 95% confidence intervals are reported as capped lines for each point. All estimates are derived from the same model. That model includes a full set of county and year fixed effects and control variables for median household income, unemployment rate, and number of hospitals. It also includes indicator variables for whether a state features a mandatory prescription drug monitoring program, allows access to recreational cannabis, allows access to medical cannabis, features a law regulating pain clinics, and features expanded Medicaid.

248. *See supra* Figure 4.

econometric properties of these regression models, has highlighted potential problems with their design.[249] For example, in addition to assuming that the outcome of interest followed a parallel trend in the treatment and control groups, standard difference-in-differences models assume that the treatment effect of the relevant law is constant across states and over time. The de Chaisemartin and D'Haultfœuille approach relaxes this assumption.[250] As illustrated in Figure 4, with this assumption relaxed, the main effect of NP independence elucidated in the primary analysis remains robust.[251]

Before exploring the implications of the analysis, it is important to note that no empirical study—the present study included—is perfect. All studies have limitations, and though the robustness checks outlined in this Part rule out the most salient threats to the validity of the results, this study has other limitations. First, the data only cover the period from 2005 to 2017. The opioid crisis started before 2005, and NPs have been providing care (independently in some states) since the 1980s.[252] Thus, this study cannot exhaustively analyze every instance of NP independence in the context of the opioid epidemic. Second, the robustness checks and prior studies generally rule out the possibility that other factors were responsible for the effect attributed to NP independence above. It is impossible, however, to conclusively rule out all such factors. Third, the study is limited by the data itself. If the data include errors in how individual deaths are coded, then that error may induce problems in the analysis. This concern is somewhat mitigated by the use of official death certificate data maintained by the CDC, but it is impossible to verify that every single death included above was actually caused by opioids.

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249. *See generally* de Chaisemartin & D'Haultfœuille, *supra* note 243, at 2–3 (identifying potential econometric issues); Kirill Borusyak & Xavier Jaravel, *Revisiting Event Study Designs, with an Application to the Estimation of the Marginal Propensity to Consume* 2 (Harv. Univ., Working Paper, 2018), https://scholar.harvard.edu/files/borusyak/files/borusyak_jaravel_event_studies.pdf (same); Andrew Goodman-Bacon, *Difference-in-Differences with Variation in Treatment Timing* 1–3 (Nat'l Bureau Econ. Rsch., Working Paper 25018, 2018), https://www.nber.org/papers/w25018 (same).

250. *See* de Chaisemartin & D'Haultfœuille, *supra* note 243, at 3 ("[W]e propose a new estimator, DID_M, that is valid even if the treatment effect is heterogeneous over time or across groups. It estimates the average treatment effect across all the (g, t) cells whose treatment changes from t-1 to t. It relies on [a variant of the standard] common trends assumption on both potential outcomes. Those conditions are partly testable, and we propose a test that amounts to looking at pre-trends[,] [as in a standard DID analysis.]").

251. *See supra* Figure 4.

252. CDC, *supra* note 151; Christine Vestal, *Nurse Practitioners Slowly Gain Autonomy*, PEW TRUSTS: STATELINE (July 19, 2013), https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2013/07/19/nurse-practitioners-slowly-gain-autonomy.

Though this study has limitations like all empirical studies do, the results are generally consistent with prior work. Granting NPs independence improves overall health and healthcare outcomes. The next Part explores the policy implications of the results of the analysis presented above.

IV. RETHINKING REGULATION IN AN AGE OF EPIDEMICS

The results of my empirical analysis support eliminating restrictive SOP laws and allowing NPs to practice independently. More specifically, the evidence developed above does not support the arguments that allowing NPs to practice independently will endanger patient safety. Of course, this evidence was developed in a single context—opioid-related deaths. But the failure to find support for these arguments in the opioid epidemic, which is arguably more intimately connected to patient safety than any other healthcare situation, means that such evidence is not likely to appear in other contexts.[253]

By itself, this study cannot definitively establish that the temporary eliminations of restrictive SOP laws following the COVID-19 pandemic should be made permanent. The results here vitiate arguments that restrictive SOP laws are necessary for patient safety, but more evidence is needed to support the more general argument that NPs should be granted independence permanently. Prior work has already developed that evidence, and various nonpartisan and partisan (on both sides of the political spectrum) organizations have evaluated such evidence.[254] In general, granting NPs independence can lower healthcare costs,[255] expand access to healthcare,[256] and improve healthcare outcomes.[257]

Given the existing evidence, this Part explores the policy implications of my empirical results, tracing the connections between the opioid-related evidence developed above and the emergency responses to the COVID-19 pandemic. It concludes that extending independence to NPs permanently is warranted. It then details

253. By this, I mean that failing to find evidence consistent with patient-safety arguments in the context where these arguments are most likely to be relevant implies that these arguments are not a valid reason for continuing current restrictions on NP practices. Additionally, I do not mean to imply that patient safety should be verified in all contexts before NPs are allowed to practice independently. The evidence developed in this Article joins mounting evidence that NPs can safely care for patients independently. Thus, the burden of proof must shift to those who argue that NPs cannot do so safely and desire to maintain restrictive licensing laws. Failing to carry this burden should result in the elimination of restrictive SOP laws.

254. *See* U.S. DEP'T OF HEALTH & HUM. SERVS. ET AL., *supra* note 13, at 31–36; U.S. DEP'T OF THE TREASURY, OFF. OF ECON. POL'Y ET AL., *supra* note 13, at 31–36.

255. Kleiner et al., *supra* note 56, at 276.

256. Traczynski & Udalova, *supra* note 9, at 97.

257. Kurtzman & Barnow, *supra* note 117, at 618–21.

specific legal paths to achieving this reform on a nationwide basis. In doing so, it does not advocate this reform to the exclusion of parallel reforms that would increase the number of practicing physicians. Indeed, these parallel reforms could provide important benefits to patients across the country, and there is no reason that state governments and the federal government should ignore reforms to promote growth in physician supply. Reforms designed to increase the physician workforce can, and should, be pursued in conjunction with reforms to the SOP laws governing the NP workforce.[258]

A. The Evidence in the Context of Current Public Health Crises

As noted above, many states have responded to the COVID-19 crisis by taking immediate action to expand the capacity of their healthcare systems.[259] This has included attempts to procure additional medical equipment, such as ventilators. But among the most important actions taken by states are changes designed to increase the capacity of healthcare providers.[260] Many states, such as New York, New Jersey, Louisiana, and Kentucky, have issued executive orders suspending restrictive SOP laws to better enable NPs and other healthcare providers to care for patients.[261] These states have correctly recognized that dealing with a pandemic requires increasing the capacity of their healthcare workforces, and thus have acted accordingly.

Indeed, this capacity is important to address the direct pressure exerted by COVID-19 patients on the healthcare system and the indirect pressure of this pandemic. Patients suffering from conditions developed before the pandemic continue to require care, patients continue to develop conditions unrelated to COVID-19, and the emergency responses to the pandemic may cause independent problems (i.e., exacerbating mental health conditions by requiring individuals to isolate themselves).[262] When states remove restrictive SOP laws, they create new capacity to handle these problems. NPs (along with PAs and other professionals who have benefitted from relaxed SOP laws) can aid in the treatment of COVID-19 patients and provide many of the other healthcare services that continue to be necessary notwithstanding the pandemic.

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258. *See infra* Subpart IV.B.

259. *See infra* Subpart II.A.

260. Brayden Kameg, *How COVID-19 Is Changing the Nurse Practitioner Role*, PSYCHIATRY & BEHAV. HEALTH LEARNING NETWORK (Nov. 10, 2020), https://www.hmpgloballearningnetwork.com/site/pcn/article/how-covid-19-changing-nurse-practitioner-role.

261. *See infra* Subpart II.A.

262. Nirmita Panchal et al., *The Implications of COVID-19 for Mental Health and Substance Use*, KAISER FAM. FOUND. (Feb. 10, 2021), https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/.

The number of states that suspended restrictive SOP laws to address the capacity problems brought on by COVID-19, and the alacrity with which they did so, invites an obvious question: Why limit the capacity of the healthcare workforce in the first place? To be sure, many parts of the country never feel these capacity constraints. Patients in many urban and suburban areas may have little difficulty making an appointment with a healthcare professional or otherwise accessing the care they need.[263] In such areas, restrictive SOP laws may have little impact from the patient's perspective.

In many other parts of the country, including many rural areas and certain parts of urban areas, patients acutely feel the impact of restrictive SOP laws. In these areas, patients may face long waiting periods before being able to see a healthcare provider, or they may find it impossible to access a provider at all.[264] Patients in these parts of the country may constantly face the healthcare capacity constraints that the COVID-19 pandemic has made a reality for everyone else. These patients may live under semiconstant pandemic conditions if they cannot receive care for diabetes, cardiovascular disease, HIV, asthma, mental illness, or the myriad of other diseases and conditions that kill as many people every year as COVID-19 will during the course of the current pandemic.[265]

As discussed extensively above, eliminating restrictive SOP laws can increase access to care and address many of the problems faced by individuals across the country. If states are willing to remove restrictions on NPs, and other healthcare professionals, to provide greater access to care when that access is strained by a pandemic, then why should states maintain those restrictions when many people face access problems irrespective of a pandemic? To ask the question is not to assume an answer, and there may be legitimate justifications for restrictive SOP laws. If groups in favor of such laws are correct that eliminating restrictive SOP laws, outside the context of a pandemic, will endanger patient safety, then states have correctly refused to relax restrictions. And many states explicitly justify their SOP laws as necessary to protect patient safety.[266]

The problem is that this justification is not based on sound evidence. Expert evaluators of all political persuasions have yet to find compelling evidence that restricting the practices of NPs and other similarly situated professionals protects patient safety.[267] Nearly all evaluations have concluded that access to care, and patient

263. Karen Appold, *Urban Growth Effects*, 29 MANAGED HEALTHCARE EXEC. 7, 7 (2019).

264. *See supra* Subpart I.A.

265. *See supra* Subpart II.B.

266. *See supra* Subpart II.B.

267. *See, e.g.*, GILMAN & KOSLOV, *supra* note 97, at 18–34 (reviewing the available evidence and concluding that restrictive SOP laws are not well supported by that evidence).

safety, would be well-served by eliminating restrictive SOP laws.[268] And the analysis reported as a result of this empirical study, conducted in the context of the opioid epidemic, represents novel and particularly compelling evidence that the patient safety justification for restrictive SOP laws is without merit.[269]

The opioid epidemic arose from practices within the healthcare system itself, which ultimately endangered patient safety by risking opioid addiction and all the harms that such an addiction entails.[270] In the context of this epidemic, granting NPs independence has exactly the opposite effect as that predicted by proponents in favor of restrictive SOP laws. Instead of exacerbating the epidemic, giving NPs more autonomy has reduced opioid-related deaths and thereby ameliorated the worst impact of the opioid epidemic.[271]

The analysis reported above cannot unambiguously separate the different mechanisms by which NP independence may work to reduce opioid-related deaths. Combined with prior work, however, the evidence suggests that NPs both prescribe fewer opioids and expand access to opioid-addiction treatments when they are granted independence.[272] In either case, granting NPs independence improves, rather than endangers, patient safety.[273]

The failure of the primary argument against granting NPs independence, when combined with the benefits that will inure to patients as a result of this independence, suggests a clear problem with the current approach to regulating NPs (and other professionals). More importantly, it invites a new paradigm. The next Subpart explores potential paradigms in detail.

B. Paths to Reform

I join a large cadre of scholars, policymakers, government institutions, and policy think tanks in calling for NP independence.[274] While such a call, by itself, is relatively easy to make, defining a clear path to independence is less clear. The states that relaxed SOP laws on an emergency basis in connection with the COVID-19 pandemic can simply make those relaxations permanent via state statute. The

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268. U.S. DEP'T OF HEALTH & HUMAN SERVS. ET AL., *supra* note 13, at 31–36 (articulating the benefits of relaxed SOP laws); U.S. DEP'T OF THE TREASURY, OFF. OF ECON. POL'Y ET AL., *supra* note 13, at 31–32 ("[E]asing scope of practice laws for APRNs represents a viable means of increasing access to certain primary care services."); INSTIT. OF MED., *supra* note 13, at 27 ("[A]ccess to quality care can be greatly expanded by increasing the use of . . . [NPs] in primary, chronic, and transitional care.").

269. *See supra* Part III.

270. *See supra* Subpart II.B.

271. *See supra* Part III.

272. *Id.*

273. *Id.*

274. For a discussion of these various calls, see *supra* Subpart II.A.

same approach would work in states that did not relax their SOP laws, though these states would not have existing emergency orders as templates for legislative action. While the primary goal in states that continue to restrict the practices of NPs would be to eliminate these restrictions, focusing exclusively on COVID-19 emergency orders may result in an overly narrow approach. Thus, this Subpart takes the substance of these orders as the goal, and systematically explores the various options available to make the changes in these orders permanent. This Subpart begins with the most straightforward options before delving into the increasingly more difficult paths of pursuit. In doing so, it does not advocate for any particular reform option. Overhauling SOP laws across the country will be a massive undertaking, and no single Article could address all the nuances of that undertaking. Instead, the goal here is to spark discussion and move the conversation forward by outlining the options available when pursuing emergency SOP law relaxations on a permanent basis.[275]

1. Litigation

Perhaps the most obvious option—and one which conveniently does not require further government action—is litigation. Current SOP laws clearly confer monopoly power on physicians, and many state laws grant physicians the ability to control entry into healthcare services markets by withholding supervision from NPs (and other providers).[276] The fact that these laws not only allow physicians to control the entry of NPs into certain markets but also charge them thousands of dollars in supervision fees as a condition of continuing to participate in these markets suggest that antitrust laws may offer a solution.[277] Unfortunately, however appealing antitrust laws may be, in this context, they cannot offer a remedy. Because almost all SOP restrictions of the type discussed in this Article come from state statutes, they fit neatly into the state-action immunity articulated in *Parker v. Brown*.[278] While some marginal SOP restrictions are

275. *See* discussion *infra* Subparts IV.B.1–5.

276. Adams & Markowitz, *supra* note 10, at 6 ("Currently, there are strong anticompetitive barriers to making more use of [NPs] in the health-care sector.").

277. Brendan Martin & Maryann Alexander, *The Economic Burden and Practice Restrictions Associated with Collaborative Practice Agreements: A National Survey of Advanced Practice Registered Nurses*, 9 J. NURSING REGUL. 22, 24–25 (2019).

278. 317 U.S. 341, 350–51 (1943) ("We find nothing in the language of the Sherman Act or in its history which suggests that its purpose was to restrain a state or its officers or agents from activities directed by its legislature."); *see also* Aaron Edlin & Rebecca Haw, *Cartels by Another Name: Should Licensed Occupations Face Antitrust Scrutiny?*, 162 U. PA. L. REV. 1093, 1118–27 (2014) (explaining that SOP laws are not subject to antitrust scrutiny because they are based on state statutes).

regulatory in nature and may be subject to an antitrust challenge, the most salient restrictions are beyond the reach of antitrust law.[279]

In addition to antitrust law, state constitutional law may offer some basis for the elimination of restrictive SOP laws. Some states have clauses in their constitutions that prohibit the legislature from conferring monopoly power.[280] These clauses may provide a basis for challenging state SOP laws because these laws clearly provide monopoly power to certain groups. Such challenges, however, are not likely to succeed. In a recent case, the Supreme Court of Georgia rejected a challenge to Georgia's certificate of need law under the "Anti-Competitive Contracts Clause of the Georgia Constitution."[281] The challenged law required healthcare providers to obtain a certificate of need from the state prior to offering certain types of healthcare services, and this law thus functioned similarly to SOP laws.[282] The court concluded that this clause was "limited expressly to contracts and agreements," and the clause therefore did not prohibit the legislature from requiring providers to obtain a certificate of need.[283] While SOP laws differ from certificate-of-need laws and may therefore violate state constitutions, no state supreme court has suggested that SOP laws are unconstitutional. That leaves legislative action as the more viable path to eliminating restrictive SOP laws.

2. Individual State Action

The ideal legal path to independence across the country runs through state capitols, as states have historically maintained primary responsibility for regulating the healthcare workforce.[284] The

279. *See generally* N.C. State Bd. of Dental Exam'rs v. FTC, 574 U.S. 494, 504 (2015) ("An entity may not invoke *Parker* immunity unless the actions in question are an exercise of the State's sovereign power. State legislation and 'decision[s] of a state supreme court, acting legislatively rather than judicially,' will satisfy this standard, and '*ipso facto* are exempt from the operation of the antitrust laws' because they are an undoubted exercise of state sovereign authority." (citations omitted)).

280. *See, e.g.*, GA. CONST. art. III, § 6, para. V ("The General Assembly shall not have the power to authorize any contract or agreement which may have the effect of or which is intended to have the effect of encouraging a monopoly, which is hereby declared to be unlawful and void.").

281. Women's Surgical Ctr., L.L.C. v. Berry, 806 S.E.2d 606, 610 (Ga. 2017).

282. *See* MATTHEW D. MITCHELL ET AL., MERCATUS CTR., PHASING OUT CERTIFICATE-OF-NEED LAWS: A MENU OF OPTIONS 1 (Feb. 2020), https://www.mercatus.org/system/files/mitchell_amez-droz_and_parsons_-_policy_brief_-_repealing_con_laws_a_menu_of_options_for_state_policymakers_-_v11.pdf (discussing certificate of need laws generally).

283. *Women's Surgical Ctr.*, 806 S.E.2d at 611.

284. While other members of the healthcare workforce, such as PAs, were not the focus of my empirical analysis, states have eliminated restrictive SOP laws governing these providers as well. Here, I maintain my focus on NPs, but the

statutes that formed the foundation of the empirical analysis above were all passed by state legislatures, and state legislative action can remove impediments to independent NP practice.[285] Indeed, nothing prevents state legislatures from enacting statutes that grant NPs independence tomorrow. State-based reform in each state capitol represents an attractive, and straightforward, option because such reform does nothing to upset the historical approach to healthcare workforce regulation.[286]

While state legislation offers the easiest legal path to independence, it may not be the most politically feasible. The American Medical Association ("AMA") and other physician groups have opposed the relaxation of state SOP laws that would grant NPs more independence.[287] These groups expend substantial resources to prevent NPs from gaining independence, and the evidence suggests that their efforts have been successful.[288] Given the benefits of restrictive SOP laws that flow to physicians in the form of supervision fees and higher pay,[289] continued opposition to relaxing NPs' SOP laws at the state level should be expected. But the COVID-19 pandemic may impact the effectiveness of this opposition. Many of the states that restrict the practices of NPs quickly and effectively eliminated these restrictions as part of their emergency responses to the pandemic.[290] This willingness to expand the autonomy of NPs, when combined with new evidence undermining the justifications for restrictive SOP laws, such as that presented above, may prove sufficient to overcome lobbying efforts and other opposition to NP independence. If so, making the current emergency SOP measures permanent via legislation represents the simplest, most effective path to NP independence in those states that have adopted such measures. In states that have not eliminated SOP laws on an emergency basis,

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call to eliminate restrictive SOP laws extends to these other healthcare providers as well.

285. *See supra* Subpart I.B.

286. *See* Gabriel Scheffler, *Unlocking Access to Health Care: A Federalist Approach to Reforming Occupational Licensing*, 29 HEALTH MATRIX 293, 337–53 (2019) (weighing the merits of state versus federal action).

287. *See* AM. MED. ASS'N, *supra* note 14, at 238 ("Our AMA, in the public interest, opposes enactment of legislation to authorize the independent practice of medicine by any individual who has not completed the state's requirements for licensure to engage in the practice of medicine and surgery in all of its branches.").

288. McMichael, *supra* note 102, at 314 ("An increase in spending by physician [political interest] groups decreases . . . the probability that states impose less restrictive physician supervision requirements on NPs.").

289. *See* Kleiner et al., *supra* note 56, at 274–75 (finding that NP independence reduces physician wages); Martin & Alexander, *supra* note 277, at 25 ("[T]he median fee to maintain a [collaborative practice agreement] was $500 per month.").

290. *See supra* Subpart II.A.

straightforward legislation to the same effect would likely be the best outcome.

3. Collective State Action

Collective state action, in which multiple states act in conjunction to reform NPs' SOP laws, can take various forms.[291] The most appealing action concerns interstate compacts. These compacts facilitate the movement of professionals across states by allowing someone licensed in one state to more easily practice in another state.[292] These compacts exist for many professions, including both registered nurses and physicians.[293] The National Council of State Boards of Nursing established a framework for an interstate compact for NPs in 2020.[294] That framework includes, as a condition of joining the compact, adopting the Advanced Practice Registered Nurse Compact Act.[295] While the legislation to become part of the compact has not yet been enacted in many states, that legislation takes an important step that other professional compacts do not: it requires states to grant NPs substantial autonomy as a condition of joining the compact.[296]

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291. For example, eleven states (Arizona, Colorado, Florida, Idaho, Missouri, Montana, New Jersey, Pennsylvania, South Dakota, Utah, and Wyoming) have passed laws that facilitate the recognition of out-of-state licenses. Tatiana Follett et al., *Universal Licensure Recognition*, NAT'L CONF. OF STATE LEGISLATURES (Mar. 2, 2021), https://www.ncsl.org/research/labor-and-employment/universal-licensure-recognition.aspx. While useful, these laws do not directly address SOP issues.

292. *See A Faster Pathway to Physician Licensure*, INTERSTATE MED. LICENSURE COMPACT, https://www.imlcc.org/a-faster-pathway-to-physician-licensure/ (last visited July 15, 2021).

293. *Id.* ("The Interstate Medical Licensure Compact is an agreement among participating U.S. states to work together to significantly streamline the licensing process for physicians who want to practice in multiple states."); Kathleen Gaines, *Compact Nursing States List 2021*, NURSE.ORG (July 7, 2021), https://nurse.org/articles/enhanced-compact-multi-state-license-eNLC/ ("The Nursing Licensure Compact (NLC) is an agreement between states that allows nurses to have one license but the ability to practice in other states that are part of the agreement.").

294. This compact includes other types of advanced practice registered nurses as well. *APRN Compact*, NAT'L COUNCIL OF STATE BDS. OF NURSING, https://www.ncsbn.org/aprn-compact.htm (last visited July 15, 2021).

295. *Id.*

296. *Id.* Currently, only North Dakota has enacted legislation to become part of the compact. *Id.* Delaware has legislation pending but has not yet enacted it. *Id.*

The model legislation requires that the "[i]ssuance of [a] multistate license shall include prescriptive authority for noncontrolled prescription drugs."[297] It further provides that an NP "issued a multistate license is authorized to assume responsibility and accountability for patient care independent of any supervisory or collaborative relationship."[298] Including these grants of NP autonomy in the legislation required to join the interstate compact may encourage grants of independence to a greater extent than would occur otherwise. By joining the compact, states can quickly access a large pool of healthcare providers who could quickly begin caring for a state's population.[299] This benefit may be particularly appealing during a pandemic (or under threat of future pandemics) and may encourage otherwise recalcitrant states to grant NPs independence. States may also wish to offer additional benefits to NPs within their borders. By joining the compact, a given state's NP license becomes more valuable, because it provides an avenue to practice in many other states across the country.

While using the interstate compact to promote the adoption of NP independence across the country is a clever strategy, medical associations have already organized against it.[300] The AMA and many state and specialty medical associations support licensure compacts generally, but they "strongly object to the use of interstate licensure compacts as a mechanism through which to expand SOP laws."[301] In other words, the same problems that have derailed attempts at individual state action will likely also hinder collective state action via interstate compacts designed to address SOP laws. The persistence of these problems suggests that stronger measures may be required.

4. Federalism

Given the continued recalcitrance of many states and the vigorous defense of restrictive SOP laws mounted by medical associations, state-based reform alone may prove insufficient. That insufficiency suggests a potential role for the federal government. As discussed in the next Subpart, the federal government has the authority to preempt state SOP laws and replace them with a federal

297. ADVANCED PRACTICE REGISTERED NURSE COMPACT art. III, § (f) (NAT'L COUNCIL OF STATE BDS. OF NURSING 2020), https://www.ncsbn.org/FINAL_APRNCompact_8.12.20.pdf.

298. *Id.* at art. III, § (h).

299. *See A Faster Pathway to Physician Licensure*, *supra* note 292.

300. Letter from Am. Med. Ass'n et al. to Katherine Thomas, President, Nat'l Council of State Bds. of Nursing (May 10, 2018), https://www.aafp.org/dam/AAFP/documents/advocacy/workforce/scope/LT-NCSBN-APRNCompact-051018.pdf.

301. *Id.*

scheme.[302] But "the core of our federal system is the principle that the states should take the lead unless there is a need for [federal] action."[303] Over a decade ago, the National Academy of Medicine determined that such a need exists,[304] and the emergency responses to COVID-19, which generally included relaxing SOP restrictions, have emphasized that need.[305] Despite this need, Congress may nonetheless balk at preempting a traditional domain of state control. And this congressional hesitance suggests an approach rooted in federalism may prove more appealing.[306]

The federal government already shares some responsibility for regulating the healthcare workforce; it could build on this existing role incrementally to assume a greater share of responsibility alongside states.[307] For example, the Department of Veterans Affairs ("VA") exercises some control over the providers it employs.[308] And in 2016, the VA amended the regulations governing providers in VA hospitals by administrative action to allow NPs to practice independently. It did so to "increase [its] capacity to provide timely, efficient, effective and safe primary care" and to "mak[e] the most efficient use of [NP] staff capabilities."[309] In November 2020, the VA took the next step, promulgating an interim final rule that explicitly preempted state laws imposing burdensome requirements on NPs and other providers.[310] The "rule . . . confirm[ed] the ability of VA health care professionals to practice their health care profession consistent with the scope and requirements of their VA employment, notwithstanding any State . . . requirements that unduly interfere with their practice."[311]

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302. *See infra* Subpart IV.B.5.

303. Nicholas Bagley, *Federalism and the End of Obamacare*, 127 YALE L.J.F. 1, 1–2 (2017).

304. *See* INST. OF MED., *supra* note 13, at 5 (noting that "the federal government is especially well situated to promote effective reforms by collecting and disseminating best practices from across the country and incentivizing their adoption").

305. *See supra* Subpart II.A.

306. *See* Scheffler, *supra* note 286, at 347 ("Despite the intuitive appeal of federal preemption, a federalist approach to occupational licensing reform is more feasible than outright preemption.").

307. *See id.* at 350–51 (advocating an incremental approach for Congress).

308. Press Release, U.S. Dep't of Veterans Affs., Off. of Pub. & Intergovernmental Affs., VA Grants Full Practice Authority to Advance Practice Registered Nurses (Dec. 14, 2016, 2:05 PM) (on file at https://www.va.gov/opa/pressrel/pressrelease.cfm?id=2847).

309. *Id.* The VA's policy change extended to all advanced practice registered nurses—not just NPs. *Id.*

310. Authority of VA Professionals to Practice Health Care, 85 Fed. Reg. 71838, 71843 (Nov. 12, 2020) (to be codified at 38 C.F.R. pt. 17).

311. *Id.*

Congress could build on these changes in the VA by leveraging its control over other federal programs like Medicare. For example, Congress could enact a statute providing that, when caring for Medicare beneficiaries, NPs may practice independently regardless of state laws to the contrary. Such a statute would both avoid preempting state SOP laws completely and maintain an important role for states in regulating their healthcare workforces. While maintaining some state authority, this statute would still take important steps toward NP independence. To eliminate confusion around this new statute, as well as any lingering chilling effect on NPs from current state SOP laws, this statute would likely need to include a provision similar to the following: NPs who believe in good faith that they are treating a Medicare beneficiary or an individual eligible for Medicare are exempt from any state SOP laws mandating physician supervision. If Congress wished to provide a more robust statutory framework, it could consider providing that states may impose no more restrictions on NPs than those imposed by the VA.

Congress, of course, exercises authority over more than just the Medicare program and could similarly leverage its authority over Medicaid or other federal programs to both move toward NP independence and maintain a role for states. In the Medicaid context, Congress could authorize higher levels of federal matching funds for those states that allow NPs to practice independently. Congress used the same tactic in the Affordable Care Act to entice states to expand Medicaid.[312] Unlike the Medicare option discussed above, which would require Congress to act under its commerce power, Congress could accomplish change via the Medicaid program under its spending power.[313] In doing so, it could allow an even more robust role for states than that contemplated above. If Congress prefers to avoid tampering with existing federal programs, it could encourage states to relax their SOP laws by conditioning the receipt of funds related to either the opioid epidemic or COVID-19 pandemic on the relaxation of restrictive SOP laws.

A full review of all federal programs that Congress may consider altering to encourage states to grant NPs independence is beyond the scope of this Article. Choosing one of these options, however, offers important benefits over individual state action or collective state action. First, Congress could encourage a relatively uniform adoption of NP independence. Second, an incremental approach, which involves changing SOP laws in connection with specific federal

312. *See* Robin Rudowitz, *Understanding How States Access the ACA Enhanced Medicaid Match Rates*, KAISER FAM. FOUND. (Sept. 29, 2014), https://www.kff.org/medicaid/issue-brief/understanding-how-states-access-the-aca-enhanced-medicaid-match-rates/ (outlining this congressional strategy).

313. *See* Andrew B. Coan, *Judicial Capacity and the Conditional Spending Paradox*, 2013 WIS. L. REV. 339, 345–49 (2013) (discussing the history and scope of Congress's spending power).

programs, may invite less vigorous opposition from physician groups. This may make such an approach more politically feasible than others described above. If, however, Congress decides to take a more heavy-handed approach, it need not rely on the states at all.

5. Federal Action

Given the pressing need to address inequity in access to healthcare providers, Congress may decide that the time has come to replace state-based healthcare workforce regulation with a federal scheme. Preempting state laws on healthcare workforce regulation would not require complicated constitutional justifications. Doing so is almost certainly within Congress's commerce power.[314] Physicians, NPs, and other healthcare providers already complete national certifications,[315] and the provision of healthcare certainly crosses state lines (particularly when considering activities like telehealth).[316]

The primary question in connection with a federal healthcare workforce regulatory scheme is not whether Congress has the authority to enact it but what form it should take. One option is to create simple tiers of providers. The first tier could include physicians, NPs, and other healthcare providers who are capable of providing independent care to patients (i.e., PAs). The second tier could include professions, such as registered nurses, that primarily provide high quality healthcare in connection with other providers. Other tiers could include additional providers who receive less training and play other roles in the healthcare system.

Grouping providers in this way would avoid unnecessarily imposing restrictive SOP requirements on them. This grouping scheme would essentially treat NPs the same as physicians in terms of their ability to provide care. While this may appear odd or unwarranted at first glance, Medicare has long placed various types of professionals in the same "physician" category.[317] Within the Medicare program, the federal government recognizes dentists,

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314. *See* M. Reed Hopper, *Bringing in the Sheaves: Home Grown Wheat, Weed, and Limits on the Commerce Clause*, 7 KY. J. EQUINE, AGRIC., & NAT. RES. L. 41, 42 (2014) (discussing the scope of Congress's commerce power).

315. *See, e.g.*, *Certification by the American Board of Internal Medicine (ABIM)*, AM. BD. INTERNAL MED., https://www.abim.org/about/mission.aspx (last visited July 15, 2021) (describing board certification in internal medicine); *Family Nurse Practitioner (FNP)*, AM. ACAD. NURSE PRACS. CERTIFICATION BD., https://www.aanpcert.org/certs/fnp (last visited July 15, 2021) (describing the national exam completed by family NPs).

316. *See generally* Amar Gupta & Deth Sao, *The Constitutionality of Current Legal Barriers to Telemedicine in the United States: Analysis and Future Directions of Its Relationship to National and International Health Care Reform*, 21 HEALTH MATRIX CLEVEL. 385, 385–86 (2011) (discussing telemedicine and the national nature of healthcare provision).

317. *See* 42 U.S.C. § 1395x(r).

podiatrists, chiropractors, and optometrists as "physicians" in addition to "doctor[s] of medicine or osteopathy."[318] This is not to suggest, however, that NPs and physicians are equivalent to one another. They are not, and NPs do not advocate otherwise.[319] Additionally, NPs are not trained to provide the same range of services that physicians are trained to provide.[320] Within their education and training, however, both NPs and physicians (as well as other professions) can care for patients independently, even if, as a group, physicians provide a wider range of services than NPs.

Creating a new healthcare professional licensing system like the one described here would almost certainly require the creation of a new agency within the Department of Health and Human Services. This new agency would be responsible for confirming that applicants have completed the requisite training, passed the required examinations, and obtained the necessary certifications to obtain a license within a given tier. Assuming these duties, which are traditionally performed by state licensing boards, would require substantial resources. Congress could, however, expand on existing capabilities when building a new federal licensing agency. For example, the National Plan and Provider Enumeration System already exists to track healthcare providers across the country.[321] Congress could expand this system to accept initial licensing applications and license renewals, while relying on professional organizations, such as medical testing organizations, to test the substantive knowledge of applicants as state boards have always done.[322]

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318. *Id.*

319. Maureen Cahill, senior policy advisor for the National Council of State Boards of Nursing, has explained, "[t]hese are not folks who want to be physicians, they want to be advanced providers in nursing . . . . It's a different thing than medical practice. There's a lot of overlap, but it's a different focus." Jan Greene, *Nurse Practitioners to Docs, Lawmakers: Give Us Our Independence*, MANAGED CARE (Sept. 3, 2018), https://www.managedcaremag.com/archives/2018/9/nurse-practitioners-docs-lawmakers-give-us-our-independence.

320. *See* Kevin B. O'Reilly, *Letting APRNs Order Diagnostic Imaging Could Worsen Overuse*, AM. MED. ASS'N (July 29, 2020), https://www.ama-assn.org/practice-management/scope-practice/letting-aprns-order-diagnostic-imaging-could-worsen-overuse ("NPs have no requirement for residency training and obtain about 500–720 hours of clinical training. 'By sharp contrast, physicians complete four years of medical school plus three to seven years of residency, including 10,000–16,000 hours of clinical training.'" (citation omitted)).

321. NAT'L PLAN & PROVIDER ENUMERATION SYS., https://nppes.cms.hhs.gov/#/ (last visited July 16, 2021).

322. *See About USMLE*, U.S. MED. LICENSING EXAMINATION, https://www.usmle.org/ (last visited July 16, 2021) ("The United States Medical Licensing Examination ® ("USMLE®") is a three-step examination for medical licensure . . . [that] assesses a physician's ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered . . . skills,

The type of federal scheme described here could greatly simplify healthcare licensing in the United States and address problems beyond restrictive SOP laws.[323] While this option may be attractive for its simplicity and its ability to effect independence across the country, it assumes a degree of political feasibility that may not exist. Such an approach would also destroy any semblance of federalism in the regulation of healthcare providers. Congress has proved unwilling to employ such an annihilative strategy in the past,[324] and even the COVID-19 pandemic may not be enough to encourage Congress to act. If Congress does decide to act, groups opposed to this independence have been successful in lobbying state legislatures.[325] Congressional action may simply give them a single target for their efforts.

In general, these problems and limitations may counsel in favor of a collective state action approach or an approach that emphasizes federalism. Future scholarship can delve into these problems that are ripe for solutions, as the country continues to address the fallout of both the COVID-19 pandemic and opioid epidemic. Neither these two public health crises nor the myriad of other problems (including chronic diseases like diabetes) are likely to yield to simplistic solutions, and future work can engage these problems by building on the empirical evidence reported above and the reform paths outlined here.

CONCLUSION

As access to healthcare has become a salient problem for many more Americans in the wake of the COVID-19 pandemic, understanding the solutions to this temporary problem can elucidate ways to address the chronic and pervasive access-to-care problem that many face outside the context of COVID-19. Many states have responded to these novel access-to-care problems by relaxing the SOP laws governing NPs, suggesting that this approach represents a viable policy option to increase access to care outside of the current pandemic. That so many states have proven willing to allow NPs

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important in health and disease and that constitute the basis of safe and effective patient care.").

323. For example, Medicare reimbursement rates differ across different types of providers, and standardizing types of providers could address the problems associated with differential reimbursement. *See* Peter Buerhaus et al., *The Integrity of MACRA May Be Undermined by "Incident to Billing" Coding*, HEALTH AFFS. BLOG (Jan. 8, 2018), https://www.healthaffairs.org/do/10.1377/hblog20180103.135358/full/ (describing one issue with Medicare reimbursement that occurs when NPs and physicians treat patients).

324. Scheffler, *supra* note 286, at 350 ("Congress has historically proven unwilling to repeal important areas of state regulation wholesale, especially in health care.").

325. McMichael, *supra* note 102, at 306–07, 309.

greater autonomy implies that the safety concerns that have inhibited wider adoption of NP independence may not be well founded.[326]

Evaluating the concern that granting NPs independence will endanger patient safety in a systematic way, this Article offers novel evidence from an empirical analysis of NP independence. The opioid epidemic is intimately connected with patient safety concerns, and an empirical analysis of the impact of relaxing NPs' SOP laws on the most tragic consequences of this epidemic—opioid-related deaths—undermines the patient safety concerns raised by certain proponents of restrictive SOP laws. Allowing NPs to practice independently does not exacerbate the opioid epidemic but rather ameliorates the consequences of that crisis. Depending on which types of opioids are considered, death rates fall by between 5% and 11% once NPs can practice independently.[327]

The results of my empirical analysis, when combined with the demonstrated willingness of many states to grant NPs independence temporarily, suggest that governments should investigate making NP independence permanent. State legislative action is the most obvious, and for many reasons, the most desirable path to long-term independence. With many states balking at the opportunity to relax their SOP laws, however, the time has come for policymakers and legal scholars to more seriously consider federal options for independence. Much work remains to be done on this front, but the empirical analysis reported in this Article has laid the groundwork for a data- and law-driven resolution to the SOP debate—a solution that can meaningfully address inequity and improve access to care for millions of people.

326. *See supra* Part III.
327. *See supra* Figure 1.

APPENDIX

Table A1. Effect of Scope-of-Practice Laws on Opioid-Related Deaths

	(1) ln(opioid deaths per capita)	(2) ln(prescription opioid deaths per capita)	(3) ln(illegal opioid deaths per capita)	(4) ln(synthetic opioid deaths per capita)
NP Independence	-0.098*** (0.030)	-0.079*** (0.030)	-0.057** (0.024)	-0.113*** (0.029)
Observations	40,822	40,822	40,822	40,822
R-squared	0.512	0.510	0.543	0.382

Dependent variables are listed above each results column. All regression models include a full set of county and year fixed effects, as well as control variables for median household income, unemployment rate, and number of hospitals. Additionally, each model includes indicator variables for whether a state has a mandatory prescription drug monitoring program, allows access to recreational cannabis, allows access to medical cannabis, and has a law regulating pain clinics. Standard errors clustered at the county level are reported in parentheses.

* significant at the $p < 0.1$ level
** significant at the $p < 0.05$ level
*** significant at the $p < 0.01$ level

Table A2. Effect of Scope-of-Practice Laws on Opioid-Related Deaths in Areas Falling Within Rural-Urban Code 4

	(1) ln(opioid deaths per capita)	(2) ln(prescription opioid deaths per capita)	(3) ln(illegal opioid deaths per capita)	(4) ln(synthetic opioid deaths per capita)
NP Independence	-0.338*** (0.086)	-0.308*** (0.093)	-0.109 (0.118)	-0.169* (0.092)
Observations	2,782	2,782	2,782	2,782
R-squared	0.543	0.544	0.510	0.411

Dependent variables are listed above each results column. All regression models include a full set of county and year fixed effects, as well as control variables for median household income, unemployment rate, and number of hospitals. Additionally, each model includes indicator variables for whether a state has a mandatory prescription drug monitoring program, allows access to recreational cannabis, allows access to medical cannabis, and has a law regulating pain clinics. Regressions include only counties that have a rural-urban continuum code of four. Standard errors clustered at the county level are reported in parentheses.

* significant at the $p < 0.1$ level
** significant at the $p < 0.05$ level
*** significant at the $p < 0.01$ level

Table A3. Effect of Scope-of-Practice Laws on Prescription-Opioid-Related Deaths in Areas Falling Within Rural-Urban Code 5

	(1) ln(opioid deaths per capita)	(2) ln(prescription opioid deaths per capita)	(3) ln(illegal opioid deaths per capita)	(4) ln(synthetic opioid deaths per capita)
NP Independence	-0.299** (0.143)	-0.264* (0.146)	-0.133* (0.078)	-0.193** (0.091)
Observations	1,196	1,196	1,196	1,196
R-squared	0.532	0.547	0.455	0.325

Dependent variables are listed above each results column. All regression models include a full set of county and year fixed effects, as well as control variables for median household income, unemployment rate, and number of hospitals. Additionally, each model includes indicator variables for whether a state has a mandatory prescription drug monitoring program, allows access to recreational cannabis, allows access to medical cannabis, and has a law regulating pain clinics. Regressions include only counties that have a rural-urban continuum code of five. Standard errors clustered at the county level are reported in parentheses.

* significant at the $p < 0.1$ level
** significant at the $p < 0.05$ level
*** significant at the $p < 0.01$ level

Table A4. Effect of Scope-of-Practice Laws on Illegal-Opioid-Related Deaths in Areas Falling Within Rural-Urban Code 6

	(1) ln(opioid deaths per capita)	(2) ln(prescription opioid deaths per capita)	(3) ln(illegal opioid deaths per capita)	(4) ln(synthetic opioid deaths per capita)
NP Independence	-0.168* (0.088)	-0.130 (0.082)	-0.049 (0.066)	-0.157* (0.083)
Observations	7,696	7,696	7,696	7,696
R-squared	0.411	0.415	0.309	0.274

Dependent variables are listed above each results column. All regression models include a full set of county and year fixed effects, as well as control variables for median household income, unemployment rate, and number of hospitals. Additionally, each model includes indicator variables for whether a state has a mandatory prescription drug monitoring program, allows access to recreational cannabis, allows access to medical cannabis, and has a law regulating pain clinics. Regressions include only counties that have a rural-urban continuum code of six. Standard errors clustered at the county level are reported in parentheses.

* significant at the $p < 0.1$ level
** significant at the $p < 0.05$ level
*** significant at the $p < 0.01$ level

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