

Rapid Growth, Uncertain Impact: Nurse Practitioners and the Future of Primary Care Access

BY MONICA O'REILLY-JACOB, DAVID AUERBACH, ALEX HOYT, HILARY BARNES,
BETHANY CROKE, VICTORIA WINOGORA, SUSAN KELLY-WEEDER &
SEAN CLARKE



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Milbank Memorial Fund
1001 Avenue of the Americas, Suite 503
New York, NY 10018
www.milbank.org

ABSTRACT

Over the last 60 years, nurse practitioners (NPs) have become a vital part of the US health care workforce. A recent study conducted by the authors estimates that the NP workforce will grow at nearly 11% annually from 2023 to 2030 – 10 times the projected growth rate of physicians (1.1%). Most of this growth is among early-career NPs. This analysis considers the impact of the profession's rapid growth on access to high-quality primary care, particularly in safety net settings, where NPs already play an outsized role in care delivery. The NP role was initially envisioned for primary care, though, with market demand, it has spread across settings and specialties. Data on the number of NPs in primary care are limited, but research suggests that fewer than half of all NPs practice in primary care. Adequately training the growing cohort of early-career NPs for the demands of primary care constitutes another challenge. Most NP training programs prepare graduates well, but a growing subset of large, for-profit, online programs has raised concerns about consistent preparation for primary care practice. These concerns are compounded by a governance structure in which educators, certifiers, accreditors, and regulators share oversight but none holds authority over another, leaving no single body positioned to enforce quality standards across the profession. To support the NP workforce in meeting the nation's primary care needs, the authors offer state policy recommendations, such as mandating training program outcome transparency and creating incentives to expand the number of preceptors who serve as mentors.

POLICY POINTS

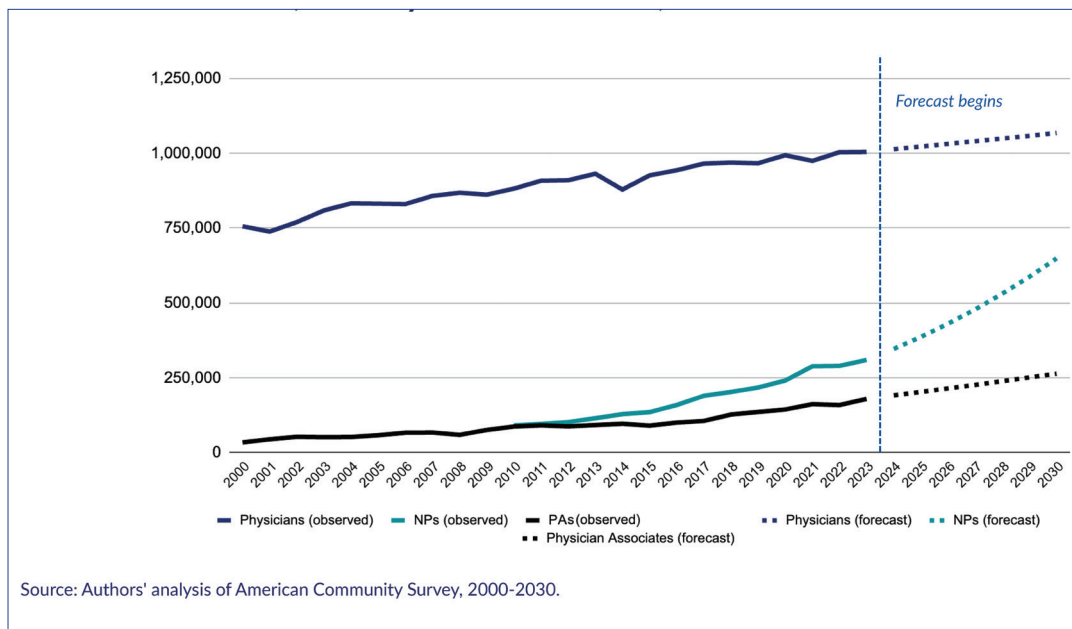
- New research conducted by the authors estimates that the NP workforce will grow at nearly 11% annually from 2023 to 2030, but many of these NPs are not expected to provide primary care.
- Insufficient standardization and regulation in NP education creates the potential for inconsistencies in NP preparedness for primary care.
- State policies can help ensure that the growth in the NP workforce translates into improved access to high-quality primary care. These policies include making NP program outcomes more transparent; expanding direct board of nursing oversight of NP education to all states; establishing stable state and federal funding sources for NP clinical training; investing in postgraduate training in safety net and other complex care settings; and strengthening data collection across NP graduate and postgraduate training programs and state boards of nursing.

WORKFORCE FINDINGS AND THE IMPLICATIONS FOR PRIMARY CARE

Updated Workforce Projections

Our recent *Health Affairs* article¹ projects nurse practitioner (NP) workforce growth by building on a 2018 forecast that estimated an annual NP workforce growth of 6.8% through 2030.² Given signals that growth was outpacing those projections,^{3–5} we applied similar methods to updated data.^a As illustrated in Figure 1, we found that the NP workforce will grow at nearly 11% annually from 2023 to 2030 — 10 times the projected growth rate of physicians (1.1%). Future shifts in reimbursement policy, federal caps on graduate education loans, and changes to scope-of-practice or immigration regulations could all influence these projections.

Figure 1. Observed and Forecast Full-Time Equivalent Supply of Physicians, Nurse Practitioners (NPs), and Physician Associates (PAs), 2000-2030



Source: O'Reilly-Jacob M, Poghosyan L, Kelly-Weeder S et al., Workforce Projections for Physicians, Nurse Practitioners, and Physician Associates, *Health Affairs* 2026 45:7, 814-818 <https://doi.org/10.1377/hlthaff.2025.01747>.

^a We used American Community Survey data through 2023 and the cohort-supply model.¹ This approach captures shifts in participation across life stages. The model is particularly well suited for analyzing predominantly female professions. In such professions, life-cycle patterns tied to child-rearing produce predictable fluctuations in workforce participation. The NP workforce is 88% female.⁶

This NP workforce surge is largely driven by younger NPs. The number of NPs under age 40 grew 389% between 2010 and 2023, consistent with graduation data from the American Association of Colleges of Nursing (AACN) showing the number of NP graduates nearly doubled between 2014 and 2023.⁷ By 2023, new graduates constituted 11% of the total NP workforce, compared with just 2.3% for physicians. Along with the large influx of early-career NPs, we also saw increased workforce participation among mid-career NPs and steady participation among late-career NPs, the latter reflecting a low retirement rate. These trends reflect faster NP workforce growth relative to prior estimates.²

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A recent study by our team shows NPs in 66% of primary care practices in the most disadvantaged communities, compared with just 33% of practices in the least disadvantaged.

Implications of NP Workforce Growth for Primary Care Access

The growing NP workforce could increase access to primary care, particularly for underserved populations. NPs are disproportionately present in communities that need them most. A recent study by our team shows NPs in 66% of primary care practices in the most disadvantaged communities, compared with just 33% of practices in the least disadvantaged.⁸

Other research confirms this pattern: NPs are more likely than physicians or physician assistants/associates (PAs) to care for patients who live in poverty or rural areas or have a disability.^{9–11} The NP practice model itself may explain why NPs are more heavily concentrated in underserved communities. With an emphasis on care coordination, social needs screening, and patient education, NP care tends to align particularly well with the complex needs of these populations.^{12–14} Therefore, NP care results in effective chronic disease management, low rates of preventable hospitalizations and emergency department utilization, and more benefits for underserved populations.^{12–25}

However, there are some significant challenges to understanding how much NP workforce growth translates into better primary care access. While 90% of NPs are trained in primary care,²⁶ a substantial share redirect their generalist training to specialty settings instead, creating a primary care pipeline leak.

Measuring the scale of the leak is difficult. Large administrative datasets (e.g., Medicare claims) identify NPs by a generic code that does not distinguish between primary and specialty care.²⁷ As a result, national estimates of the share of NPs practicing primary care have ranged widely, from 25% to 70%,^{28–30} though more recent studies with newer methods suggest 31–45% of NPs practice in primary care.^{31–33}

This primary care pipeline leak is likely driven by market forces: Rising demand for clinicians in acute care, psychiatry, and other specialties, combined with higher pay in these roles, has diverted primary care-trained NPs toward specialist practice.^{7,34–36} Consequently, it is possible that NP growth has not translated into the primary care access gains that advocates hoped for.

NP EDUCATION PROGRAM DELIVERY AND QUALITY CONCERNS

NP Training Program Variation

In addition, the NP profession faces the challenge of adequately preparing the growing cohort of early-career NPs for the demands of primary care. Decades of evidence consistently show that NPs provide high-quality care,¹²⁻²⁵ but the rapid rise of distance-based NP programs has raised questions about how well individual programs, and the profession as a whole, are able to ensure consistent quality.

NP programs develop competencies through didactic and clinical coursework tailored to the student's population focus (e.g., family, geriatrics, pediatrics) and type of degree (e.g., master's or clinical doctorate), with full-time coursework typically spanning two to four years. Students also complete supervised clinical rotations, providing direct patient care within their population focus.

Requirements for adequate preparation differ across governing bodies, however. Accreditors (e.g., the Commission on Collegiate Nursing Education [CCNE] and Accreditation Commission for Education in Nursing [ACEN]) require a minimum of 500 direct patient-care clinical hours to be eligible to take a certification exam. The 2022 National Task Force (NTF) for Quality Nurse Practitioner Education, developed by 19 national nursing organizations, recommended raising this minimum to 750 hours to better prepare graduates for the full scope of NP practice.³⁷

However, because adoption of the NTF's higher standard is voluntary, there is a lack of standardization. A nursing program's clinical hour requirements can range from the 500-hour accreditor minimum to well beyond the NTF's recommended 750-hour minimum. Adding to the inconsistency, accreditors also offer programs flexibility in how they instruct students, which has likely contributed to the rapid shift toward online delivery.

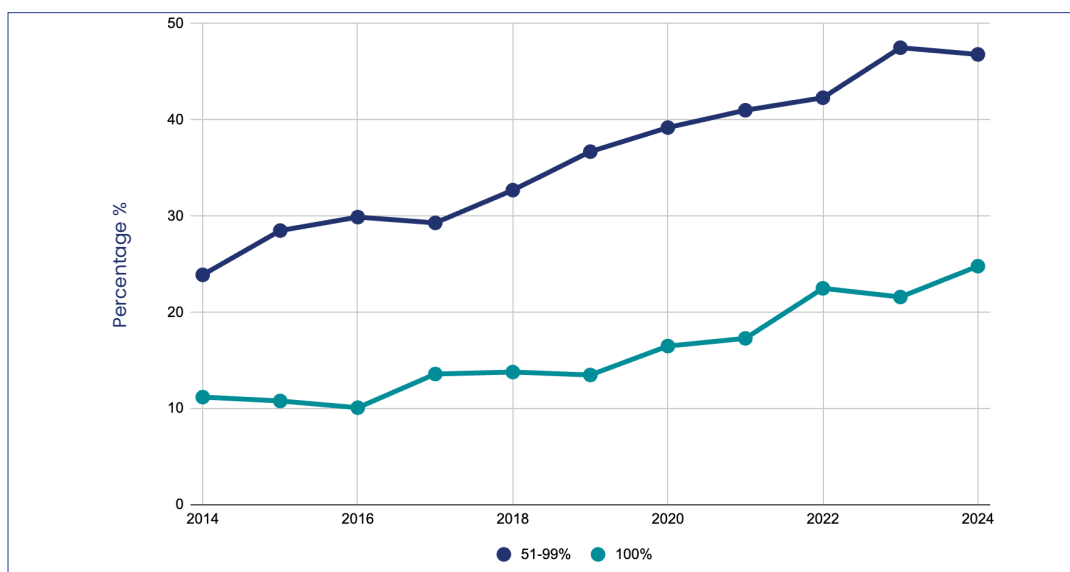
As shown in Figure 2, between 2014 and 2024, the percentage of NP programs with more than half of their instruction online rose from 24% to 47%, and the share of fully online programs more than doubled, from 11% to 25%.^b The proportion of fully in-person programs fell from 17% to just 6%.

The rise in online instruction is driven in part by strong consumer demand, and it is not without benefits. Distance-based programs have expanded access to advanced degrees for nurses from rural areas, lower-income backgrounds, and historically underrepresented groups who might otherwise be unable to pursue graduate education without relocating or leaving the workforce.³⁸ And since clinicians tend to practice where they have community ties, such instruction has impacted the NP supply in underserved areas, as well as workforce diversity.³⁹

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^b Authors' analyses of the American Association of Colleges of Nursing Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing surveys, 2014-2024.

Figure 2. Level of Distance Education Offered in Nurse Practitioner Programs, 2014-2024



Source: Authors' analyses of the AACN Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing surveys, 2014-2024.

Whether these workforce gains translate into greater access to high-quality primary care depends on how well online instruction is integrated into a rigorous overall program structure. Programs vary considerably in how they balance online and in-person instruction. Many deliver lecture-based courses in areas like pathophysiology and pharmacology online while reserving skills-based courses, like advanced health assessment, for in-person settings.

Rigorous NP programs feature high-quality clinical experiences and preceptors. A well-resourced program with high standards, a robust preceptor pool, structured orientation and evaluation processes, and rigorous assessment of student competencies will produce practice-ready graduates even if students spend little to no time on a brick-and-mortar campus. Online education is not a problem *per se*, but there is a concern that the rapid expansion of improperly resourced online programs has outpaced mechanisms to ensure rigor.

Some of the most widely discussed concerns have been raised about the for-profit sector, which operates large-scale NP programs delivered entirely online. A 2024 Bloomberg investigation documented several problematic practices at these high-volume, low-touch NP programs, including near-universal admission, limited faculty-student interaction, and minimal oversight of clinical preceptorships, with students largely responsible for finding and paying their own preceptors.⁴⁰

The scale of these programs warrants attention. The largest for-profit NP program in the country graduated 2,129 NP students in 2023. Those students represented 6.4% of all NP graduates that year. In 2023, another large for-profit institution graduated 4,288 nurses from a master's program, though the proportion that was NPs is unknown.^c Yet regulation of these programs has not kept pace with their scale, raising questions about whether the surge in early-career NPs from high-volume, low-touch programs is translating into expanded access to high-quality primary care.⁴¹

^c Authors' analysis of Integrated Postsecondary Education Data System and AACN data.

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NP Education Structure Creates Accountability Gaps

The rapid growth of the for-profit sector in NP education highlights a deeper structural problem in how NP education is governed. An egalitarian network of educators, certifiers, accreditors, and regulators shares oversight responsibility, but no group holds authority over another. The same basic structure governs PA education; however, PA education has one certifying body and one accreditor.^{42,43} NP education involves multiple certifying bodies and multiple accreditors. If programs standardize their content or enhance the rigor of their instruction, adoption of new standards remains voluntary. Additionally, the redundancy of candidate certifiers and program accreditors creates competitive pressure that undermines each body's ability to enforce quality standards — if they do, they risk losing programs or candidates to more permissive competitors. These dynamics produce critical accountability gaps.

Educators. National nursing education organizations have developed two frameworks to help standardize NP education, but neither is mandatory. The 2021 AACN *Essentials* established a competency-based education model, shifting the focus from time-in-seat requirements (contact and clinical hours) to demonstrated, observable competency in patient care, clinical decision-making, and interprofessional collaboration.^{44,45} The 2022 NTF Standards for Quality Nurse Practitioner Education recommended increasing minimum clinical hour requirements, encouraged programs to secure clinical sites and preceptors on behalf of students, and recommended competency assessments before clinical rotations.³⁷ Both represent meaningful advances, though because of their voluntary adoption, implementation varies widely across programs.

Certifiers. States require NPs to pass a certification exam, giving certifiers considerable leverage over program structure, because they control exam eligibility. In theory, this leverage could be used to enforce quality standards across programs. In practice, however, that incentive is undermined by competition, as students can choose among multiple exams offered by competing certifiers. Student choice creates pressure for certifiers to remain flexible and attractive to candidates, rather than imposing stricter requirements on programs.

NP certification exams are pass/fail, and program pass rates serve as the primary indicator that graduates have met the minimum knowledge threshold for safe entry to practice. Though pass rates cannot distinguish programs that produce minimally qualified graduates from those that produce highly competent ones, transparent reporting of pass rates remains essential. Yet public reporting is not mandatory, and programs can choose to report first-time pass rates, three-year aggregate rates that obscure meaningful variation, or nothing at all. The largest for-profit NP programs either do not publish pass rates or report only a three-year aggregate rate. The absence of even this limited signal from the largest programs leaves students, employers, and regulators without a baseline means to distinguish among programs.

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Accreditors. Accreditation would seem to be the most direct mechanism to hold NP educators and program managers accountable for educational quality. Yet because NP programs can choose from three accreditors, this mechanism is also undermined by competition.⁴⁶ No accreditor has been able to slow the proliferation of problematic practices in for-profit programs, and no institution has been publicly penalized for violating preceptor placement standards. A recent federal executive order has lowered the bar to qualify as an accreditor, potentially expanding the current field of three and further diluting accountability.⁴⁷

Regulators. The regulators, or state boards of nursing, are the only actors in the NP governance network insulated from market competition, yet their oversight remains limited and uneven. All state boards approve prelicensure nursing programs (i.e., registered nurses), but only half directly oversee NP education.⁴⁸ Every NP program is accredited nationally through CCNE or ACEN, but this accreditation accounts for only one of two levels of oversight. In states with boards of nursing that do not directly oversee NP education, the second level falls to the university's general institutional accreditor, which evaluates the institution as a whole but does not review nursing-specific curriculum or clinical training. These dynamics result in widely varying quality and rigor in the oversight of NP education across states, with no mechanism ensuring all programs receive the same level of state-specific scrutiny.

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POLICY RECOMMENDATIONS

Over several decades, a growing body of evidence has demonstrated that NPs provide safe, high-quality care, particularly benefiting underserved populations.^{12–25} Recent growth in a subset of high-volume, low-touch NP programs, however, has led to questions about whether current accountability mechanisms are sufficient to ensure consistent preparation across the NP workforce. The following recommendations address these concerns through targeted state action and complementary federal policy to ensure an adequate supply of well-trained primary care NPs.

1) Mandate transparency of program-level outcomes. The most immediate step available to state policymakers is to require standardized, publicly reported first-time certification exam pass rates, disaggregated by program. While pass rates reflect only a minimum threshold of competency, public reporting would at least offer a basis to compare programs. Additionally, requiring programs to disclose the proportion of instruction delivered online and the number of NP graduates would give state boards, accreditors, and the public the data necessary to evaluate program quality and identify outliers.

State Examples

Minnesota. The [Minnesota Board of Nursing](#) requires advanced-practice programs to submit annual certification pass-rate, admission, enrollment, and completion data. Its public annual report lists first-time certification exam success rates by institution and NP track, such as family NP (FNP), psychiatric mental health NP (PMHNP), pediatric NP, and adult-gerontology NP. The board also reports the number of NP students admitted to and completing each program track by institution. The report does not provide a standardized delivery-modality designation (online, hybrid, or in person) for every program.

California. The [California Board of Registered Nursing](#)'s annual school survey collects information on what delivery format the program uses, whether NP didactic courses are online, whether programs enroll out-of-state online students, and how many NP graduates a program has. The survey also asks which certification examinations graduates take. California publicly reports the information primarily in statewide or regional aggregates, rather than identifying results for each school and NP track. The survey asks whether programs track certification success, but it does not require them to report the actual first-time pass rate in the survey.

2) Expand direct board of nursing oversight of NP education to all states. Only half of US states currently have boards of nursing that oversee NP education, leaving NP programs in the remaining states subject only to university-wide accreditation processes that do not evaluate nursing-specific curriculum or clinical training. Because boards of nursing are the only actor in the NP governance network insulated from competition, they are uniquely positioned to enforce state-specific quality standards without the conflicts of interest that undermine certifiers and accreditors. Expanding direct board of nursing oversight to every state would close the accountability gap with consistent, nationwide nursing-specific standards.

3) Establish stable state and federal funding sources for NP clinical training. In 2019, Health Resources and Services Administration (HRSA) funding for programs supporting pre-licensure NP education (i.e., the Advanced Nursing Education Workforce, Nursing Workforce Diversity, Nurse Faculty Loan Programs) totaled approximately \$69 million, less than 1% of the \$16.2 billion Medicare spent the following year on graduate medical education to support medical residencies.^{49,50} This disparity in federal investment limits many programs' ability to compensate preceptors, contributing to a national preceptor shortage that disproportionately affects students in under-resourced programs. Federal or state tax incentives for clinicians who serve as NP preceptors⁵¹ could meaningfully expand the pool of available preceptors and ease this burden. Alabama, Arizona, Colorado, Georgia, Hawaii, Louisiana, Maryland, Missouri, and currently offer [state preceptor tax incentive programs](#).

A related model, the graduate nurse education (GNE) demonstration project, a provision of the Affordable Care Act, tested this approach. From 2012 to 2017, the project provided funding to five academic medical centers to help offset lost productivity associated with precepting NP students.⁵² Sites participating in the GNE demonstration project saw increased NP enrollment and graduations and postgraduate employment in underserved primary care settings.⁵³

Another strategy involves funding the development of faculty practice models in which schools of nursing own and operate the practice and assume direct responsibility for clinical education through faculty-supervised clinical experiences.⁵⁴ Similar to approaches in undergraduate nursing education, such models offer more consistent clinical experiences, enhanced oversight of student learning, and reduced reliance on volunteer preceptors, creating a more sustainable approach to preparing the future NP workforce. [Arizona](#), [Hawaii](#), [Tennessee](#), and [Washington](#) offer NP preceptor academic partnership grant programs.

State Examples

California. [The Psychiatric Education Capacity Expansion Program 2024 – Psychiatric Mental Health Nurse Practitioner Training Program](#) offers state grants to educational and medical institutions to create or expand PMHNP programs, add field placements, increase students' clinical hours, and provide clinical supervision leading to national certification. The 2024 opportunity identified up to \$37.5 million in available funding. Institutions can use the funding to create faculty-supervised clinics, but the state program also permits conventional community-placement models.

Michigan. The Michigan Department of Health and Human Services' Office of Nursing Programs partnered with the Michigan State University (MSU) College of Nursing to pay incentives to clinical preceptors based on the number of hours they commit to supervising FNP and PMHNP students through its [MSU Clinical Preceptor Incentive Pilot Program](#). The program, which ran from 2012 to 2018, made the school more responsible for securing placements.

4) Invest in voluntary postgraduate NP residency or fellowship training in Federally Qualified Health Centers (FQHCs) and other safety net settings. FQHCs initially established postgraduate NP residency programs to support newly graduated NPs entering demanding primary care environments.⁵⁵ NP residencies and fellowships have grown substantially over the past two decades. They have been shown to improve retention and job satisfaction and increase the likelihood that NPs remain in primary care serving underserved populations.^{56–63}

HRSA's Bureau of Health Workforce has established a federal precedent for public investment in postgraduate NP training. In 2023, the Advanced Nursing Education Nurse Practitioner Residency and Fellowship Program provided approximately \$30 million in one-time funding to support postgraduate NP training in community-based settings.⁶⁴ Although this investment is time-limited, it demonstrates a federal commitment to support primary care NPs in safety net settings and provides a model for state investment. States have also supported these programs through targeted grants, but funding has been episodic and insufficient to build sustainable infrastructure.^{57,65} Stable federal and state investment in postgraduate NP residency and fellowship programs (particularly in federally qualified health centers and other safety net settings) would directly address workforce instability in communities where NPs' primary care contribution is most consequential.³⁰ States that have expanded NP scope of practice have already demonstrated a willingness to invest in NP workforce capacity; extending that commitment to postgraduate training is a natural next step.

State Examples

Massachusetts. The [Family Nurse Practitioner Residency Grant Program](#), announced in 2025, supports community health centers in developing, sustaining, or expanding a 12-month FNP residency program.

California. The [Song-Brown Healthcare Workforce Training Programs](#) are state initiatives established in 1973 to increase the number of primary care clinicians (physicians, FNPs, and PAs) trained in medically underserved areas. Administered by the [Department of Health Care Access and Information](#), the programs provide grants to residency programs and training institutions to promote health equity, diversity, and access to care. Since 2019, the [Song-Brown programs](#) have funded 23 unique FNP/PA training programs and created 486 FNP/PA training slots. About 20% of Song-Brown-supported students are Hispanic/Latino (compared with 8% of all California FNPs), and 40% of graduates are placed in underserved areas.

5) Bolster the evidence base by strengthening data collection. Several data gaps constrain policymakers' and the profession's ability to address the challenges of ensuring an adequate supply of well-trained primary care NPs. The most pressing data need is a clear picture of how many NPs provide primary care and where they practice. Closing this gap would not require new infrastructure: Many states already collect workforce data as part of the license renewal process, typically required every two years. For example, Oregon and Vermont ask NPs whether they are primary care providers as part of their required workforce survey responses as a condition of licensure.

However, these data are not consistently made public, leaving policymakers without a clear sense of how NP growth impacts primary care. Is it helping fill primary care access gaps, or is it being diverted into specialty and acute care in well-resourced markets? Answering these basic questions is essential for evaluating whether NP program expansion is actually translating into improved primary care access.

In addition, the literature on postgraduate NP training programs has developed in quality and quantity over the past 30 years.⁶⁶ However, larger, more robust, multisite evaluations examining the impact of residency training on primary care capacity, patient outcomes, and workforce retention, particularly in safety net settings, are needed as these programs mature.^{55,58,62,63}

Finally, there is also limited evidence on distance-based NP education programs generally, and on high-volume, low-touch programs in particular.^{67, 68} No published studies have examined the association between program type and clinical outcomes, certification exam performance, or practice readiness among NP graduates. Such evidence is urgently needed to identify where current oversight is falling short and to guide policy responses accordingly.

State Examples

Oregon. Oregon's [Health Care Workforce Reporting Program](#) requires health professionals, including NPs, to complete a workforce survey during license renewal. The survey collects information on practice location and setting, hours, specialty, and future plans. Oregon publishes an annual dashboard and biennial workforce reports **that allow providers to be grouped into categories (such as primary care)** and geographic location.

Vermont. The Department of Health requires health professionals to complete a [workforce census](#) as part of licensure renewal. The census collects practice location and setting, specialty, weekly hours, and acceptance of new patients. The state uses the information to calculate specialty-specific FTEs by region, identify shortage areas, and direct workforce resources. Its [2023 Advanced Practice Registered Nurses report](#) **measured primary care participation**, workforce capacity, and geographic access, rather than relying only on the number of active licenses.

CONCLUSION

The rapid growth of the NP workforce is promising, but growth alone does not guarantee expanded access to high-quality primary care. Ensuring that this growth translates into better access in communities with the greatest need requires a collective approach, one that addresses current market dynamics in NP education and practice.

States are well positioned to lead that effort. By making NP program outcomes more transparent, closing gaps in board of nursing oversight, expanding the preceptor pipeline, investing in postgraduate training in safety net settings, and strengthening the primary care NP evidence base, state policymakers can help ensure that a growing NP workforce delivers the high-quality primary care their communities need.

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ABOUT THE AUTHORS

Monica O'Reilly-Jacob, PhD, NP-C, FAAN, FAANP, is an assistant professor and nationally recognized nursing health services researcher at Columbia University School of Nursing. Drawing on national Medicare claims analyses and statewide surveys, her research examines the primary care NP workforce, the effects of scope-of-practice policy on NP care delivery, and emerging models of care, such as NP-owned practices and home-based primary care. Findings from her federally and foundation-funded studies have helped shape national conversations on the primary care NP workforce. She currently chairs AcademyHealth's Interdisciplinary Research Group on Nursing Issues. She holds a BSN from the University of Portland, an MS in nursing from Boston College, and a PhD in social policy from Brandeis University.

David Auerbach, PhD, is a health economist and senior director for research and cost trends at the Massachusetts Health Policy Commission. He is a nationally recognized expert on the health care workforce and is known for his rigorous projections of the physician, registered nurse, and nurse practitioner workforces. This work helps policymakers and health system leaders anticipate and plan for workforce supply over time. He is an Honorary Fellow of the American Academy of Nursing and a Visiting Scholar at the Heller School for Social Policy and Management at Brandeis University. He holds a PhD in health policy from Harvard University.

Alex Hoyt, PhD, RN, FAAN, is an associate professor in the School of Nursing at the MGH Institute of Health Professions. He is a nursing health services researcher whose work examines how professional nursing policy shapes advanced-practice registered nurse practice, including the alignment between NP certification and practice population, and the relationship between doctoral education and NP autonomy. He is a Fellow of the American Academy of Nursing and has contributed to the AACN Essentials Tool Kit. He holds a BA in sociology/anthropology from Denison University, an MS in nursing from the MGH Institute of Health Professions, and a PhD in social policy from Brandeis University.

Hilary Barnes, PhD, NP-C, FAANP, is an associate professor and director of the Doctor of Nursing Practice Program at the Jack & Nancy Dwyer School of Nursing at Widener University. She is a nationally recognized health services researcher who examines the role of the nurse practitioner in improving care delivery and outcomes and has specific expertise in role transition and support for novice nurse practitioners entering clinical practice. She is a Fellow of the American Association of Nurse Practitioners. She holds a BA in German-economics from Skidmore College, a BSN from the University of Pennsylvania, and an MSN and PhD in nursing science from Widener University.

Bethany A. Croke, DNP, FNP-BC, is an assistant professor of the practice and the program director of the Family Nurse Practitioner Program at the Boston College Connell School of Nursing. Her research and clinical work focus on community health, NP transition to practice, the primary care NP workforce, and the retention of that workforce. This work is informed by more than a decade of clinical practice serving vulnerable populations at community health centers in the Boston area. Prior to her time at Boston College, she designed and led the Advanced Practice Provider Family Medicine Fellowship Program didactic curriculum and evaluation processes at NeighborHealth (formerly the East Boston Neighborhood Health Center). She holds a BA from Boston University and an MS and DNP from Boston College.

Victoria Winogora, PhD, NP-C, is a postdoctoral fellow at the University of Pennsylvania's Center for Health Outcomes and Policy Research. Her research focuses on end-of-life care, palliative care, and health disparities and draws on her experience as a nurse practitioner in geriatrics and palliative medicine. She recently defended her dissertation, "Health Disparities in Hospice Care for Nursing Home Residents with Dementia," as a T32 predoctoral trainee at Columbia University. She holds an MSN from the University of Pennsylvania and a PhD in nursing from Columbia University.

Susan Kelly-Weeder, PhD, FNP-BC, FAANP, FAAN, is dean and professor at The George Washington University School of Nursing. She is a nationally recognized leader in nurse practitioner education who has shaped primary care practice, education, and policy through national and international NP initiatives. Her recent scholarship examines competency and degree standards for NP education. She previously served as president of the National Organization of Nurse Practitioner Faculties. She holds a BS in nursing from Simmons College and an MS and PhD in nursing from the University of Massachusetts, Lowell.

Sean Clarke, PhD, RN, FAAN, is dean and professor at Emory University's Nell Hodgson Woodruff School of Nursing and the former executive vice dean of New York University's Rory Meyers College of Nursing. He is an internationally respected nursing leader and researcher whose work on the nursing workforce, patient safety, and health policy has helped shape national conversations and policy. He is currently the editor in chief of Nursing Outlook, the official journal of the American Academy of Nursing. He holds a MSc(A) and PhD in nursing from McGill University and completed a post-master's certificate as an adult critical care nurse practitioner at the University of Pennsylvania School of Nursing.