

Leveraging Nursing Leadership to Promote Learning Academic Health Care Systems

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ABSTRACT | *In nursing, widespread misuse of the term “practice-ready graduates” has come under scrutiny. The term and its popular usage tend to assume that “practice readiness” is one static moment that can be achieved almost entirely in the academic context and occur simultaneously for all individuals upon graduation, despite the vast breadth of specializations graduates may enter. Education and practice partners are increasingly advocating for a shift to career-long learning and clinician support models instead. The Learning Health System framework, first iterated at a 2007 National Academy of Medicine (NAM) roundtable (then known as the Institute of Medicine), offers the ideal framework within which to develop and test such models. This discussion paper explores how a strategically integrated academic health center (AHC), operating within the Learning Health System framework, can draw upon its existing collective of knowledge, people power, and resources to support clinicians and solve persistent workforce challenges. Three such challenges include the need for (1) academic-practice integration, (2) sustainable clinician workforce pipelines, and (3) strategies to keep pace with developments in technology, artificial intelligence (AI), and data science. These challenge areas directly align with three NAM 2026 issues of focus: health care effectiveness, health workforce, and AI and emerging technologies, respectively. This discussion paper offers strategies and use cases that not only address the three challenge areas, but also stand to advance the NAM’s overall vision of a learning health system via the integrated leadership of academic and clinical nurses across AHCs.*

In the profession of nursing, widespread calls for schools to prepare “practice-ready graduates” have come under scrutiny (Masso et al., 2022; Mirza et al., 2019; Swan et al., 2024). For context, the term “practice-ready” is typically used in dialogue around the rapidly evolving competencies required

of nurses in practice, including new technology competencies. Most often, the term carries a negative connotation, suggesting that individual nurses—and the schools that prepare them—are not ready for the realities of practice today and have fallen short of health care employers’ expectations

(due to a mismatch between education and post-pandemic nursing practice). Leaders who hold this position often cite new graduate nurses' need for further training in location-specific technology competencies, time management, and resiliency skills to reflect the intensive demands of modern clinical settings (Masso et al., 2022).

It is true that rigorous academic standards, graduation benchmarks, and licensure requirements remain essential and must evolve with societal needs. Practice readiness discourse, however, typically does not refer to baseline licensure expectations. Rather, prevailing notions of practice readiness have come under scrutiny because they tend to assume a shifting new graduate ideal that more closely resembles the expert than the novice level of clinical competency (Benner et al., 2010; Mirza et al., 2019). Top-ranked nursing schools and practice partners alike have raised concern that this ideal assumes an uneven burden of responsibility for academia and individual clinicians compared to health care employers (Masso et al., 2022; Mirza et al., 2019; Swan et al., 2024). The suggestion that readiness can be achieved entirely in the academic context is a logical fallacy. Health care employers create the conditions into which new graduates enter, and those conditions vary drastically from one location to the next. When clinicians inevitably fail to meet this shifting expectation (potentially in under-resourced practice settings, without a credentialed nurse residency program) they are likely to blame themselves and exit the profession.

As an alternative, health systems and academic partners could strategically integrate pre- and post-licensure education efforts to ensure clinicians are continually prepared for context-specific realities. AHCs are well-suited environments in which to develop models of career-long learning and whole-person support. Within AHCs, clinical competency can be supported on a continuum, across career phases, with different levels of oversight and enrichment at each phase. This approach has long been applied to the field of medicine, in which graduates from medical schools transition through structured partnerships between academia and practice (though it

has yet to be meaningfully applied to other health disciplines). When AHCs realize their true potential, education does not exist in a silo in the academy while practice exists in a silo in the health system. Rather, education and practice are interwoven and mutually enriching to individuals and institutions. Grounded in the NAM's framework of the Learning Health System, this discussion paper draws upon the shared wisdom of a coalition of nursing leaders in AHCs. Together, the authors, including academic deans and practice partner nurse executives from AHCs, describe strategies to shift from an expectation of individual readiness to one of shared accountability for clinician success across the AHC. The authors illustrate how a truly integrated AHC can leverage its *existing* collective of knowledge, people power, and resources to solve long-standing workforce challenges without necessarily increasing costs.

Background and Context

In the spring of 2024, in a discussion at the American Association of Colleges of Nursing (AACN), deans representing numerous AHCs identified three shared challenge areas (AACN, 2024a). Specifically, they identified the need for (1) academic-practice integration, including models of care to improve patient outcomes and advance professional nursing at the same time; (2) sustainable clinician workforce pipelines; and (3) strategies to keep pace with developments in technology, AI, and data science. These challenge areas directly align with three NAM 2026 issues of focus: health care effectiveness, health workforce, and AI and emerging technologies, respectively (NAM, 2026).

In a follow-up to the AACN discussions, on March 29, 2025, the Deans' Nursing Policy Coalition held a day-long meeting, called the 2025 Academic Health Care Summit, in Washington, DC. The summit brought together deans and chief nursing executives from 18 academic health programs across the United States. The purpose of the gathering was to discuss the three cross-cutting issues facing leaders and to share strategies and observations that might benefit all (DNPC, 2025).

The Deans' Nursing Policy Coalition is a group of academic deans from top-ranking private schools of nursing in the United States who work together on policy issues of mutual interest (Columbia School of Nursing, 2017). The Coalition was founded in 2010 by Colleen Welch, PhD, CNM, FAAN, FACNM, Dean of Vanderbilt University School of Nursing. This group of academic deans first joined together with the aim of defining nursing roles amid national health care reforms unfolding at that time. They also hoped to secure federal funding for nursing education, to increase support for scientific research, and to achieve scope of practice laws enabling nurses to practice at the full extent of their licensure.

Early aims of the Deans' Nursing Policy Coalition aligned with the strategic priorities of nursing professional organizations, such as the American Nurses Association (DNPC, 2025). Today, as nursing shortages threaten the financial solvency and sustainability of entire health systems, the Coalition's priorities are, in fact, broadly aligned with those of health and scientific stakeholder organizations, including the NAM (NAM, 2024). The nation depends on the effective preparation of nurses and the existence of a healthy, robust, and sustainable clinician workforce. Likewise, all health professions are seeking strategies to remain abreast of developments in AI, data science, and technology.

Conceptual Framework: A Learning Health Care Lens for AHCs

Swan and colleagues (2024) challenged the prevailing emphasis on individual practice readiness in workforce discourse, calling instead for "system-level readiness" for the lifelong, phased learning needs of clinicians. The concept of a learning health system, first described at a NAM (then called the Institute of Medicine) roundtable in 2007, is an ideal framework for this vision (Etheredge, 2007; Platt et al., 2020). According to the NAM, a learning health system is "one in which science, informatics, incentives, and culture are aligned for continuous improvement, innovation, and equity..." (McGinnis et al., 2024, p. 1). This definition also

emphasizes that, within learning health systems, "new knowledge [is] generated as an integral by-product of the delivery experience" (p. 1). Given this emphasis on knowledge generation, conversations about learning health systems often center around institutional learning: The system continuously generates knowledge via the routine delivery of care, and this knowledge is used to help the system learn via evidence-informed innovation and continuous quality improvement (Easterling et al., 2023; Friedman and Green, 2025). The framework has occasionally been extended to the learning needs of people, however, and its core tenets ought to be considered when designing systems to support workforce needs (McPeake et al., 2022; NASEM, 2019). In other words, the characteristic cycles of data-informed learning, incentive alignment, and continual improvement that take place at the institutional level also ought to take place at the individual and workforce levels. For instance, discussions surrounding learning health systems tend to emphasize the system-level value of clinicians' vast collection of health data via charting and routine care. It is imperative that these data be used to benefit and enrich clinicians' professional development, well-being, and safety as well as the well-being of the system.

Within AHCs, academic and practice leaders can look beyond the rigid and time-limited pre-licensure curricular window for opportunities to test learning health system-informed models of learning and care. With the view that all students are members of the workforce, and all practicing clinicians are lifelong students, "learning AHCs" can treat competency as a continuum composed of continuous learning cycles. In this paper, the term "learning AHC" is used to describe an AHC that applies Learning Health System principles to its own workforce by using routine educational and practice data to test, refine, and scale models of clinician support. In each career phase, *the AHC is ready* to cultivate a highly skilled clinician-learner via timely education/training, mentorship, oversight, recognition, shared professional governance, resiliency services, financial support services, and meaningful benefits.

Challenges in the Nursing Workforce

Urgent, system-level challenges threaten both the education and retention of clinicians in AHCs across the United States. Currently, systems experience high rates of nursing attrition at the one- and two-year milestones post-graduation. It is estimated that up to 24 percent of nurses leave their role within the first year of practice alone. At least 33 percent may leave within the first two years, and 30 to 50 percent within five years, though more recent data are needed (Tate, 2024). In such scenarios, academic return on investment (ROI) for the clinician, their school, and their employer often amounts to no more than 1–3 years of service and compensation. AHCs are the ideal context to test mechanisms that might counteract this seemingly intractable pattern. By applying a “learning cycle” lens to career support for clinicians, AHCs can cultivate a workforce of individuals whose knowledge, wisdom, and skills are increasingly tailored to institutional needs over time. Furthermore, institutional loyalty and trust may increase over time as clinicians see their AHC is willing to invest in them. Indeed, a growing body of evidence supports the notion that it is more expensive to lose highly qualified clinicians to burnout and turnover than it is to invest in clinicians’ whole-person needs (Cunningham et al., 2024; Razmpour et al., 2025; Razmpour et al., 2026).

It is not possible for such investments to take place on the academic side only. Moreover, investing in educational programs and increased enrollments alone is bound to result in a revolving door effect if graduates do not find career satisfaction. If AHCs are serious about addressing national workforce challenges, they need to move beyond disjointed academic-practice initiatives, toward true integration at every level of the AHC. The Guiding Principles for Academic-Practice Partnerships (AACN and AONL, 2012) highlight integration as a goal, but directives on how to operationalize and standardize this vision are limited. This paper builds upon the Guiding Principles by proposing mechanisms to move beyond a partnership orientation, which assumes organizational separation with select touchpoints

of knowledge or service exchange. Instead, the authors propose academic-practice integration, which assumes operational interconnectedness (i.e., pursuing one mission together, as opposed to periodically trading services along separate paths). Integration requires shared professional governance and a centralized chain of command for partnership activities, mutual evaluation and accountability, and mutually assured success.

Challenge 1: Reaching Academic-Practice Integration

AHCs are uniquely positioned to move beyond piecemeal academic-practice partnership activities, toward integrated business and care models within a learning AHC framework. As academic and practice leaders discussed strategies for integration at the 2025 Academic Health Care Summit, certain recommendations emerged as particularly promising; these included strategies for integrated governance and models of care. In a learning AHC, integrated governance and care models serve as the backbone of learning cycles: They determine how data are generated, how insights are shared, and who participates in decision making.

Integrated Professional Governance

Academic-practice integration requires a unified professional paradigm and values. Ideally, these unified values would guide organizational decision making within a professional governance approach that is inclusive of academia and practice. While AHCs offer excellent opportunities for unified values, there is little consistency across AHCs in academic-practice partnership models, particularly models for how nursing leadership is placed across organizations. The academic dean may or may not hold an executive position in the health care system, for example. In turn, chief nursing officers—unless they hold a terminal degree (PhD or DNP)—may not qualify to be awarded an academic faculty rank. Faculty do function under faculty governance structures, and most AHCs have obtained Magnet status that includes a professional governance structure. Even so, as participants of the 2025 Academic Health Care Summit discussed,

there remain untapped opportunities to leverage the existing Magnet model of professional governance for the inclusion of academic partners. In this context, “Magnet” refers to a highly esteemed health care facility designation and the set of standards to which facilities must adhere in order to earn the designation (ANCC, 2025). Facilities must demonstrate a cultural emphasis on nursing leadership and empowerment in decision making. Frontline leadership programs and structures for professional governance are some of the ways a facility might foster Magnet culture (McClure, et al., 1983; Rodríguez-García et al., 2020).

Currently, health systems within AHCs lack consistent requirements for engaging with academic partners as well. Sometimes academic partners are only included as a community resource, or they may have roles in achieving the research goals of the Magnet organization. Existing Magnet initiatives could be evaluated for further opportunities for academic-practice integration and then reformed or redesigned for strategic alignment. For instance, students taking health care leadership courses could participate in Magnet initiatives via practicum and clinical assignments. Doing so could provide rigorous, real-world professional development while instilling a sense of shared ownership over institutional outcomes before new graduates even accept their first employee roles. Furthermore, academic researchers, like PhD-prepared nurses, could routinely partner with clinical practice leaders, such as DNP-prepared nurse leaders, to not only implement, but evaluate and refine transformational leadership efforts. Magnet councils and working groups could blend academic and practice performance indicators to measure success. It is essential that professional governance structures include mechanisms for shared accountability for outcomes, such as mutual bonus incentives for AHC teams, rather than placing responsibility on the health system or academia alone (O’Grady and Clavelle, 2021). Inclusion of value-based payment data in outcomes tracking (Lasater, 2018) could demonstrate to health systems that a learning AHC approach not only supports the personal and

financial well-being of clinicians but also serves the institution’s reimbursement needs.

Integrated Care Delivery

A key development at the 2025 Academic Health Care Summit was the conceptual expansion of the term “integrated model of care” to include academia. Historically, an integrated model of care has referred to a coordinated approach that brings together multiple health and social services across care-delivery settings to provide seamless, patient-centered care delivery (NASEM, 2021b); but this framing historically has not included academic settings. Some definitions of integrated care models do mention health science students as stakeholders in care model development; and there are academic-practice partnership models that include integrated faculty-clinician roles or collaborative clinical practice sites, such as nursing school-owned clinical practices (Clevenger et al., 2018). Existing models of integrated care, however, often do not incorporate services provided by academic faculty or institutions; existing models can be challenging to maintain and difficult to replicate across health care systems as well. A major barrier to care integration is that nursing is viewed as a labor cost by health systems; nursing faculty do not work under that paradigm. Work in the clinical area is often mandated by nursing hourly rates, while faculty are employed under salaried conditions. Schools of medicine have developed mechanisms by which faculty can float between academic and practice responsibilities, but these models are not common in nursing.

Initiatives are being developed within AHCs to support truly integrated models of care. Academic institutions can serve as continuous partners in integrated care delivery by filling specific knowledge and talent gaps across the care continuum. Financial, human resources, and analytic services, for example, tend to be persistent barriers to integrated care, especially for nurse-led practices (Lasater, 2018; Laskowski-Jones 2023). Faculty and graduate students offer high levels of expertise in these subject areas, which could be tapped to address AHC problems related to care delivery.

In addition to providing analytic and financial services that are essential for successful care, faculty and graduate students can codesign and test system-level care integration interventions (e.g., care coordination, telehealth, and transition-of-care services). Put simply, academia brings knowledge, tools, resources, and specialized people power to study, streamline, and evaluate effective care integration. This synergy has long been recognized in medicine and needs to be extended to other disciplines as a prerequisite for a successful learning AHC.

Integrated Workflow and Culture

Even with the most comprehensive strategies for integration, there remain fundamental differences between academia and practice that can stymie true integration. Such differences often emerge from the motivating factors that drive one's work and the cultures of academic versus practice workplaces (AONL, 2025; Chen et al., 2023). Academic faculty are motivated by teaching the next generation of clinicians and scientists and the desire to forge clinical and scientific discoveries. Faculty may think of their impact as occurring at the community or population level over time. They may measure success in terms of academic deliverables such as number of students graduated and number of studies published. Clinical staff, in contrast, are motivated to meet patients' health needs in real time. They often measure success in terms of short- and long-term clinical outcomes, patient satisfaction, and cost savings. Time and money, the forces that shape the pace of clinicians' and scientists' lives, may function paradoxically across settings, as well (Chen et al., 2023). Clinicians often are incentivized to speed up work pace to meet competing patient demands and meet reimbursement requirements. Academic faculty often are incentivized to work slowly and deliberately in order to meet rigorous standards for academic research. In addition, academic research can be solitary, deep focus work, whereas practice can be fragmented and highly interpersonal work, resulting in different standards for professional communication (Chen et al., 2023). Expectations

surrounding the pace of email correspondence and the frequency of meetings may vary across settings, for example.

Rather than eliminating differences between academia and practice, effective partnerships may depend on making those differences visible and codesigning new ways of working. One strategy to codesign new workflows could include identifying an existing structure for project management and communication. Example structures include the Entrepreneurial Operating System (EOS), which is conducive to long-term relationship planning, or the National Incident Management System (NIMS), which is especially helpful during times of crisis (EOS, 2026; FEMA, 2025). Both systems have been utilized by Emory's academic-practice partnership to varying degrees over time to help organize partnership activities. To promote a cultural shift toward the EOS framework, employees of every level (at the time of EOS adoption) were encouraged to read the EOS guidebook. Employees were then invited to participate in book discussions so that cultural divides could be addressed using EOS strategies. Once an institution-specific iteration of the framework was negotiated, academic-practice stakeholders began using an EOS-style agenda and cadence for meetings and communications. During the COVID-19 pandemic, when partnership activities took on a heightened level of urgency and complexity, a hybrid of the EOS and NIMS structures were adopted (McCauley and Hayes, 2020). Broadly speaking, other AHCs could explore and iterate around similar structures to meet their own needs. The crux of such work would not be to force any one approach, but rather to ground partnership activities in clear expectations.

Challenge 2: Sustainable Workforce Development

There is no question that the US health system has been facing chronic, severe staffing shortages, as well as challenges with retention. There are a host of reasons, including but not limited to over-burdened and under-resourced work environments that contribute to burnout and moral distress. COVID-era resource and staffing limitations—and the

clinician trauma, resignations, and fatalities that have resulted—have compounded already difficult workplace dynamics (Buerhaus and Hayes, 2024). Looking forward, how do health systems attract and retain a workforce that is large enough to meet patient needs? How do they ensure clinicians feel safe, healthy, and respected at work?

For the profession of nursing, this question has been complicated by fluctuating nursing school enrollments and an inadequate number of faculty to teach the next generation of nurses. US nursing schools turned away 65,766 qualified applicants in 2023 due to resource and personnel constraints (AACN, 2024b). Similar faculty and clinical training shortages have been documented in other health professions, including physician assistant, doctor of osteopathy, and physical therapy programs, which have struggled to secure preceptors and high-quality clinical placements (ACAPT, 2023; Lund et al., 2024; Physician Assistant Education Association, 2023). Students who do graduate and enter practice step into health systems that often are not clinician-ready and tend not to consider the lifelong learning and whole-person needs of clinicians. Basic needs such as adequate pay, orientation and residency offerings, and safe staffing ratios often go unmet (AONL, 2025). As they are exposed to clinical realities, these contextual factors erode clinicians' trust in their institutions and hurt their ability to thrive. With a learning AHC mindset, academic and clinical institutions might integrate efforts to safeguard the trust, well-being, and lifelong learning of clinicians.

Integrated Clinician Preparation

AHCs have the capacity to shape the workforce not just at the point of hire, but from the moment learners enter the clinical education pipeline. Traditionally, education and workforce development have been treated as separate spheres—students are trained in one structure and absorbed into another. An integrated approach rejects the concept of a “handoff” and builds clinical learning into everyday operations. Some AHCs that subscribe to the notion of a clinician-ready AHC are starting the clinical education pipeline at the high school level

or sooner. The Cleveland Clinic has collaboratively launched the Howley ASPIRE Pathways program, for example (Cleveland Clinic, 2024). This program, which is health profession inclusive, underscores the importance of structured career pathways and lifelong education as mechanisms to stabilize and grow the clinical workforce. The ASPIRE Pathways program begins with high school juniors and is led by both academic faculty and practicing clinicians. It offers students opportunities to explore various in-demand health science career options. Students gain hands-on exposure to key competencies in respiratory therapy, surgical technology, sterile processing, and nursing. Over the course of the program, they undergo training, immersive practice experiences, and mentorship to help cultivate their professional identities. The ASPIRE Pathways program exemplifies lifelong learning within a learning AHC and is a proud component of academic-practice integration within the Cleveland Clinic AHC.

This model could be replicated or tailored to meet the needs of various health professional pipelines and may be especially salient in rural and chronically under-staffed counties. Health systems could partner with middle and high schools in surrounding areas to offer courses or after-school programs that bring immediate, tangible value to students (such as babysitting certifications or hours for community service requirements). Such programs could simultaneously instill foundational competencies, critical thinking, confidence, and empathy over time, which could benefit the health system and community as young learners mature into adult clinicians. In a learning AHC, these early pipeline programs would not be one-off outreach efforts; they would be deliberately studied, evaluated, and refined over time, affording data on workforce diversity, retention, and role fit that would feed directly back into program design.

Clinical Instructor Recruitment

Once students commit to a lifetime of clinical service, there is not always sufficient institutional capacity to welcome them and support their learning needs. The ability to recruit and retain qualified

clinical instructors is one example of a capacity limitation that sits at the intersection of education and care delivery. The Emory Academic Learning Integrated with Guided Nursing Practice (ALIGN) model reflects Emory's aim to achieve academic and practice integration by pooling AHC resources and training efforts (Buitrago and Steiger, 2026). Launched in spring 2025, the ALIGN model consists of using the Emory Healthcare staffing pool to recruit, retain, and deploy clinical instructors for Emory School of Nursing students. These instructors assume dual roles in teaching and direct patient care. They also facilitate simulation activities in the school's learning center. Instructors are full-time employees with shared appointments in the school and health system.

This model contrasts with the status quo, where it is typical for clinical instructors to be contracted by nursing schools only, usually on a part-time or per diem basis. Instructors normally earn much less than they could earn in clinical practices. Some work on a volunteer or nominal pay basis, such as in exchange for library access or a university affiliation. Instructors do not normally earn benefits, and their assignments can be unpredictable from one semester to the next. The ALIGN model addresses such deterrents to clinical instructor recruitment, providing assignment predictability, career stability, benefits, institutional knowledge, and competitive compensation.

The model benefits the health system and university, as well as the individual. ALIGN has led to greater consistency in both clinical instruction delivery and staffing than in the past. Emory nurses teach Emory students at Emory facilities with which they are highly familiar. Last-minute clinical instructor absences are managed by the health care system rather than adding administrative burden to the school, and they are less frequent than in the past. On course evaluations, students have noted the enhanced learning they receive from instructors that are current with practice standards. Students report relief over

practice consistency from one instructor to the next, which saves students from having to learn new iterations of the same skills each semester. Furthermore, there have been significant cost savings for the school by reducing reliance on external staffing agencies. As of today, Emory has hired 62 masters-prepared clinical instructors, and semester-by-semester feedback from students has been outstanding.

Other fields (e.g., pharmacy, physical therapy, and physician assistant education) face the same challenge of recruiting instructors who can balance teaching and practice (Kayingo et al., 2023). The ALIGN model shows how formal integration between schools and health systems can make instructor roles sustainable. Partners can share exceptional talent rather than compete for it.

Clinical Preceptor Recruitment

A preceptor is a practicing clinician who provides direct clinical supervision, teaching, and mentorship to students while on the job, often during students' clinical training or transitions into practice (Giroto et al., 2019). A nearly universal challenge in clinical education is the lack of preceptors for advanced practice students, such as nurse practitioner, physician assistant, and doctor of osteopathy students (Chan et al., 2025; Giroto et al., 2019). AHCs usually maintain large, simultaneous nurse practitioner and physician assistant program enrollments, for example. The number of available preceptors has neither kept pace with industry demand for more graduates nor the reality of multiple competing programs. Unlike the education of medical residents, which is funded by the federal government, the education of nurse practitioners has no federal support, and there is a significant lack of financial support from practice institutions for preceptors (Chan et al., 2025). Some earn small stipends from health science schools, though many receive no compensation at all. Lack of pay, growing clinical responsibilities and the added demands of precepting discourages

many from taking on preceptor roles. Hospitals may prioritize medical students and physician assistants for clinical placements as well, adding another barrier to nurse practitioner preceptorships (Chan et al., 2025).

Despite these challenges, AHCs offer an optimal environment to test, and learn from, interventions that incentivize clinicians to serve as preceptors. AHCs were the sites of the Graduate Nurse Education Demonstration, a landmark initiative testing the expansion of clinical training capacity for advanced practice registered nurses (APRNs). In 2012, the Centers for Medicare & Medicaid Services (CMS) funded five major academic health centers to expand APRN clinical education capacity: Hospital of the University of Pennsylvania, Duke University Hospital, Memorial Hermann-Texas Medical Center, Rush University Medical Center, and Banner Health in Phoenix (Aiken et al., 2018). The demonstration led to more than a 50 percent increase in APRN student enrollment and graduation, producing an estimated 3,500 to 3,700 additional APRN graduates over five years (Porat-Dahlerbruch et al., 2022). The average per-graduate cost to CMS was \$47,172, suggesting a favorable ROI compared to the economic losses associated with APRN workforce shortages (Aiken et al., 2018). While these results cannot be generalized to all hospitals, they demonstrate the clear need for financial support for APRN preparation and position AHCs as incubators for scalable clinical training models.

Another example, highlighted at the 2025 Academic Health Care Summit, is Columbia University's Division of Nursing Practice (DONP). The Columbia DONP is an educational and professional home for nurse practitioners, nurses, and physician assistants across the Columbia University Medical Center. One of this division's projects has been the development of a new compensation model for advanced practice clinicians across all departments, which has included defining clinical roles more clearly and creating a clinical

ladder for practitioners. One of the requirements to qualify for promotion up the clinical ladder is to precept nurse practitioner students for at least 120 hours annually. With this advancement structure in place, clinicians are now incentivized, recognized, and compensated for assuming preceptor roles.

Faculty Shortages

Finally, one of the most pressing challenges in clinician education is the shortage of qualified clinical faculty. In nursing, a lack of doctorate-prepared faculty limits enrollment capacity and delays the entry of new nurses into practice (AACN, 2024c). One solution, suggested at the 2025 Academic Health Care Summit, was to gather a coalition of institutions to test state or regional nursing faculty "compacts." A "compact" refers to a group of institutions or states that share practice and licensure standards, allowing for clinician mobility (NASEM, 2021a). Such compacts, which might be modeled to align with existing registered nurse (RN) and APRN state practice compacts, could unite health care organizations and schools of nursing in a shared commitment to ensure a sustainable pipeline of nurse educators. While scope of practice and licensure considerations would differ for other health professions, any field facing faculty shortages could explore the possibility of similar compacts and shared adjunct initiatives. Regional faculty compacts and adjunct initiatives could be intentionally structured as learning health system experiments, with shared data on faculty recruitment, retention, and educational capacity informing rapid policy and funding adjustments.

One example of a coalition already underway is the Cuyahoga County Healthcare Sector Partnership, which includes Cleveland Clinic, University Hospitals Cleveland, the Frances Payne Bolton School of Nursing, and other schools of nursing (Homrock, 2025). Together, these institutions have launched the Nursing Clinical Adjunct Faculty Initiative. This groundbreaking program recruits experienced clinical nurses from across

the state of Ohio to serve as adjunct faculty across academic partner institutions. Adjunct faculty undergo specialized training, including intensive boot camps to prepare them for their novel clinical-academic roles (Cleveland Clinic, 2024).

Integrated Workforce Retention

Workforce retention is often framed as the responsibility of health systems, beginning at hire and culminating at the two-year benchmark of tenure for new graduate clinicians. A learning AHC challenges this narrow view, recognizing that retention starts long before graduation and continues throughout a clinician's career. Academic and practice institutions have shared responsibilities to lay a strong career foundation and pave a pathway for continued success. Early academic interventions that enable retention post-graduation include transparent career guidance for students, mentorship, rotations in their intended area of practice, financial planning, and tuition support (Bruno et al., 2024; Mohamed et al., 2024; Shields et al., 2023). Within the AHC ecosystem, academic and practice partners can coordinate to ensure new graduate salaries are sufficient to offset known tuition burdens and typical academic debts. Partners also can map academic curricula alongside continuing education offerings to ensure all desired competencies are covered at appropriate times in a phased clinician-learner journey.

The University of Rochester (UR) offers a compelling example of an integrated, learning AHC approach to workforce retention. At the UR, the School of Nursing operates as a sole subsidiary of the UR Medical Center (URMC). This relationship brought attention to the financial and operational impact of escalating nursing contract labor costs (UR School of Nursing, 2023). As a subsidiary, the school's financial future hinged on the health system's ability to retain staff nurses and avoid excessive contract costs. In response, UR codeveloped the Nursing Scholars program, an accelerated baccalaureate pathway for students with prior degrees. The UR Nursing Scholars

Program provides tuition support and a forgivable loan in exchange for at least a three-year service commitment to one of three AHC hospitals (UR School of Nursing, 2024). There are multiple examples of firm academic-practice integration and learning cycles within this model. The school cooperates with the health system to collaboratively prepare graduates for location-specific practice realities; health systems invest in tuition support, clinical opportunities, and joint clinical education projects. Shared simulation and virtual reality platforms extend learning opportunities across the education-career continuum.

The Nursing Scholars program offers intentional clinical placements, helping students transition into preferred practice areas while also meeting institutional needs. Students gain experience on their assigned units prior to graduation, with some designing undergraduate capstones based on a unit-specific issue. Aligning capstones with health system needs brings value to academia and practice and helps students to feel a sense of ownership for their unit's success. The Nursing Scholars program embeds structured mentorship at each education and career phase, providing a safety net and creating a sense of institutional continuity. At the same time, the AHC holds a job fair after graduates' second year in practice to help ensure that graduates who change roles when their contract is complete can remain within the URMC ecosystem. The program reflects the learning AHC concept, where the system, rather than the individual, carries responsibility for nurses' readiness. All AHC institutions contribute to retention efforts as well, with hybrid, flexible, and float roles spanning academia and practice available to graduates who have completed contracts.

Early results demonstrate both workforce and financial impact (UR School of Nursing, 2024). The program has expanded the regional pipeline by attracting 41 percent of scholars from outside the region and 20 percent from out of state. It has improved workforce diversity with 44 percent of scholars coming from historically

underrepresented groups compared to 14 percent of current URM RNs. Financially, the program has generated a projected \$2.45 return for every dollar invested by reducing reliance on temporary staff. For health systems, the takeaway is clear: Building a stronger workforce requires more than recruitment campaigns or short-term fixes. Aligning student experiences with system priorities, engaging candidates early, and centering clinicians' whole-person needs can generate measurable workforce and financial gains.

Challenge 3: AI and Emerging Technology

In the context of massive labor disruptions due to AI, there is arguably no greater area of opportunity for AHCs to take a learning framework approach than in the process of AI/technology adoption. Participants at the 2025 Academic Health Care Summit discussed the enormous promise of AI in practice settings. AI and other technologies are already being utilized for remote patient monitoring, clinician mentoring, the development of new staffing models, and enhanced communication (NASEM, 2023). In addition, with advances in data science, strategies are emerging to quantify the value of clinical interventions, particularly nursing interventions, which have been difficult to track against outcomes in the past due to the aforementioned flawed coding and billing systems. Such benefits, however, are inseparable from serious ethical and operational concerns. Participants at the 2025 Academic Health Care Summit raised questions about privacy, consent, and security vulnerabilities, especially with the arrival of ambient listening technologies in patients' rooms. Participants expressed concerns that patients and clinicians are too often excluded from AI and technology design (WHO, 2023). AHC leaders emphasized that AI adoption will ultimately and ironically depend on thoughtful attention to human factors, such as usability, workflow integration, trust, and validation (NASEM, 2023).

Clinicians' receptivity to AI/technology adoption is being undermined by concerns about privacy,

job security, technology burden, and workflow disruption. Many clinicians do not see AI or remote technologies as real solutions to workload problems; they would prefer increased staffing or more efficient staffing models over new tools (NASEM, 2023). In some health systems, the addition of support personnel would cost substantially less than the development and implementation of new technologies. Of course, clinicians express concerns about job displacement with the arrival of new technologies as well. A vigorous discussion ensued among summit participants over whether human touch in patient care could be automated, with most (not all) standing firm that AI cannot replace human touch in the clinical context.

Participants spoke at length about the need for AI literacy among clinicians—not as an ever-growing skills checklist for the academy, but as a thoughtful, phased integration across education and career. Education in AI is severely lacking in academia and practice alike, as are organizational policies and guardrails to protect against unethical AI use (WHO, 2023). While the need for integrated development in this area is significant, it is worth noting that training and implementation needs differ, to a degree, on the education versus practice side. Unique challenges for academia include limited resources available for solution development and governance gaps related to plagiarism and research ethics. Even so, students, researchers, and some faculty are independently adopting AI. Early adopters are often confused by inconsistent institutional requirements for the legal and ethical use of AI, and they may be unaware of institutional data and intellectual property policies. Furthermore, many educators and researchers who aspire to AI/technology adoption have limited or no access to premium AI tools.

To help mitigate these challenges, summit leaders discussed the possibility of creating a role for clinician-technologists who could hold dual appointments within schools and the health system. These specialists could monitor trends in AI/technology, complete shared reporting to top-level

academic and health system leaders, and spearhead the integration of emerging competencies across academia and practice. Their efforts could be supported by an interprofessional academic-practice governing body focused on AI/technology. Such a body could include specialists in ethics, law, nursing, medicine, technology, and data science. By taking an integrated approach, academia can help fill knowledge and personnel gaps in practice while practice can share resources, big data, and real-world learning scenarios with academia.

AI Competency Development

Competency development efforts require a simple starting point. Currently, most clinicians, faculty, and students need standard, basic instruction on how AI works and where it is most responsibly applied (NASEM, 2023). Equally important are the skills that make AI usable in context: data literacy, critical thinking, communication, and ethical awareness (WHO, 2023). Once existing students, faculty, and clinicians acquire baseline competencies, the health sciences will have greater capacity and additional qualified individuals to pursue and subsequently teach advanced competencies in specialization areas. Leaders within nursing education are beginning to implement this start-simple approach, though integration with partner health systems' AI/technology strategies is still generally lacking (NASEM, 2023). Some schools in attendance at the summit had appointed directors to oversee AI use, and many academic programs are embedding AI in coursework, simulations, and research activities (e.g., chatbot clinical evaluations, grant and equity reviews) (NASEM, 2023). This shift is not limited to nursing—medical educators are experimenting with AI to support diagnostic reasoning; and physical therapy programs are exploring AI-driven motion analysis to enhance training and patient outcomes. Summit participants recognized the need to integrate AI/technology competencies into transition-to-practice programs, orientations, residencies, and annual evaluations for clinicians of all types (WHO, 2023).

Solution Codesign and Development

Clinicians and health science students are well positioned to codesign this new technological landscape. Summit participants emphasized the role of frontline clinicians in particular as “moral compasses” in detecting algorithmic bias and advancing equity and access (DNPC, 2025; WHO, 2023). Clinicians can help to identify ROI for solutions by tracking time savings, charting burden, and patient concerns at the point of care (WHO, 2023). AHCs provide fertile ground for this type of research and development. By aligning faculty, students, and health system partners, AHCs can prepare clinicians to use emerging technologies effectively while codeveloping solutions to large-scale problems. One powerful example of academic-practice integration surrounding AI, data science, and technology is the Cleveland Clinic's Strategic Workforce Planning initiative (Hermann, 2022). This initiative uses joint data and AI forecasting to anticipate staffing capacity levels and competency needs 3–5 years in advance. The program utilizes AI-driven forecasting tools and integrated workforce analytics platforms to enable open data sharing and analyses across academia and practice. Education-to-practice pipeline data and analytics are complemented by broader analyses of industry trends and conversations with leaders. Discussions with leaders cover emerging workforce specializations, evolving institutional strategies, and anticipated resource needs. With this level of transparency, AHCs can preempt critical workforce challenges before they occur.

Implications for Non-Academic Health Systems

Non-academic health systems are often held to similar expectations as AHCs for research, innovation, and continuous quality improvement, even when they do not have direct access to academic capacity and personnel to co-lead such work. Likewise, nursing schools that are not part of AHCs typically still require consistent clinical placement sites and clinical settings for academic research, even when they do not have standing practice partner arrangements. While it may not be feasible

for such organizations to adopt the full spectrum of interventions described in this discussion paper, it could be helpful to borrow from the Learning Health System framework on a local scale. Small-scale applications of the framework might include inviting faculty from nearby colleges to complete visiting faculty residencies at unaffiliated health systems. Invited faculty could be asked to focus on a particular learning or quality improvement area of need. Practice leaders from local hospitals or clinics, likewise, could be invited to unaffiliated nursing schools to offer curriculum consultations or evaluations. Technology, including remote-connected learning devices or classrooms, could help to forge learning health system collaborations from a distance for rural schools and practice settings. Where nurse residency programs are not feasible because academic-practice partnerships do not exist, one-to-one or unit-level mentorship could be extended past orientation periods in a standardized manner for new graduate nurses. Finally, any time an individual or unit performs an annual evaluation or compliance audit, data from those processes could be applied toward learning cycles and integrated into data dashboards at the organizational level. In other words, regardless of an institution's size or spectrum of affiliations, it may be possible to design a meaningful, local version of continuous learning cycles.

Conclusion

The clinical workforce stands at a pivotal juncture, facing both unprecedented challenges and transformative opportunities. Amid persistent workforce shortages and escalating demands for an adaptive and resilient workforce, it is imperative for academia and practice to evolve. More than half a century ago, Rozella Schlotfeldt, Dean Emerita of the Frances Payne Bolton School of Nursing at Case Western Reserve University, challenged the conventional relationship between academia and practice. She boldly experimented with the cocreation of new learning and practice environments, redefining nursing education and research as integral to both clinical care and the health

sciences. In fact, she led the development of the nurse-scientist model, arguing that nursing ought to be grounded in evidence and theory, not service alone. Schlotfeldt's *An Experiment in Nursing: Introducing Planned Change* transformed organizational structures and relationships between academic and health care organizations, laying the groundwork for many of today's approaches to academic-practice partnership (Schlotfeldt and McPhail, 1969). To meet the demands of the current complex health care environment, academic and practice leaders may need to move beyond conventional collaboration. Bold experimentation and intentional integration may be needed to build scalable, sustainable solutions to workforce challenges.

National organizations are echoing this call. The NAM's *The Future of Nursing 2020–2030* report urges expansion of nurse faculty pipelines, technology-enabled education, and strong academic-practice cohesion to close critical capacity gaps (NASEM, 2021b). The *National Plan for Health Workforce Well-Being* calls for system-level resiliency interventions that align with the clinician-ready health system concept, such as, structured clinical ladders, flexible program models, and continuing education that allow for career advancement without leaving practice (NAM, 2024). These recommendations reveal a growing national consensus that dismantling silos between academic and practice organizations is essential to building a stronger, more resilient workforce. Just as Schlotfeldt once redefined what was possible through partnership experimentation, today's leaders must act with urgency and vision to reimagine how the clinical workforce is prepared and protected.

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