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Advanced Practice Providers Recognized as Valuable Healthcare Resources: Increasing the Illinois PA's Scope of Practice to Match Their NP Cohort

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INTRODUCTION

The Need for Non-Physician Providers

Nurse practitioners (NPs) and physician assistants (PAs) represent a group of non-physician, advanced practice providers (APPs) within our healthcare system. Non-physician providers are part of an inter-disciplinary team, working alongside physicians and a variety of allied healthcare providers. On March 23, 2010, the Affordable Care Act (ACA) was enacted, and this greatly increased the demand for healthcare, especially in the area of primary care medicine.¹⁻⁴

Compounding this need, the Association of American Medical Colleges (AAMC) recently reported details about the growing physician shortage throughout the US. The shortage is exacerbated by physician burn-out, the COVID pandemic, physicians reaching retirement age, as well as an increased demand for medical care.⁵ The AAMC predicts the shortage to range between 37,800 to 124,000 by 2034, with 17,800 to 48,000 occurring within primary care medicine.⁵ Also illuminated in this report are barriers to care among patients living in rural areas, in low-income urban areas, or among those without health insurance. The irony is that, as these barriers are addressed, (primary goal of the ACA), the need for healthcare personnel increases, thus increasing the demand for medical providers.^{1,6} An obvious remedy to these problems is to provide reputable healthcare through extended employment of non-physician, APPs. The 2017, Urban Institute report stated that improved scope-of-practice regulations for APPs would be part of a national solution to increase healthcare provider capacity.⁴

Nurse practitioners and PAs provide much needed medical care within a variety of healthcare settings, ranging from inpatient to outpatient, primary care, and within specialty areas. Studies comparing clinical data from patients treated by physicians, PAs, or NPs, note that outcomes are similar, and in certain instances improved, within non-physician provider groups.⁷ Data gathered from intensive care units (ICUs) across the US revealed that advanced practice providers improved the ICU environment in numerous ways: improved communication, workforce stability, and enhanced patient care.⁷ Another study, compared diabetes care and cardiovascular disease management, administered by APPs (PAs and NPs collectively) versus physicians. The final analysis demonstrated no difference in patient outcomes treated by either provider group (APP vs physician).⁸ Clearly these results support the need to increase the use of non-physician partners, and to recognize APPs as a valuable healthcare resource. The purpose of

this paper is to take a closer look at these two APP professions (NP and PA), with a focus on Illinois providers and the legislative strategies that guide their roles and abilities to practice.

DISCUSSION

Illinois Advanced Practice Providers

Illinois is a region where APP practices are inequitably regulated, and this obligates an objective re-evaluation of current legislation. In Illinois, the Nurse Practice Act outlines a broad scope of practice for Advanced Practice Registered Nurses (APRNs), based on their advanced clinical education. However, the Illinois PA Practice Act barely addresses the PA's scope of practice, and also delineates certain restrictions, which limit practice in ways not paralleled for the Illinois NP. For example, an Illinois APRN is offered "full practice authority" privileges after two years of full-time (2,000 hours/year), APP employment.⁹ However, this privilege, as well as certain other opportunities, are not available for Illinois PAs.¹⁰ The reasons for these legislative disparities are questionable, and most likely based on misconceptions, or insufficient, factual information. This paper aims to present data that will hopefully correct misinformation which has led to unfounded biases, and unnecessary limits in healthcare delivery. These inequities ultimately impact the scope and quality of healthcare in the state of Illinois. (Data is presented in Tables 1 and 2, with summary comparison in Table 3.)

Educational Models

As the field of medicine has grown, allied health professions have progressed to meet the needs of expanding population numbers, aging patients, and sophisticated technologies. Among these professions, NPs and PAs have risen to positions of mainstream medical practice, and are now among the most sought-after careers.¹¹ The PA profession developed from medical necessity within the military, evolving from the field 'medic'.¹² As this profession grew, and educational curricula developed, the training process was constructed in the "medical" model, meaning that of the physician – with a goal of learning to aptly diagnose and treat, applying principles of medical sciences.^{12,13} The NP degree pathway is framed within the nursing model, focusing on patient care.¹⁴ Because NP and PA students must learn to competently diagnose and treat patients, both educational models target the same endpoints. However, the paths taken to achieve that goal, are different.

Advanced Practice Registered Nurses

There are various graduate nursing degrees. Broadly speaking, there are two general categories; one group encompasses systems-focused roles (which concentrate on areas outside clinical topics), and the other group includes advanced practice registered nurses (APRNs), which directs instruction toward complex clinical practice topics (meaning diagnosis and treatment planning). Within the APRN group are four degree specializations: certified nurse midwife, certified registered nurse anesthetist, certified clinical nurse specialist, and certified nurse practitioner (NP).^{9,14} Furthermore, the NP group includes the following sub-specialties: family nurse practitioner (FNP), gerontology, pediatrics, neonatal care, women's health, and mental health.¹⁵

Advanced Practice Registered Nursing Degrees

In order to obtain an APRN nursing degree, students must first complete bachelor of science (BSN) degree requirements and obtain registered nurse (RN) licensure. Many programs offer direct-entry options, where these requirements may be obtained seamlessly, allowing entrance of non-nurses and those without prior nursing experience.¹⁴ Additional educational requirements to become an APRN include successful completion of graduate-level (master's or doctorate) education from an accredited program, and core courses must include physiology, physical examination skills, and pharmacology.¹⁴ The American Association of Colleges of Nursing (AACN) oversees educational quality for baccalaureate and graduate level nursing programs in the US, and is responsible for publishing The Core Competencies for Professional Nursing Education.¹⁴ These standards mandate that APRN students successfully complete at least 500 practicum hours in the discipline of nursing, post entry-level education.¹⁴

The Master of Science FNP Degree: An Equitable Comparison Group

Nurse practitioner degrees include the master's level, Master of Science in Nursing (MSN) and the doctorate level, Doctorate Nurse Practitioner (DNP).^{14,16} Among the NP group, the master's level, Family Nurse Practitioner degree (MSN-FNP) is most comparable to the Master of Science Physician Assistant or Master of Physician Assistant Studies (MSPA/MPAS) degree (summarized in Table 1). FNP instructional objectives span topics across the lifespan, and therefore, these are most reflective of PA educational curricula.¹⁷ Consequently, this paper focused on FNP education as the comparison group in the PA vs APRN training analysis.

Specifically, this study evaluated programs in Illinois that offer the Master of Science in Nursing–Family Nurse Practitioner (MSN-FNP) degree (Table 2). Nursing schools that exclusively offered the Doctorate Nurse Practitioner–Family Nurse Practitioner (DNP-FNP) degree (without an MSN option) were not included in this study (i.e. – Loyola, Millikin, Rush, Southern Illinois University-Edwardsville, and University of Illinois). Furthermore, in comparing coursework hours of the MSN-FNP student to the MSPA/MPAS student, this study focused on graduate hours only. Hours completed for degree preparation (such as bachelor degree completion, or RN licensure fulfillment, or other pre-requisites), were not included.

Illinois Nurse Practitioner Degree Programs

As of 2021, there were 300,000 APRNs (nurse anesthetists, nurse midwives, and nurse practitioners) practicing in the US, and this number is expected to increase by forty percent, or an estimated gain of 118,600 jobs within the next ten years.¹⁸ Within this national group, 6,890 practice as NPs in the state of Illinois.¹⁹ To meet the needs of this growing workforce, there are numerous advanced practice nursing programs within the state of Illinois, among both private and public universities.¹⁶ Most nurse practitioner programs are available as part-time, online curricula (didactic courses), allowing completion while concurrently working, and many permitting up to five years for degree fulfillment. All Illinois schools require in-person practicum hours at clinical sites; online programs allowing local assignments. Programs are available as direct entry for those that have a BSN degree, as well as completion programs for the RN with an associate degree, and non-RN students. In the latter two situations, curricula include courses to complete the RN and BSN requirements prior to starting the post-licensure coursework.¹⁶ For RN students who enter with a BSN (the focus of this study), coursework to complete a master's degree in nursing (MSN) involves an average of 49 credit hours (Table 3). Online programs are designed for the working student, and therefore may take between two to five years to complete (longer time with part-time student status). Many of the Illinois master's level programs do not require previous work experience, allowing for direct entry from BSN completion. However, some schools require prior RN experience or concurrent nursing employment (i.e. – University of St. Francis), and other schools *prefer* experience (Table 2). Clinical practicum hours demonstrate a mean of 704 hours, and median of 660 hours (Table 3). Within Illinois, newly graduated/certified NPs practice with a collaborating physician. However,

Illinois APRNs may qualify for full practice authority, meaning practice without a physician-partnered collaborative agreement, once s/he has completed 4,000 hours of APRN clinical experience and 250 hours of continuing education or training.⁹

Physician Assistants

In 2010, the Affordable Care Act identified Physician Assistants, along with Nurse Practitioners and Physicians, as the three main primary care providers in the United States.²⁰ PAs provide a full range of medical care, which includes: taking histories, performing physicals, ordering tests, diagnosing pathologies, prescribing pharmaceuticals, devising treatment plans, and making referrals.²⁰ At the end of 2020, there were 148,560 certified PA's practicing in the US, representing a 28.6 percent increase from the previous four years.²¹

Physician Assistant Degrees

In order to achieve certification and licensure, PA students must complete graduate-level medical education in physician assistant studies.²² Physician Assistant programs offer master's level degrees with designations such as Master of Science Physician Assistant (MSPA) or Master in Physician Assistant Studies (MPAS). Once certified, post-graduate, doctorate degree programs are available for PAs interested in pursuing supplemental scholarship.²³ Graduate-level PA programs require prior completion of a baccalaureate degree, as well as rigorous pre-requisite courses.²⁴ PA master's degree programs are full time, on-campus curricula, with curricular calendars that tend to follow a true calendar year rather than the typical academic calendar. This means the average PA program academic year runs the full twelve months, with shortened semester breaks.²⁵

All programs are guided by strict standards of the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA),²² in addition to requirements from the National Commission on Certification of Physician Assistants (NCCPA) blueprint.²⁶ Of note, ARC-PA commissioners provide expertise from a diverse group of medical professionals representing the following collaborative organizations: the American Medical Association (AMA), the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), the American College of Surgeons, the American Academy of Physician Associates, the Physician

Assistant Education Association (PAEA), the Forum of Nurses in Advanced Practice (FNAP), the American Speech-Language-Hearing Association (ASHA), and various medical education university programs.²⁷ ARC-PA standards require students to complete rigorous didactic courses, as well as preceptor-guided practicum courses.²² Intense instruction comprises the first twelve months of each PA program and this is therefore deemed the *didactic* year.²⁵ This is when the majority of didactic education occurs, as well as formal clinical and diagnostic skills training. All PA curricula are required to include a comprehensive clinical phase,²² which typically involves a minimum of twelve months of full-time clinical practicum hours,²⁵ analogous to those documented for Illinois programs (Table 1).

Comprehensive program requirements include in-depth instruction in specific medical sciences (covering all organ systems), and their application to clinical practice.²² These include: anatomy, physiology, pathophysiology, pharmacology/pharmacotherapeutics, and “the genetic and molecular mechanisms of health and disease”.²² ARC-PA also requires cutting-edge clinical instruction and training in history taking, physical exam skills, diagnostic and laboratory studies, clinical decision making, medical management, health promotion, patient education and disease prevention.²² Additionally, ARC-PA requires that physical exam skills instruction encompasses training across all organ systems and body regions (complete and focused).²² By definition, this requires hands-on training involving these organ systems: cardiovascular, respiratory/thoracic, gastrointestinal/abdominal, neurological, musculoskeletal/orthopedic, reproductive/genital, ophthalmic, otolaryngological, dermatological, lymphatic, and mental health examinations. In addition, some programs use simulated models to teach female breast and gynecologic exams, male testicular and prostate exams, neonatal and well child exams, and certain birthing procedures (Table 4). It is also required that the clinical reasoning process is taught, which includes recognition of physical exam findings, application of physiological principles to understand the disease process, ordering appropriate diagnostic tests, accurate diagnosis, and subsequent disease management.²² These well-defined pedagogical strategies ensure that PA students are fully prepared to competently care for patients from birth to old age, and to successfully pass the Physician Assistant National Certification Exam (PANCE) upon graduation.

As part of the intensive clinical training process, PA programs are required to teach clinical/technical skills which include procedures and procedural techniques.²² Therefore, PA curricula tend to include exhaustive lists of clinical procedural skills within class syllabi, with structured instruction beginning during the didactic year, in preparation for upcoming clinical rotations and professional practice. During the didactic year, simulated models are often used to teach skills and to evaluate each student's technical proficiency.²⁸⁻³³ Subsequent training and practice are acquired under preceptor supervision with patients, during clinical rotations and practicums.^{29, 33-35} Students are required to demonstrate clinical skills competency, validated through documentation by clinical instructors and preceptors.²² Table 4 outlines a typical clinical procedural skills list, taught at an accredited PA Program.³³

Illinois Physician Assistant Degree Programs

There are approximately 3300 licensed Physician Assistants in Illinois.²⁰ Fifty-six percent work in clinics or doctor's offices, twenty-seven percent are in hospital settings, and eight percent work in acute care.²⁰ There are nine Physician Assistant (PA) programs in Illinois. Eight of the programs are located at universities in the Chicagoland area, while one is located in the southernmost part of the state (Table 1). All nine programs are accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA).³⁶ ARC-PA defines the instructional standards required of all PA educational institutions within the US, and through the strict accreditation process, ensures compliance with those standards.²² ARC-PA mandates continuous program evaluation through annual reporting, followed by a full peer-review process, including site visits every ten years (or sooner if problems are identified).²² Three Illinois PA programs have been accredited by ARC-PA since the 1990's (Rosalind-Franklin University and Midwestern University since 1993; Southern Illinois University in Carbondale since 1997). Northwestern and Rush Universities have had ARC-PA accreditation since 2010 and Dominican has been accredited since 2017. There are three new PA programs in the state that were provisionally accredited in the past two years.³⁶ Provisional accreditation is given to new programs while they are closely monitored, with at least three site visits beginning before matriculation of their first class and continuing for three years. Continued accreditation status will be given at that time if they have met all the standards put forth by ARC-PA.²²

All PA programs in Illinois are full-time, ranging in duration from 24 to 30 months, and lead to a Master (of Science) in Physician Assistant Studies degree (MSPA or MPAS) (see Table 1). Application requirements are rigorous for all Illinois programs. To be considered for matriculation, a strong undergraduate education in science is required. In addition to a baccalaureate degree (BS/BA), fifteen to forty prerequisite science credit hours are needed to apply to Illinois PA schools (Table 1). Although the specific courses required for entry vary by program, all require prior training in anatomy, physiology and chemistry (biochemistry, organic or general chemistry). In addition, most programs require pre-requisite coursework in microbiology, statistics, and psychology (Table 1). Most programs require an overall grade point average (GPA) of 3.0 (out of 4.0), as well as 3.0/4.0 in prerequisite science courses (Table 1). In 2019, the national undergraduate GPA for entering PA students was 3.58 overall, and 3.52 in undergraduate science courses.²⁵ Four Illinois PA programs require direct patient care experience for admission. Touro requires 200 hours, North Central requires 750 hours and both Rush and Northwestern demand at least 1000 hours of direct patient care before admission (Table 1). All the other programs do not have specific requirements for direct patient care but prior healthcare experience is preferred and that previous experience carries great weight when making admission decisions (Table 1).

Nationwide, PA curricula are required to include a comprehensive clinical phase, of sufficient depth and breadth to prepare students for clinical practice.²² In Illinois, all PA programs require students to complete a minimum of twelve months of full-time clinical practicum hours (Table 1). This clinical phase follows successful completion of the didactic year, and involves rotations that span the entire clinical year (Table 1). In addition, most programs also require a third phase, the Preceptorship, which encompasses additional weeks or months of full-time practicum hours. Notably, Southern Illinois University (SIU) and Northwestern University begin offering clinical practicum courses during the didactic year. SIU requires four practicum hours per week of primary care clinical experience during this first year of study. After the first 12 months of basic medical education, students enter formal clinical training (as stated, a curricular requirement of all PA programs).²² During the subsequent clinical year, all programs are mandated to offer advanced clinical training in a minimum of seven (prescribed) areas of medicine.²² Programs set up rotations (typically four to six weeks

each), involving intensive training precepted by experienced clinicians in each of these required medical fields: Family Medicine, Internal Medicine, Emergency Medicine, Pediatrics, Surgery, Behavioral Health, and Women's Health,²² as well as numerous weeks in additional, elective rotations. Those in-depth elective rotations may include Cardiology, Nephrology, Orthopedics, Endocrinology, Dermatology, as well as other specialties. The Preceptorship phase extends these clinical experiences, continuing intensive training necessary for professional practice. Depending on the program, Illinois PA students spend, on average, between 1216 - 3467 hours directly supervised by experienced clinicians working at all clinical sites (Table 1).

NP – PA Comparison

As can be seen from the data above (Tables 1 and 2), NP and PA programs have similar educational objectives, with demanding medical curricula, and which are guided by strict accreditation standards. NP students matriculate as RNs with or without clinical experience, allowing the opportunity to begin NP school immediately following BSN degree completion (Table 2). The student who enters an NP program directly from BSN completion has training earned during nursing school, but no professional experience. PA students enter graduate level PA school after successful completion of rigorous requirements. These include a baccalaureate degree (bachelor of science/BS preferred), completion of an extensive list of pre-requisite courses (grades of A/B preferred), and clinical experience (required or preferred). Regarding work experience, PA students matriculate with varying levels of clinical experience and patient contact hours (Table 1). This is not so different from the NP student cohort, who has an RN license, but may be lacking professional experience. However, the latter situation is perceived as being more accomplished at the outset. Regarding NP student work experience, NP programs across Illinois have variable entrance requirements for the MSN degree (Table 2). Therefore, the argument that NPs have greater clinical experience upon graduation than do PAs, is simply untrue. Furthermore, students with prior nursing experience have been taught nursing care skills, but have not been trained as diagnosticians. The more advanced diagnostic skills and holistic care planning skills are learned during formal NP and PA education. By the end of their formal education, both groups will have completed considerable hours of clinical training and instruction. In fact, comparison of Tables 1 and 2 reveals that PA educational training requires completion of more clinical practicum hours than does NP training: 704 (mean) hours for FNP

students (Table 3); compared to 2,108 (mean) hours for PA students (Table 3). In addition, PA program accreditation requires that students complete practicum hours within seven medical fields: Family Medicine, Pediatrics, Emergency Medicine, Women's Health, Surgery, Behavioral Health, and Internal Medicine, as well as elder care in long-term residential facilities.²² Additionally, PA school accreditation mandates procedural skills training and requires proof of procedural skills competencies.²² Therefore, procedural skills checklists have become standard accreditation documents, and an example list is noted in Table 4.

Regarding curriculum breadth, most NP programs are online, and in fact, often encourage concurrent nursing employment, thus supporting a part-time course load. NP programs are therefore designed to allow a flexible timeline for completion, some permitting five to six years. In comparison, all PA programs are full-time, in-person/on-campus curricula, and generally discourage concurrent employment due to extensive course hours, and the consequent study time needed to achieve stringent requirements for advancement. For example, within 194 PA programs nationally, the required minimum GPA mean was 2.9, with a median of 3.0 (on a 4.0 scale).²³ The bottom line is, NP and PA programs both have sound delivery methods and rigorous requirements, but longer chronological length should not be misinterpreted as greater in substance.

Professional Certification

Once education is completed, licensure and certification are required of all APPs, in order to practice medicine professionally. The national certifying organizations for Nurse Practitioners are The American Nurses Credentialing Center (ANCC)³⁷ and The American Academy of Nurse Practitioners Certification Board (AANPCB).³⁸ Physician Assistants are certified by the National Commission on Certification for Physician Assistants (NCCPA).³⁹ All three organization require Advanced Practice Providers to pass a rigorous examination for initial certification. Thereafter, documented continuing education credits are a critical part of certification maintenance for both professions. Physician Assistants are required to retake the NCCPA certification exam every 10 years,³⁹ whereas retaking the certification exam is optional for nurse practitioners.^{37,38}

CONCLUSION & RELEVANCE

In order to adequately utilize APPs, their educational training and professional capabilities must be recognized, allowing them to practice to their full potential. Anything less than this places unnecessary barriers on an already stressed healthcare system, and disregards the exceptional training of the NP and PA. Despite the rigorous, highly advanced, and closely monitored training protocols of PA education, legislative bodies in Illinois do not fully recognize the PA provider's significant potential. Disparities exist within Illinois APP legislation. Illinois APRNs qualify for full practice authority, meaning practice without a physician-partnered collaborative agreement, once s/he has completed 4,000 hours of APRN clinical experience and 250 hours of continuing education or training.⁹ There is no comparable privilege for practicing Illinois PAs.¹⁰ This inequity places restrictions on a PA's right to work. It is therefore, fair and reasonable to request these limitations be re-evaluated, in order to allow Illinois PAs to practice to the full potential of their professional training.

Improving healthcare quality and access to healthcare in the nation, and specifically in the state of Illinois, requires recognition and maximal utilization of the APP workforce. PAs are among this valuable resource, and to date, Illinois legislation does not fairly represent their abilities. Unnecessarily restrictive scope-of-practice regulations prevent PAs to function to the full extent of their advanced education and training, impeding practice at the top of their license. In this light, Illinois legislation does not justly legitimize the PA profession. In reality, less restrictive scope-of-practice requirements lead to better patient outcomes, improved access to care, and decreased emergency department admissions.⁴⁰ An additional point is that unnecessarily restrictive regulations negatively impact hiring practices for PAs. The Urban Institute study revealed that inequitable legislation (favoring NPs), deterred hiring PAs, but when restrictions were lessened, PA hiring was increased.⁴

What are some of the misconceptions that impede legislative revision governing APPs? The Hamilton Project discusses some important barriers to the change process. Certain advocacy groups may be concerned that increasing APP numbers or scope of practice could diminish the physician's role. Instead, it has been found that increasing APP access, increases patient capacity, which in turn benefits all providers.⁴⁰ Another concern is that increasing APP scope-

of-practice, would decrease APP-physician collaboration. However, professional standards require that all APPs recognize the limits of their expertise and seek consultation or collaboration, as needed to care for each patient appropriately.^{13,14} And finally, regarding the question of patient safety, as already enumerated, increasing APP availability results in improved patient care.^{7,8,40}

In today's healthcare environment, team-based care is emphasized. Team-based care relies on open collaboration, mutual respect, and coordinated care between providers. Restrictive scope-of-practice requirements (as per Illinois PA Practice Act), hinders the ability to provide inter-professional, team-based, medical care. In addition, the patient-centered medical home model (encouraged by the ACA), promotes comprehensive, patient care coordination through inter-professional care teams, notably among physicians, NPs, and PAs.³ NP advocacy groups have done a remarkable job lobbying for improved provider status, and these same strategies should be implemented for PA providers nationwide.⁴¹ In Illinois, NPs have achieved full provider status. Equal designation should be delegated to Illinois PAs. Achieving this endpoint benefits the PA profession, which in turn, improves medical care throughout the state of Illinois, potentially setting the stage for further positive change at the national level as well.

Table 1: PA Educational Institutions in Illinois: The BS/BA to MSPA/MPAS Degree is Summarized³⁶

	University/Town	Didactic Courses Format	Ttl Semester Crd Hrs	*Avg Clin Practicum Hrs	Program Length (Months)	Full/Part Time	PreReqs/GPA	PreRequisite Clinical Experience
1	Chamberlain/ Addison ^{28,34}	Campus	109	1216	24	Full-time	BS/BA/3.0 PreReq Courses/3.0 23 science/math hrs	Prefer: >300 hrs & >16 hours PA shadowing
2	Dominican/ River Forest ^{29,42}	Campus	106	1520	24	Full-time	BS/BA/3.15 PreReq Courses/3.15 34/35 science & math hrs	Prefer: >750 hrs
3	Midwestern/ Chicago ⁴³	Campus	97	2016	27	Full-time	BS/BA/3.0 PreReq Courses/3.0 32 science & math hrs	Prefer: Experience & community service or extracurricular activ
4	North Central/ Naperville ^{30,44}	Campus	123	1472	24	Full-time	BS/BA/3.0 gpa PreReq Courses/3.0 24 science & math hrs	Require: >750 hrs direct pt care & >15 hrs PA shadowing
5	[§] Northwestern/ Chicago ⁴⁵	Campus	108	1760	24	Full-time	BS/BA/2.8 PreReq Courses/2.8 16 science & math hrs	Require: >1000 hrs direct pt care
6	Rosalind- Franklin/ Chicago ^{35,46}	Campus	98	2400	24	Full-time	BS/BA/2.75 PreReq Courses/2.75 15 science hrs	Prefer: Experience &/or PA shadowing
7	Rush/ Chicago ^{47,48}	Campus	132	3120	30	Full-time	BS/BA/3.0 PreReq Courses/3.0 18 science hrs	Require: >1000 hrs direct pt care (paid)
8	SIU/ Carbondale ^{49,50}	Campus	90	3467	26	Full-time	BS/BA/3.2 PreReq Courses/3.2 30 science & math hrs (Est from course list)	Prefer: Experience & PA shadowing
9	[§] Touro/ Skokie ⁵¹	Campus	123	2000	28	Full-time	BS/BA/3.0 PreReq Courses/3.0 46 science & math cr hrs (Est from course list)	Require: 200 hrs direct pt care & Shadowing (recommend)

*Average clinical hours for each program were derived from the midpoint of the minimum & maximum hours allowed: $[(mid + max)/2]$

[§]Email Communication Resources: Northwestern: JF Gunn, MMS, PA-C, PD; Nov 19, 2022. Touro: G Cognac, DMSc, PA-C, EMT-P, CC; Dec 7, 2022

Abbreviations: MPAS: Master of Physician Assistant Studies, MSPA: Master of Science in Physician Assistant (Studies) or Master of Medical Science in Physician Assistant (Studies), SIU: Southern Illinois University, PD: Program Director, CC: Clinical Coordinator

Table 2: FNP Degree Educational Institutions in Illinois: The BSN to *MSN-FNP Degree is Summarized:^{15,16}

	University/Town	Didactic Courses Format	Ttl Semester Crd Hrs	Clinical Practicum Hrs	Program Length (Months)	Full/Part Time	PreReqs/GPA	PreRequisite Clinical Experience
1	Bradley/Peoria ^{52,53}	Online	50	700	32 (8 sems)	Part-Time	RN & BSN 3.0 last 60 hrs	None
2	Chamberlain/Addison ⁵⁴	Online	45	625	24-36	Full or Part-Time	RN & BSN/3.0 (2.75 provisional)	None
3	DePaul/Chicago ⁵⁵	Online	70 Qtr hrs = 47 Sem hrs	600	24	Part-Time	RN & BSN/2.75 Stats \geq C	None
4	Governor's State/University Park ^{56,57}	Hybrid	44-47 Optnl thesis	540	28 (7 sems)	Part-Time	RN & BSN/3.0 Stats, Research, Hlth Assessmt \geq C & recent 7 yrs	Require: 2 years
5	[§] Illinois State/Normal ⁵⁸	Hybrid	44-47 [§]	660 [§]	20 FullT [§] 32 PartT [§]	Full or Part-Time	RN & BSN/3.0 last 60 hrs Stats, Research, Hlth Assessmt	Prefer: 2 years
6	Lewis/Romeoville ⁵⁹	Hybrid	48	630	42	Full or Part-Time	RN & BSN/3.0 Stats & Research	None
7	North Park/Chicago ⁶⁰	Campus	54	675	60 (max)	Full or Part-Time	RN & BSN/3.0 Stats, research, Hlth Assessmt	Require: 2 years
8	Northern Illinois/DeKalb ^{61,62}	Online	50	572	30-72 (max) (FullT to PartT)	Full or Part-Time	RN & BSN/3.0 last 60 hrs	Prefer: 1 year RN

*BSN to MSN-FNP Degree is summarized in each row. Schools that only offered DNP-FNP degrees were excluded (see detailed explanation in text).

[§]Illinois State Univ offers BSN to DNP-FNP with option to stop at MSN-FNP level; therefore MSN data is reported.

Abbreviations: FNP: Family Nurse Practitioner, BSN: Bachelor of Science Nursing, MSN: Master of Science Nursing, UG: Undergraduate, Hlth Assessmt: Health Assessment

Table 2 (continued): FNP Degree Educational Institutions in Illinois: The BSN to *MSN-FNP Degree is Summarized:^{15,16}

9	Oak Point/Chicago ^{63,64}	Hybrid	48	670	24 – 48 (max)	Full or Part-Time	RN & BSN/3.0 3.0 UG nursing classes	None
10	Olivet Nazarene/Bourbonnais ⁶⁵	Online	52	720	24	Full-Time	RN & BSN/3.0	Require: 1 year RN (2,000 hrs)
11	St Anthony/Rockford ⁶⁶⁻⁶⁸	Campus & Hybrid	53	1500	48	Part-Time	RN & BSN/2.8 Stats course	None
12	St. Francis/Peoria ^{69,70}	Online	50	700	MSN: 36 (54 max)	Part-Time	RN & BSN/2.8 Stats, Hlth Assessmt \geq C	Prefer: 1 year nursing
13	St. John's/Springfield ⁷¹	Hybrid	45	660	24-36	Full or Part-Time	RN & BSN/3.0 (pref)	Recent RN experience if BSN>5yr old
14	St. Xavier/Chicago ⁷²	Online	47	600	36	Part-Time	RN & BSN/3.0	Require: 1 year RN
15	Univ St. Francis/Joliet ⁷³⁻⁷⁵	Online	47	No clinical hour requirements specified	42-60 (max)	Part-Time	RN & BSN/3.0 Stats, Physical Assessmt, Nrsng Rsrch	Verification of employment stated

*BSN to MSN-FNP Degree is summarized in each row. Schools that only offered DNP-FNP degrees were excluded (see detailed explanation in text).

[§]Illinois State Univ offers BSN to DNP-FNP with option to stop at MSN-FNP level; therefore MSN data is reported.

Abbreviations: FNP: Family Nurse Practitioner, BSN: Bachelor of Science Nursing, MSN: Master of Science Nursing, UG: Undergraduate, Hlth Assessmt: Health Assessment

Table 3: Summary Table: MSPA/MPAS & MSN-FNP Compared:

	MSPA/MPAS	MSN-FNP
Number of Programs Evaluated (n)	n = 9	n = 15
Didactic Curriculum Format: Online, Hybrid, Campus	Campus: 9	Online: 8 Hybrid: 5 Campus: 1 Campus & Hybrid: 1
Full-Time Only vs Part-Time Option	Full-Time Only: 9 Part-Time Option: 0	Full-Time Only: 1 Part-Time Option 14
*Total Semester Credit Hours for Degree Completion Mean Total Semester Credit Hours Median Total Semester Credit Hours	Mean = 110 Median = 108	Mean = 49 Median = 48
Clinical Practicum Hours: Mean Clinical Practicum Hours Median Clinical Practicum Hours	Mean = 2,108 Median = 2,000**	Mean = 704 Median = 660 ***(n = 14)
Baccalaureate Degree Required for Admission	BS or BA: 9	BSN: 15
Required Overall GPA for Admission Mean GPA Median GPA	Mean GPA = 2.99 Median GPA = 3.00	Mean = 2.96 Median = 3.00
Clinical Experience Specifications for Admission	None: 0 Required: 4 Preferred: 5	None: 6 Required: 4 Preferred: 3 ****Stipulations: 2

*Total Credit Hours: Where there was a range (i.e. - due to special courses), the greater number was used.

**Clinical Practicum Hours: Each PA school had a min/max range. Therefore, the midpoint value was used for each school. These midpoint values were used to calculate the overall Mean and Median Clinical Practicum Hours

***Clinical Practicum Hours: One NP school (Univ St. Francis) did not specify a value on available websites, and therefore, this school was not used in these calculations (n=14).

****Clinical Experience Stipulations for FNP: One school (St. John's) requires experience if BSN >5 years ago. One school (Univ St. Francis) requires concurrent employment.

Abbreviations: MSPA: Master of Science Physician Assistant, MPAS: Master of Physician Assistant Studies, MSN-FNP: Master of Science Nursing-Family Nurse Practitioner

Table 4: Southern Illinois University PA Program Procedures List³³

Basic and Advanced Cardiac Life support ♦
12 Lead ECG technique & interpretation
Interpretation of plain radiographs
Central line placement ♦
Chest tube insertion & removal; needle decompression ♦
Spinal immobilization ♦
Lumbar punctures ♦
Intraosseus infusion ♦
Airway management, including endotracheal intubation ♦
Strep screens, nasopharyngeal & throat cultures
Fluorescein eye exam & foreign body removal
Ear lavage / curette ♦
Nasal packing for epistaxis ♦
Nasogastric tube placement ♦
Spirometry, Peak flow, spacers & inhalers
Ultrasound guided procedures (AAA, PE, pelvic exam, eye FB & retinal detachment)
Joint aspiration & injections;Ultrasound guided musculoskeletal exam & joint injections ♦
Splinting and casting
Operating room skills
Application and removal of sutures and staples ♦
Injections: subcutaneous, intramuscular & intradermal ♦
Insulin types, use and injection technique
Application of local & regional anesthesia ♦
Digital nerve block ♦
Laceration and wound care; suturing ♦
Skin procedures - biopsies, cryotherapy, skin tag & wart removal ♦
Abscess incision and drainage ♦
Intravenous placement & blood draw ♦
Urinary catheter insertion and removal ♦
Vaginal & urine microscopy
Gynecologic procedures (eg: pelvic exam, Pap smears, cultures, IUD, Nexplanon) ♦
Endometrial biopsy ♦
Female breast exam ♦
Vaginal childbirth ♦
Neonatal exam and infant circumcision♦
Well child examinations ♦
Male testicular and prostate exams ♦
Nail removal, ring removal, paronychia
Office procedures - fecal occult blood testing, urinalysis,

♦ Procedures performed using simulated models

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