A Profile of Michigan's Nurse Practitioner & Physician Assistant Workforce 2010

A report by the
Michigan Health Council
www.mhc.org

Michigan Health Council

Michigan Center for Nursing

Michigan Center for Health Professions

October 27, 2010

Dear Healthcare Partner,

Healthcare reform will affect the health workforce dramatically. The Michigan Health Council's Center for Nursing and Center for Health Professions have focused our attention on the challenges facing the healthcare workforce in Michigan. To develop a picture of the current healthcare workforce providing much of Michigan's primary care and to plan for the future, Public Sector Consultants was commissioned to develop a profile of Physician Assistants and Nurse Practitioners in Michigan. The attached profile is a partner to the 2009 Physician Profile as well as the American Association of Medical Colleges (AAMC) Center for Workforce Studies released in June 2010 an analysis detailing the physician shortage that will be exacerbated with the expansion of coverage under health reform law and the aging of the population.

The AAMC projects a shortage of 45,000 primary care physicians and 46,000 surgeons and medical specialists **IN THE NEXT DECADE** nationwide which doubles previous estimates. The Department of Health and Human Services has released funding to create an additional 889 primary care residency slots. While helpful, this number does little to address the impending shortage of primary care physicians and doesn't begin to address the shortage of specialty physicians.

Often Physician Assistants and Nurse Practitioners are factored in as collaborating health care team members in the delivery of care. The Profile of NP/PA's in Michigan is very interesting when looking at the health care team and planning for the Michigan's future healthcare needs. Particularly interesting is the number of PA's in specialty practice (65%) versus primary care (35%) in Michigan.

Because specific information about nurse practitioners was not available for this profile, a study by Public Sector Consultants for the Center for Nursing at the Michigan Health Council is now in the field and will be reported in January 2011. It will focus on where Nurse Practitioners practice, whether there is employment site movement in the profession and other issues germane to NP's in Michigan. This study will be sent to you and posted on the Michigan Health Council website (www.mhc.org) under top tab Survey/Articles in mid December.

It is our hope that this profile will create a better picture of the ability of the PA/NP workforce to address shortage needs in Michigan.

Please send any comments on the profiles to me – anne@mhc.org. Let's all work together to build an effective and adequate health workforce in Michigan.

Sincerely,

Anne Rosewarne

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Michigan Health Council

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Nurse Practitioner/Physician Assistant Profile

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INTRODUCTION

This profile has been developed for the Center for Health Professions at the Michigan Health Council. It provides information on nurse practitioners (NPs) and physician assistants (PAs) currently practicing in Michigan and on issues that may affect supply and demand in these professions. This information is being provided to help policymakers create strategies to address health care workforce needs in Michigan.

The professions of nurse practitioner and physician assistant developed in the mid-1960s, in response to a shortage of physicians providing primary care services in underserved rural and inner-city areas. Since then, education programs throughout the nation have trained more of these health care professionals and education standards have evolved from undergraduate training to master's degree programs. The success of these health care professions spurred the federal government to fund formal training programs through statutory changes in the Public Health Service Act that allow tuition reimbursement for students in these programs. During the 1990s, perceptions that primary care physicians were in short supply renewed interest in nurse practitioner and physician assistant training. The number of practicing NPs tripled from 30,000 in 1990 to 90,000 ten years later.[1] The American Academy of Nurse Practitioners estimated 135,000 NPs practicing nationwide in 2010.[2] Similarly, the number of PAs climbed from fewer than 20,000 in 1990 to almost 60,000 in 2000. By 2009, the American Academy of Physician Assistants estimated the number of PAs in practice at almost 74,000.[3]

Nurse Practitioners

In Michigan, registered nurses (RNs) wishing to practice as and call themselves nurse practitioners must obtain nurse specialty certification from the state. A valid RN license and proof of certification from a national certifying agency is required for state certification. The State of Michigan accepts certification from several national certifying bodies for nurse practitioners. As of January 2010, 6,486 RNs were certified as advanced practice registered nurses (APRNs); of those, more than half (3,778) were nurse practitioners.[4] In order to maintain this certification, an RN must practice at least part-time; therefore, all certified nurse practitioners in the state are active (that is, working at least part-time). According to the American Academy of Nurse Practitioners, 95 percent of nurse practitioners nationwide are female: the average nurse practitioner is 48 years

[1] Richard Cooper, New Directions for Nurse Practitioners and Physician Assistants in the Era of Physician Shortages, *Academic Medicine* 82, no. 9 (2007): 827–828.

[2] American Academy of Nurse Practitioners (AANP), *Nurse Practitioner Facts*, available online at http://www.aanp.org/NR/rdonlyres/32B74504-2C8E-4603-8949-710A287E0B32/0/NPFacts2010.pdf (accessed 5/14/10).

[3] American Academy of Physician Assistants, *FAQ*, available online at http://www.aapa.org/about-pas/faq-about-pas (accessed 5/14/10).

[4] The others were nurse midwives or nurse anesthetists. The Michigan Board of Nursing administrative rules list the following certification organizations for nurse practitioners, nurse midwives, and nurse anesthetists: American Association of Nurse Anesthetists, American College of Nurse Midwives Certification Council; American Nurses Credentialing Center (ANCC) Certification; National Certification Board of Pediatric Nurse Practitioners and Nurses; National Certification Corporation for Obstetric, Gynecologic, and Neonatal Specialties; American Academy of Nurse Practitioners; Oncology Nursing Certification Corporation

old and has been in practice for 10.5 years.[5] In Michigan, the average age of nurse practitioners is 49.[6]

Physician Assistants

In order to practice in Michigan, physician assistants must obtain licensure from the state. To be licensed, applicants must show that they hold a degree from an accredited physician assistant education program and have passed the Physician Assistant National Certifying Exam (PANCE). As of January 2009 (the most recent data available), 3,176 physician assistants were licensed. Of these, 93 percent are active in Michigan—working at least part-time. About two-thirds (66 percent) of PAs renewing a license in 2008 and 2009 were female, and more than half of PAs were under the age of 45.[7] These data are consistent with national figures. According to the most recent census from the American Academy of Physician Assistants, the average age of PAs is 41 and 66 percent of PAs are female.[8]

Summary

Exhibit 1 summarizes the gender and certification/licensure information for nurse practitioners and physician assistants in Michigan.

EXHIBIT 1
Certified Nurse Practitioners and Licensed Physician Assistants
in Michigan, January 2009

	Nurse practitioners	Physician assistants
Total number certified/licensed in Michigan	3,778	3,176
Total active	3,778	2,954
Gender		
Male	5%	34%
Female	95%	66%

SOURCES: Licensure data provided by MDCH; 2010; AAPA, *2009 Physician Assistant Census National Report*, 2010; Public Sector Consultants Inc., MDCH Survey of Physician Assistants, 2008 and 2009.

PRACTICE SPECIALTY AND SETTING

Both of these professions arose to expand the availability of primary care services by increasing the number of providers working closely with physicians in primary care settings. Subsequently, however, NPs and PAs have branched into other areas of practice

[5] AANP, *Nurse Practitioner Facts*.
[6] Data provided to PSC by the Michigan Department of Community Health (MDCH) Licensing Bureau, 2010.
[7] Public Sector Consultants Inc. (PSC), *MDCH Survey of Physician Assistants, Survey Findings 2009* (Lansing, Mich.: PSC, January 2010).
[8] American Academy of Physician Assistants (AAPA), *2009 AAPA Physician Assistant Census National Report* # CENS2009-01, January 2010, available online at http://www.aapa.org/images/stories/Data_2009/2009aapacensusnationalreport.pdf (accessed 5/14/10).

and are no longer found only in primary care settings. Many practice specialties now have care delivery teams that include NPs and PAs.

Nurse Practitioners

Collecting information on the specialty areas in which NPs practice is difficult. No single entity collects this information for all active, certified nurse practitioners in the state. (The Michigan Center for Nursing at the Michigan Health Council will survey nurse practitioners in fall 2010 to get the answers to this and other questions.) Estimates suggest that the bulk of nurse practitioners can be found in primary care specialties. The Michigan Council of Nurse Practitioners (MICNP) maintains that 59 percent of nurse practitioners in the state practice in primary care settings.[9] (The MICNP defines primary care as family, adult, and pediatric general practice.) Nationally, the American Academy of Nurse Practitioners (AANP) maintains that approximately 76 percent of active nurse practitioners can be found in these primary care specialties. The AANP tracks specialty information for its membership (see Exhibit 2).

EXHIBIT 2

Nationwide Distribution of Nurse Practitioners, by Specialty, 2009

Nurse practitioner specialty	Percentage of NPs	Average years of practice
Family Medicine	49%	10
Adult Primary Care	18	11
Pediatrics	9	13
Women's Health	9	15
Acute Care	5	7
Gerontology	3	12
Psychiatry/Mental Health	3	9
Neonatology	2	12
Oncology	1	8

SOURCE: American Academy of Nurse Practitioners National Nurse Practitioner Database, 2009.
NOTE: Percentages do not equal 100 percent due to rounding.

The six most frequently reported practice settings for NPs, according to a 2006 AANP member survey, were private physician practice (32 percent); community and public health settings (10 percent); hospital outpatient clinics (10 percent); inpatient hospitals (9 percent); a rural health setting (5 percent); and emergency or urgent care facilities (4 percent).[10]

Physician Assistants

According to the 2009 Michigan Department of Community Health Survey of Physician Assistants, about 35 percent of physician assistants in Michigan practice in four primary

[9] Personal communication from Connie Knapper, Michigan Council of Nurse Practitioners (MICNP), February 22, 2010.

[10] American Academy of Nurse Practitioners (AANP), *AANP 2006 Membership Survey*, available online at http://www.aanp.org/NR/rdonlyres/809B1FD3-209D-43C7-8375-C24E0744318A/0/2006MembershipSurvey.pdf (accessed 5/14/10).

care specialties: family practice, general medicine, internal medicine, or pediatrics. The remaining 65 percent of active physician assistants practice in other specialty areas (see Exhibit 3).

EXHIBIT 3
Distribution of Active Physician Assistants in Michigan, by Specialty, 2009

Specialty	Percentage	Specialty	Percentage
Family practice	22%	Allergy & immunology	1%
Emergency medicine	11	Geriatrics	1
Internal medicine (General)	8	Nephrology	1
Orthopedic surgery	8	Otolaryngology	1
Cardiovascular disease	6	Plastic Surgery	1
Hospitalist	4	Psychiatry	1
Surgery (General)	4	Urology	1
Dermatology	3	Anesthesiology	<1
General medicine	3	Critical care medicine	<1
Neurological surgery	3	Endocrinology	<1
Gastroenterology	2	Neurology	<1
Obstetrics & gynecology	2	Rheumatology	<1
Occupational medicine	2	Vascular surgery	<1
Oncology/hematology	2	Infectious disease	0
Pediatrics	2	Preventive medicine	0
Physical medicine & rehabilitation	2	Pulmonary disease	0
Radiology	2	Sports medicine	0
Thoracic surgery	2	Other	6

SOURCE: Public Sector Consultants Inc., *MDCH Survey of Physician Assistants 2009*.
NOTE: Percentages may not equal 100 percent due to rounding.

When asked to identify their work settings, 52 percent of physician assistants responded that they worked in a physician's office, 41 percent in a hospital inpatient setting, and 26 percent in a hospital outpatient setting (see Exhibit 4). Percentages do not equal 100 percent because one-third of all physician assistants work in more than one setting for their main employer.

EXHIBIT 4
Current Employment Settings of Physician Assistants, 2009

Setting	Percentage of active physician assistants in Michigan
Physician's office	52%
Hospital inpatient	41
Hospital outpatient	26
Nursing home/long-term care facility	5
Public/community health	3
PA education program	2
Home health care	2

Setting	Percentage of active physician assistants in Michigan
Hospice	<1
Other	8

SOURCE: Public Sector Consultants Inc., *MDCH Survey of Physician Assistants 2009*.
NOTE: Percentages do not equal 100 percent because respondents were asked to mark "all that apply."

EDUCATION

Nurse Practitioners

Nurse practitioners in Michigan hold a master's degree in nursing, with either a specialization in advanced practice nursing or a certificate in advanced practice nursing in addition to a traditional master's degree in nursing. Currently, ten schools in Michigan offered programs in advanced practice nursing; two of those are transitioning to doctoral programs in nursing practice. Based on the information from these schools, total annual graduates have risen from 173 to 194 from 2005 to 2009.

EXHIBIT 5
Nurse Practitioner Graduates, Specialization in Advanced Practice Nursing, 2005–2009

Nurse practitioner program	2005	2006	2007	2008	2009
Grand Valley State University	26	30	14	10	15
Madonna University	11	10	9	21	9
Michigan State University	23	21	16	19	24
Northern Michigan University**	11***			12	
Oakland University	11	19	14	15	13
Saginaw Valley State University	1	10	1	8	10
University of Detroit-Mercy	NA	6	11	14	14
University of Michigan	42	27	23	25	29
University of Michigan - Flint	0	10	9	12	20
Wayne State University	42	27	44	23	48

SOURCE: As reported by each school. NA = No answer. GVSU and U-M Flint suspended new enrollments in 2008 and are changing the master's program to a Doctor of Nursing Practice degree. **Northern Michigan University (NMU) admits a new cohort every 3 years. ***NMU 2005 graduated 11 people from the 2002 cohort of 16 students.

Physician Assistants

Five schools in Michigan offer master's-level training programs for physician assistants that meet the requirements of the Michigan Task Force on Physician Assistants, a state board with statutory authority for regulating physician assistant training, licensure, and discipline. Based on the information made available from schools, an annual average of 186 PAs has graduated from these programs from 2005 through 2009 (see Exhibit 6). To practice, graduates of these programs must pass a certification exam from the National Commission on Certification of Physician Assistants. In Michigan, 68 percent of active physician assistants have a master's degree, 26 percent hold a bachelor's degree, 4

percent have completed an associate's degree, and 3 percent do not hold a degree but have received other PA training.[11]

EXHIBIT 6
Physician Assistant Graduates, Master's Level, 2005–2009

PA program	2005	2006	2007	2008	2009
Central Michigan University	44	41	40	42	42
Grand Valley State University	28	28	28	28	33
University of Detroit-Mercy	33	29	34	40	36
Wayne State University	47	47	49	46	48
Western Michigan University	29	34	36	34	35

SOURCE: As reported by each school.

SCOPE OF PRACTICE

Scope of practice refers to the extent to which health care providers may render health care services and the extent to which they may do so independently. Scope of practice for each health care profession is grounded in the education standards of the profession and is dictated by statute, administrative rules, and case law.

Scope of practice can be defined through three main avenues. First, each professional organization develops and maintains practice standards for professional members, which broadly outline the standards that those professionals are expected to follow. Secondly, state statute, case law, and administrative rules define the legal parameters for professional practice. Finally, Medicare, Medicaid, and insurers have standards that dictate services for which they will provide reimbursement for each health professional. The different definitions of the scope of practice for a health profession reflected in these three avenues have led to conflicting interpretations among health professionals. Suffice it to say that there is no general agreement on the scope of practice for several professions. These conflicting interpretations extend to prescribing authority in Michigan, which is regulated separately from scope of practice in statute and is discussed separately on page 9.

Nurse Practitioners

The American Academy of Nurse Practitioners publishes *Standards of Practice for Nurse Practitioners*. These standards are not binding and do not hold the force of law; they are generally accepted practice standards in the profession. Practice standards defined by the Academy include:

- Process of care, which encompasses health status assessment, diagnosis, assisting with treatment plan development, treatment plan implementation, and follow-up and evaluation of patient status.

[11] PSC, *MDCH Survey of Physician Assistants 2009*.

- Care priorities, which include patient and family education, facilitation of patient participation in self-care, promotion of optimal health, provision of continually competent care, facilitation of entry into the health system, and promotion of a safe environment.
- Collaborative responsibilities, which include participating in the provision of health and medical care with professional colleagues.
- Accurately documenting patient status and care.
- Patient advocacy.
- Assuring quality and continued competency in care provision.[12]

The Michigan Public Health Code defines "practice of nursing" as "the systemic application of specialized knowledge and skills derived from the biological, physical, and behavioral sciences, to the care, treatment, counsel, and health teaching of individuals who are experiencing changes in the normal health processes or who require assistance in the maintenance of health and the prevention or management of illness, injury, or disability."[13] Because NPs are licensed as RNs, their scope of practice is broadly defined through this statute; no separately defined scope of practice exists for NPs in Michigan law. RNs are licensed to practice without direct physician supervision *within this scope* and given statutory authority to supervise less skilled personnel to perform delegated nursing duties. However, some activities are expressly prohibited by law, which consequently limits NP scope of practice. These activities include practicing medicine, which is defined as "the diagnosis, treatment, prevention, cure, or relieving of a human disease, ailment, defect, complaint, or other physical or mental condition, by attendance, advice, device, diagnostic test, or other means, or offering, undertaking, attempting to do, or holding oneself out as able to do, any of these acts."[14] Prohibited activities also include performing surgeries or invasive procedures and ordering physical therapy for patients. Each state regulates scope of practice for health professionals differently, so NPs in other states may have more or less autonomy than they have in Michigan.

In Michigan, anything beyond the statutorily defined scope of practice for nurses must be performed under the supervision of a licensed physician. Supervision is statutorily defined as

> the overseeing of or participation in the work of another individual by a health professional…where at least all of the following conditions exist: the continuous availability of direct communication in person or by radio, telephone, or telecommunication between the supervised individual and a licensed health professional; the availability of a licensed health professional on a regularly scheduled basis to review the practice of the supervised individual, to provide consultation to the supervised individual, to review records, and to further educate the supervised individual in the performance of the individual's

[12] American Academy of Nurse Practitioners, *Standards of Practice for Nurse Practitioners* (Washington, D.C.: AANP, 2007). Available online at http://66.219.50.180/NR/rdonlyres/e3a2zyjzgbrif4mxdzm7l4pivl27il5msdjkay5nvkchfnn6vqljthr3chdukfu2ulholufd3l2qbcwowyvrlycjvxg/Slick+Standards+of+Practice++w-Cover+3-07.pdf (accessed 5/14/10).
[13] Michigan Compiled Law 333.17201.
[14] Michigan Compiled Law 333.17001(1)(B)(f).

> functions; the provision by the licensed supervising health professional of predetermined procedures and drug protocol.[15]

In the application of the legal scope of practice, NPs can practice in different situations, depending on the services being performed and arrangements for supervision. For example, an NP can practice in a physician's office or health system working in the same location as the supervising physician, with continued in-person contact. Additionally, an NP may practice in a location with no on-site physician, but still work under the supervision of a physician. Rural, satellite health system clinics could work under such a model, where a physician regularly reviews the patient charts and the physician is available to the NP for consultation. An NP also has the option of practicing in an environment with no supervising physician, such as a retail clinic or private office, if the NP provides only nursing services, such as care management and counseling, and refers patients to physicians when appropriate, based on statutorily defined scope of practice.

In Michigan, NPs can be reimbursed for services by Medicare, Medicaid, Medicare secondary payers, Blue Cross Blue Shield of Michigan, and most commercial and traditional indemnity plans. Most health maintenance organizations (HMOs) that provide Medicaid services allow NPs to have provider status for reimbursement purposes. Some HMOs, however, do not grant provider status to NPs for commercial coverage.[16]

In order to obtain payment from either Medicare or Medicaid, a written "collaboration agreement" with a physician must be in place. Medicare defines collaboration as "a process in which a NP works with a physician to deliver health care services within the scope of the practitioner's professional expertise, with medical direction and appropriate supervision as provided for in jointly developed guidelines or other mechanism as defined by the law of the state in which the services are performed."[17]

Physician Assistants

Practice as a physician assistant is defined in the Michigan public health code as "a health profession subfield of the practice of osteopathic medicine and surgery, the practice of medicine, and the practice of podiatric medicine and surgery."[18] PAs are granted statutory authority to provide medical care services under the supervision of a physician, so long as those services fall within the scope of practice of the supervising physician. Supervision for a PA is defined in the same way as for NPs. Supervising physicians may delegate the medical care of a patient to a PA. PAs can perform any of the activities within the physician's own scope (physical exams, ordering diagnostic tests, prescribing therapy), with the exception of invasive procedures. A PA can assist a physician in performing an invasive procedure. A physician who is a sole practitioner cannot supervise more than four PAs at a time, and no more than two of those PAs can perform services at a site other than where the physician practices. A physician who is employed at or has privileges at a licensed health facility can supervise more than four PAs at that facility.

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[15] Michigan Compiled Law 333.16109(2)
[16] Michigan Nurses Association, *Advanced Practice Nursing, Nurse Practitioner Frequently Asked Questions*, available at http://www.minurses.org/apn/apn-npfaq.shtml (accessed 9/15/10).
[17] Balanced Budget Act of 1997, 42 USC section 1395x(aa)(6)(1997).
[18] Michigan Compiled Law 333.17508.

Supervising physicians are ultimately responsible for verifying a PA's credentials, evaluating performance, and monitoring the provision of medical care services.[19]

This relationship between physician and PA is reinforced in Public Acts 124–126 of 2010, signed into law on July 21, 2010. These laws allow physician assistants to establish private corporations as long as at least one physician is also a co-owner of the business. The physician who supervises the PA must be the business's co-owner. These statutes give PAs and physicians flexibility to start practices together, especially in underserved areas, that may not be feasible if one wanted to establish a practice on his/her own.

In Michigan, services provided by PAs are typically reimbursed by third-party payers, although not always at the same level as reimbursement to physicians. Most private insurers, including Blue Cross Blue Shield of Michigan, reimburse for PA services, but the service must be billed using the physician's provider number. Medicaid does not recognize PAs as individual providers, but does reimburse for their services at 100 percent of what physicians are reimbursed. Services rendered by the PA must be billed using the physician's Medicaid provider number and the payments are remitted to the employing practice. Medicare reimburses PA services at 85 percent of physician reimbursement rates, and PAs are recognized providers through Medicare and must obtain a Medicare provider number for billing purposes.[20]

PRESCRIBING AUTHORITY

NPs and PAs in Michigan have the same prescribing authority, which is governed in the same statute and rules. Physicians can delegate prescribing authority to NPs and PAs for schedule 3 to 5 controlled substances (drugs with little potential for abuse and all having medically accepted uses) if the following conditions are met:

- A written authorization containing the signatures and license number of both the NP/PA and supervising doctor must be kept at each site of practice.
- The authorization must record limitations or exceptions to the delegation, if any.
- The effective date must be clearly documented.
- The authorization must be reviewed and updated annually.

Prescribing authority for schedule 2 controlled substances (drugs with high potential for abuse and with accepted medical use) can only be delegated if both the physician and NP or PA are practicing in a hospital, freestanding surgical outpatient facility, or hospice. Prescriptions for patients being discharged cannot be issued for more than a seven-day period.

Once prescribing authority has been delegated through a written agreement with a physician, NPs and PAs can obtain an identification number from the federal Drug Enforcement Agency for prescribing controlled substances.

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[19] Michigan Compiled Law 333.17549.

[20] Michigan Academy of Physician Assistants (MAPA), *Physician Assistant: The Other White Coat*, N.d., n.p. Brochure available online at http://www.michiganpa.org/AM/Template.cfm?Section=Home2&CONTENTID=9652&TEMPLATE=/CM/ContentDisplay.cfm (accessed 5/14/10).

TRENDS AFFECTING SUPPLY OF NURSE PRACTITIONERS AND PHYSICIAN ASSISTANTS

The U.S. Government Accountability Office reports that the supply of primary care professionals increased in recent years, and that growth in nonphysician primary care providers has outpaced that of physicians.[21] While the number of physicians in primary care rose an average of about 1 percentage point a year from 1995 to 2004, non-physician primary care providers increased by about 4 percent each year during that same period.[22] Even with more physicians entering the field of primary care, the American Academy of Family Physicians projects a shortage of 40,000 family doctors by 2020.[23] The number of primary care residents increased by 6 percent between 1995 and 2006, from 38,753 to 40,982; at the same time, however, the number of primary care residency programs decreased, from 1,184 to 1,145.[24] With the advent of health care reform, the gap between the supply of physicians and the demand for primary care services will most likely contribute to an increased demand for other primary care professionals to fill that void.

EDUCATION AND TRAINING

Following a dip in enrollment in the late 1990s, the American Association of Colleges of Nursing reported that 29,323 students enrolled in master's-level nurse practitioner training programs in 2008,[25] a sharp increase from the previous high of 22,307 in 1997.

The supply of nurse practitioners is directly dependent on the growth of registered nursing programs around the country. Although the number of RN degrees awarded increased by almost 27 percent between 2002 and 2008,[26] a severe shortage in the nursing field is expected to reach between 250,000 and 1,000,000 by 2025.[27] Due to this projected shortage, many initiatives have been implemented to recruit more students into the profession. Unfortunately, recruiting more students places pressure on existing nurse education programs. In 2008, almost 50,000 qualified applicants were rejected from nurse education programs, including 7,000 at the master's and doctoral level. More than 75 percent of nursing schools have cited lack of qualified faculty as the reason for turning away applicants.[28] Without expansion of nursing education programs at both the

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[21] Bruce Steinwald, Primary Care Professionals: Recent Supply Trends, Projections, and Valuation of Services, Testimony before the Committee on Health, Education, Labor, and Pensions, U.S. Senate, GAO-08-472T (Washington, D.C.: U.S. Government Accountability Office, February 12, 2008). Available online at: http://www.gao.gov/new.items/d08472t.pdf (accessed 5/12/10).
[22] Steinwald, 2008.
[23] Ashley Halsey III, Primary-Care Shortage May Undermine Reform Efforts, *The Washington Post*, June 20, 2009. Available online at http://www.washingtonpost.com/wp-dyn/content/article/2009/06/19/AR2009061903583.html (accessed 5/12/10).
[24] Steinwald, 2008.
[25] American Association of Colleges of Nursing, *Nursing Shortage Fact Sheet* (Washington, D.C.: AACN, May 2010). Available online at http://www.aacn.nche.edu/media/factsheets/nursingshortage.htm (accessed 5/14/10).
[26] National League for Nursing (NLN), *Nursing Data Review Academic Year 2007-2008* (New York: NLN, 2010). Available online at http://www.nln.org/research/slides/ndr_0708.pdf (accessed 5/12/10).
[27] Daniel J. Derksen and Ellen-Marie Whelan, *Closing the Health Care Workforce Gap* (Washington, D.C.: Center for American Progress, December 2009). Available online at http://www.americanprogress.org/issues/2010/01/pdf/health_care_workforce.pdf (accessed 5/12/10).
[28] Derksen and Whelan, *Closing the Health Care Workforce Gap*.

undergraduate and graduate level, the number of nurse practitioners being trained will become more limited.

Additionally, some schools have either stopped offering master's-level nursing programs in order to increase programs to train RNs or are beginning to offer Doctor of Nursing Practice (DNP) degrees in place of or in addition to master's programs, as the field becomes more professionalized. A DNP builds on the more traditional master's program and provides education in evidence-based areas, quality improvement, and systems leadership. The program is designed for nurses seeking a terminal degree in nursing practice and offers an alternative to research-based doctoral programs by providing a more clinical focus.[29] In Michigan, Grand Valley State University, Madonna University, the University of Detroit-Mercy, the University of Michigan-Flint, and Wayne State University have DNP programs, and Northern Michigan plans to begin its DNP program in 2012. The effect of the advent of DNP programs on the supply of nurse practitioners is not yet known.

Physician assistant training programs nationwide also grew in the mid-1990s, but, unlike NP programs, saw steady growth into the present. From 1992 to 2009, the number of PA degrees awarded nationally increased by 270 percent, with 5,588 graduates in 2009.[30] The number of PAs choosing to work in primary care also increased; between 1995 and 2007 the average annual increase of PAs working in primary care was 4 percentage points.[31]

In contrast, PAs in Michigan are reporting moving out of primary care, with 17 percent of PAs reporting leaving a primary care position to work in a specialty position in 2009.[32] Additionally, the continued movement of physicians away from primary care into specialty areas could result in fewer PAs working in primary care because of the supervision required for PAs to practice. The opportunities for PAs to work will be most plentiful in areas with adequate supplies of physicians.

Currently, programs are being expanded to encourage providers to practice primary care in underserved areas. The Michigan Department of Community Health partners with the federal government to administer the National Health Service Corps Tuition Reimbursement program to place primary care providers, including physicians, PAs and NPs around the state. The loan repayment program provides up to $50,000 to help repay student loans for graduates who agree to practice for two years in Health Professional Shortage Areas, which are generally rural or inner-city locations. Through this program, Michigan hopes to place 30 health care professionals by the end of 2010. The Patient Protection and Affordable Care Act of 2010 authorized an additional $11 billion nationwide to support this program over five years beginning in 2011. This additional

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[29] American Association of Colleges of Nursing, *The Doctor of Nursing Practice (DNP) Fact Sheet* (Washington, D.C.: AACN, March 2010). Available online at http://www.aacn.nche.edu/Media/FactSheets/dnp.htm (accessed 5/14/10).

[30] Physician Assistant Education Association (PAEA), *25th Annual Report on Physician Assistant Education Programs (Preliminary Data 2008-2009)* (Portland, Ore.: PAEA, November 2009), available online at http://paeaonline.org/index.php?ht=a/GetDocumentAction/i/95879 (accessed 5/12/10).

[31] Steinwald, 2008.

[32] PSC, *MDCH Survey of Physician Assistants 2009*.

funding could greatly increase placement of primary care providers in underserved areas. This program may be attractive to PAs and NPs, with average degree program costs of $31,210 (average in-state, public school)[33] and $16,624 (average in-state, public school)[34], respectively.

PHYSICIAN TRENDS

Research shows that preventive care, care coordination for the chronically ill, and continuity of care achieve improved patient outcomes and cost savings. However, the insurance and third-party reimbursement structure in the United States creates disincentives for primary care by paying for services at a significantly lower rate than for more procedure-driven specialty care.

This disparity in reimbursement has resulted in a growing income gap between primary care physicians and specialists and has contributed to a decline in the number of medical students opting to enter primary care specialties (i.e., internal medicine, family medicine, general medicine, and general pediatrics). This decline is exacerbated by the fact that practicing primary care physicians are also working fewer hours. *The Journal of the American Medical Association* reports that between 1996 and 2008, average hours worked by primary care physicians dropped from 55 to 51 hours per week. While this may not seem to be significant, nationally it is equivalent to losing 36,000 doctors in ten years.[35] Such a loss could certainly create a need for NPs and PAs in areas where primary care physicians are in short supply.

Salaries have been another primary factor driving more physicians to specialty fields. However, this discrepancy in physician salary could also push more students interested in practicing primary care into NP and PA programs rather than medicine. On average a primary care physician earns $185,000,[36] compared to a starting salary of $79,000 for PAs[37] and an average salary of $92,100 among NPs.[38] Physicians spend at least ten years training, compared to six years for NPs and PAs, with correspondingly higher average debt. Furthermore, NPs and PAs are usually not expected to be on call or work as many hours as physicians traditionally do. For these reasons, these professions may be more attractive for those interested in joining health care with a focus on primary care.

Conversely, because of the supervision and delegation requirements defined in each profession's scope of practice in Michigan, the expansion of NPs and PAs into primary care could be limited due to a lack of collaborating and supervising physicians, driving

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[33] PAEA, *25th Annual Report*.
[34] American Academy of Nurse Practitioners (AANP), *Nurse Practitioner MSN Tuition Analysis: A Comparison with medical School Tuition*, January 2010, available online at http://www.aanp.org/NR/rdonlyres/04789D96-F37C-4550-91BB-29E71BAEC57A/0/NursePractitionerMSNTuitionAnalysisAComparisonwithMedicalSchoolTuition.pdf (accessed 5/14/10).
[35] Douglas O. Staiger, David I. Auerbach, and Peter I. Buerhaus, Trends in the Work Hours of Physicians in the United States, *JAMA* 303, no. 8 (February 24, 2010): 747–753.
[36] Georgia Price, Will Nurse Practitioners and Physician Assistants Solve the Primary Care Shortage?, Monster.com, February 18, 2009. Available online at http://allhealthcare.monster.com/news/ articles/3094-will-nurse-practitioners-and-physician-assistants-solve-the-primary-care-shortage (accessed 5/14/10).
[37] PAEA, *25th Annual Report*.
[38] AANP, *Nurse Practitioner Facts*.

more NPs and PAs to work in other specialty fields. Furthermore, the amount of debt with which many students graduate can be an effective motivator for choosing a higher paying specialty field for practice, especially when more physicians may be available with whom to partner for scope of practice requirements.

CHANGES IN HEALTH CARE DELIVERY

Retail Clinics

One of the more recent trends in providing general health care services has been the rise of health clinics in retail outlets. Retail health clinics, as they are commonly known, have become increasingly popular in large, chain retail stores such as Wal-Mart and CVS. These clinics generally do not provide an exhaustive list of primary care services, but have created "menus" of the most commonly utilized services, generally including school athletic physicals, check-ups for common ailments, and vaccinations. The services are priced affordably and the clinics are marketed to uninsured or underinsured persons. Many in the NP and PA fields are trying to take advantage of the opportunities that these types of clinics offer. The clinic corporations have been eager to partner with these professions to promote clinics that provide services that busy people need and reduce use of more expensive care resources, such as emergency departments.

While many physicians were initially opposed to adoption of this model, reservations are abating as the trend grows. For example, the American Academy of Family Physicians has released a list of "desired attributes" for retail clinics, focusing on evidence-based medicine and electronic health records.[39] The association also encourages its members to create relationships with such clinics, either as a source for referrals or to become a supervising physician. These retail clinics will certainly provide an opportunity for NPs and PAs to contribute to the quality and access of primary care services well into the future as more people search for affordable, convenient care options.

Medical Homes

Rising costs have been one of the primary pressures on the health care market today. With the shift from primary to specialty care and procedure-driven reimbursement models, the cost of health care has skyrocketed in the United States. Many health care professional groups have advocated a model to encourage primary care and care coordination in a patient-centered environment. The model is commonly referred to as a "medical home" and includes these features, identified and developed by the American Academy of Pediatrics: personal physician, physician-directed medical practice, whole person orientation, coordinated and integrated care, quality and safety, enhanced access, and payment reform. One of the most important tenets of the medical home is care coordination from a dedicated medical team. While the team is headed by a physician, other health care providers are vital to the success of the model, including NPs and PAs.

The medical home concept has become so pervasive in the discussion of health care delivery that accountable care organizations (ACOs) have been specifically included as

[39] Sarah Lebo, The Miniclinic Quick Fix, *Advance for Nurse Practitioners* (May 30, 2006), available online at http://nurse-practitioners.advanceweb.com/editorial/content/editorial.aspx?cc=72196 (accessed 5/14/10).

part of federal health care reform. An ACO would adhere to all of the principles governing the medical home model and would reward health care teams for providing effective primary care and keeping patients healthier. If the medical home model becomes the standard for providing primary care, NPs and PAs can expect an increase in the demand for their services as part of primary care delivery teams.

Federal Reform

Passage of the Patient Accessibility and Affordability Act of 2010 could greatly fuel the demand for NPs and PAs in a very short time frame. Projections from the Congressional Budget Office indicate that as many as 32 million more Americans will have health insurance coverage as a result of this legislation. With a mechanism to pay for care, many people who have been unable to in the past will now be able to access health care, especially primary care services. Saturating the market in this fashion will most certainly place a strain on current providers, many of whom already are unable to see new patients because of heavy caseloads. NPs and PAs may have the opportunity to fill the gap in care. Additionally, the time required for NP and PA training is significantly less than that of a physician, which could encourage training more of those professionals in order to meet the demand for care more expediently. Ironically, many schools that offer such programs may not be equipped to handle a surge in applications and may be logistically unable to expand programs, because of financial barriers and lack of trained faculty and clinical space.

CONCLUSION

Nurse practitioners and physician assistants have played a vital role in health care service delivery since the inception of these professions. The past 20 years have seen an explosion in the number of these types of providers, and several factors are likely to lead to increased demand in the future. Issues related to education, scope of practice, autonomy, and equity in reimbursement are ongoing and will require careful consideration. As health care reform continues to unfold, nurse practitioners and physician assistants will surely continue to expand their contributions to the health care system.