



AMERICAN ACADEMY OF
FAMILY PHYSICIANS
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Family Physicians and Physician Assistants: Team-Based Family Medicine

A Joint Policy Statement of the
American Academy of Family Physicians and
American Academy of Physician Assistants
February 2011

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Executive Summary

The roles of physician–physician assistant (PA) teams have evolved over the past 50 years in response to shortages in the primary care physician supply, changing health care needs of the population, and the demonstrated value of this team-based model of care. Effective practice teams play a vital role in improving the quality of and access to health care in the United States, particularly in the delivery of family medicine.

The relationship between family physicians and PAs began in the earliest days of the PA profession and has progressed through development of the first education programs, deployment of the first PAs into the field, and nearly five decades of team practice. Representatives from the American Academy of Family Physicians (AAFP) serve on the PA program accreditation and PA certification commissions. Nearly a dozen PA education programs are found within departments of family medicine. Both the American Academy of Physician Assistants (AAPA) and AAFP have had numerous policies over the years supporting the concept of patient care provided by integrated physician-PA teams.^{1,2} Both professions include the ability to lead or practice within an interdisciplinary care team among their professional competencies.^{3,4} On the front lines of primary care, individual family physicians and PAs work together to provide accessible, high-quality care for patients and communities, and family medicine is the single largest PA practice specialty.

AAFP and AAPA recognize that family physicians and PAs share common goals of providing team-based, patient-centered care and improving the health of patients and communities. In addition, PAs and family physicians share concerns regarding the decline in the primary care workforce, the need for team-oriented practice and models of care such as the patient-centered medical home, and the importance of interprofessional educational opportunities to improve the training of family physicians and PAs. Acknowledging the critical role that teams of PAs and family physicians play in improving access to care and the unique relationship that the professions share, AAPA and AAFP offer the following joint statements on family physicians, PAs, family medicine, and the patient-centered medical home.

- 1. AAFP and AAPA believe that family physicians and PAs working together in a team-oriented practice, such as the patient-centered medical home, is a proven model for delivering high-quality, cost-effective patient care. National and state legal, regulatory, and payment policies should recognize that PAs function as primary care providers in the patient-centered medical home as part of a multidisciplinary, physician-directed clinical team.**
- 2. AAFP and AAPA encourage interprofessional education of medical students, family medicine residents, and PA students throughout their educational programs.**
- 3. AAPA and AAFP encourage education programs of both professions to expand family medicine rotation sites for PA students, medical students, and residents.**
- 4. AAPA and AAFP should continue to be represented on the accrediting and certifying bodies of the PA profession (Accreditation Review Commission on Education for the**

Physician Assistant [ARC-PA] and National Commission on Certification of Physician Assistants [NCCPA], respectively).

5. AAFP and AAPA believe that national workforce policies should ensure adequate supplies of family physicians and PAs in family medicine to improve access to quality care and to avert anticipated shortages of primary care clinicians.

6. AAPA and AAFP promote flexibility in federal and state regulation so that each medical practice determines within a defined spectrum appropriate clinical roles within the medical team, physician-to-PA ratios, and supervision processes, enabling each clinician to work to the fullest extent of his or her education and expertise.

The future of health care delivery will require interprofessional teams of health care professionals working together to provide patient-centered care. AAFP and AAPA are committed to building on the common ground that family physicians and PAs share in order to ensure an adequate, well-educated family medicine workforce to meet the health care needs of the U.S. population.

Introduction

The future of health care delivery will require interprofessional teams of health care professionals working together to provide patient-centered care. AAFP and AAPA are committed to building on the common ground that family physicians and PAs share in order to ensure an adequate, well-educated family medicine workforce to meet the health care needs of the U.S. population.

Family medicine is the medical specialty that provides continuing, comprehensive health care for the individual and family. It is a specialty in breadth that integrates the biological, clinical, and behavioral sciences. The scope of family medicine encompasses all ages, both sexes, each organ system, and every disease entity.⁵

Family medicine today is rooted in the historical generalist tradition. The practice of a family physician is multidimensional, combining knowledge, skill, and a unique approach to care. The patient-physician relationship in the context of the family is central to this process and distinguishes family medicine from other specialties. Above all, the scope of family medicine is dynamic, expanding, and evolutionary. AAFP defines a specialist in family medicine as a physician who is certified by the American Board of Family Medicine, has completed a three-year family medicine residency approved by the Accreditation Council for Graduate Medical Education or the American Osteopathic Association, or maintains eligibility for active AAFP membership.⁶

A PA is a graduate of an accredited PA education program who is authorized by the state to practice medicine with the supervision of a licensed physician. PAs are educated to provide diagnostic, therapeutic, and preventive care. They receive a broad, generalist, master's-level medical education that prepares them well to practice with family physicians. PA program graduates pass a certifying exam administered by the NCCPA and obtain a state license.

Workforce

Fifty years ago, a shortage and maldistribution of physicians and insufficient access to primary health care services were two factors that led to the development of the PA profession. Today, similar dynamics in the health care system will require significantly more family physicians and PAs to help meet the demand.

There are approximately 269,000 primary care physicians in the United States. Of those, about 38 percent are family physicians. In 1961, half of U.S. physicians were generalists, primarily general practitioners. Since then, the percentage has dramatically declined.⁷

The PA workforce has risen from about 250 in 1970 to approximately 75,000 in 2010. PAs work in nearly all areas of medicine and surgery; the single largest specialty category is family medicine, representing 25 percent (19,000) of PAs. Family medicine is followed by general internal medicine and internal medicine subspecialties (17 percent), emergency medicine (10 percent), orthopedics (10 percent), pediatrics (4 percent), general surgery (3 percent), and all other surgical specialties (13 percent).⁸

PA workforce trends tend to mirror those of the physician workforce in the United States. However, while the overall *percentage* of PAs in primary care has declined since the mid-1990s, the *total number* of PAs in family medicine has increased by almost 80 percent – from 10,700 in 1996 to 19,000 in 2009, due to overall growth of the profession.^{8,9}

Workforce prognosticators not only are predicting a shortage of primary care physicians, they also predict that there will not be enough PAs to meet patient demand over the next 20 years.^{10,11,12,13}

Even with increased numbers of physicians and PAs, family medicine will still face the challenges of competing with higher-paying specialties, recruiting candidates to rural communities, and reduced medical resident hours, which have increased demand for PAs in that sector.^{14,15}

PA Education

Most matriculants enter a PA program with a bachelor's degree, prerequisite courses in basic and behavioral science, and an average of three years of health care experience.¹⁶ The master's-level programs, based on the physician education model, average 27 months, including 12 months of didactic education and 15 months of clinical rotations.¹⁷ In some interdisciplinary programs, PA students and medical students share classes, facilities, and clinical rotations. There are currently 154 accredited PA education programs; nearly a dozen are located within departments of family medicine. New York has the greatest number of PA programs (22), followed by Pennsylvania (16), California (9), and Texas (8).¹⁷

PA programs are accredited by the independent ARC-PA, supported by AAFP, AAPA, the American Academy of Pediatrics, American College of Physicians, American College of Surgeons, American Medical Association, and the Physician Assistant Education Association. These organizations collaboratively develop standards and assess program compliance. ARC-PA is the sole agency responsible for accrediting PA programs in the United States.

Certification and Licensure

To begin practicing, a PA program graduate must pass the Physician Assistant National Certifying Exam, administered by the NCCPA, and obtain an individual license from a state medical, osteopathic, or PA licensing board. All 50 states, the District of Columbia, and the majority of U.S. territories have enacted laws regulating PA practice. All licensing jurisdictions except the U.S. Virgin Islands allow physicians to delegate prescriptive authority to the PAs they supervise. To maintain certification, PAs must complete 100 Continuing Medical Education credits every two years, and pass a recertification exam every six years.

Scope of Practice

Each PA's scope of practice is defined by the individual's education and experience, state law, facility policy, and physician delegation. The PA's scope of practice is mainly determined by the supervising physician's scope of practice and his or her delegatory decisions. The physician evaluates the PA's competency and performance, and together they develop a team approach

based on both the PA's and physician's clinical skills and patient needs. The physician and PA share ethical and legal responsibility for the care of a patient.

In licensed health care facilities, including hospitals, nursing homes, and surgical centers, the facilities have a role in determining the scope of practice of PAs who practice in their institutions. PAs usually are credentialed by the medical staff and authorized through privileges in a manner parallel to that used for physicians. These privileges must be consistent with state law.¹⁸

Supervision and Team Practice

The role of the family physician is one of direction and responsible supervision. AAFP guidelines on supervision recognize the diversity of practice settings, the need at times for off-site supervision, and the importance of clarity about responsibilities of individual team members and about how physician oversight will be accomplished.¹⁹

The ability to lead or participate in an integrated team is included among the competencies for both family medicine residents and PA program graduates.^{3,4} AAFP policy on integrated practice arrangements describes integrated practice as "interdependent," with various team members assuming "lead responsibility" for aspects of care based on their competencies and skills. The policy "recognizes the ... importance of an interdependent team approach to health care that is supervised by a responsible licensed physician."²⁰

The model of physician-PA practice has been described as "delegated autonomy" and compared to the relationship between attending and resident physicians. Although PAs and family physicians who spend entire careers together establish far greater depth and breadth of teamwork than can be established during the brief tenure that attending physicians and residents share, there are many similarities between the two associations. These key components include delegated autonomy, clear lines of accountability, and the reciprocal responsibilities of providing supervision and seeking consultation.

The PA and physician define the PA's role in the practice, typically through a written delegation agreement (sometimes called a "protocol") describing the types of responsibilities the PA will assume and how the physician will provide oversight. Most PAs practice fairly autonomously within their scope of responsibility, consulting with the physician whenever clinical questions exceed the PA's expertise or when physician involvement is necessary for care. As the PA gains experience and can assume greater responsibility and autonomy, periodic adjustment of the delegation agreement benefits the team and the practice.

Family physicians who supervise PAs agree to share responsibility for the care provided. This is a benefit, not a burden. Adding a PA to a practice allows the physician to focus on patient care that requires his or her full expertise. The PA autonomously performs appropriately delegated medical care. Thus, the care provided by the PA is directed and its quality is assured by the physician. The most effective physician-PA team practices provide optimal patient care by designing practice models where the skills and abilities of each team member are used most efficiently.²¹

Payment

Payment from third-party payers is typically made to the PA's employer. Medicare pays for physician services performed by PAs at 85 percent of the Physician Fee Schedule. If billed under Medicare's "incident to" or shared visit rules, services delivered by PAs are paid at the full physician rate. For Medicaid, all 50 states and the District of Columbia cover medical services provided by PAs under their Medicaid fee-for-service or Medicaid managed care programs at either the same or a slightly lower rate than that paid to physicians. Nearly all private payers cover services provided by PAs at a rate that ranges between 85 percent and 100 percent of the physician rate.

PA Roles in Family Medicine

Effective physician-PA teams improve patient access and satisfaction, increase revenues, and reduce physician workload.^{22,23} In family medicine practices, PAs perform physical examinations, diagnose and treat illnesses and injuries, order and interpret lab tests, prescribe medications, manage patients with chronic conditions, perform minor surgical procedures, provide patient education, make hospital or nursing home rounds, provide home visits, and take call.²⁴ Of the 19,000 PAs in family medicine, 54 percent work in physician solo or group practices and 23 percent work in federally certified rural health clinics, federally qualified health centers, or other community health centers. The rest work in settings such as, hospitals, HMOs, correctional systems, home health agencies, and long-term care facilities.²⁵

PAs enhance care coordination. PAs are responsible for the day-to-day care of patients, consulting with their supervising physicians for cases requiring more advanced medical knowledge. In many family medicine practices, the presence of PAs allows patients to be seen promptly, knowing that any routine problems will be handled effectively and that the expertise of the physician is available when needed. In some practices, PAs with expertise in a certain area of practice – for instance, adolescent gynecology, wound care, or diabetic counseling – may be the designated clinician for patients with that condition. For example, a large group practice that tapped PAs to spend nearly all of their time on planned visits for patients with chronic conditions in poor clinical control saw dramatic improvement in composite screening and outcomes scores in the patients they managed.²⁶ In a community health center with more than two dozen physicians, PAs, and nurse practitioners, the physicians take hospital calls and deliver babies, so are not always in clinic. Each clinician has his or her own panel of 1,200 to 1,500 patients,²⁷ enabling same-day access, dropping the no-show rate, and increasing productivity.²⁷

Patients are happy with care provided by PAs. Survey responses from Medicare patients indicate that they were generally satisfied with their medical care and did not distinguish preferences based on type of provider.²⁸ Similarly, a study of patient satisfaction in a large managed care organization found that patients were as satisfied with care provided by PAs as they were with care provided by physicians.²²

Practices find that PAs are cost-effective. A California HealthCare Foundation (CHCF) look at specialty practices across the United States found that the practices reported being financially stable in large part because of the integration of PAs and nurse practitioners (NPs). The study also found that in many practices, the increased patient volume was divided: PAs and NPs saw

routine follow-up patients, and physicians saw more acute, complex cases that tended to be paid at higher rates.²⁹ The Medical Group Management Association reports for every dollar of collected professional charges that a PA generated for a primary care practice in 2009, the employer paid on average 36 cents compensation to the PA.³⁰

Studies identify high-quality care with physician-PA teams. The CHCF team also found “maintenance or improvement in quality of care” where PAs or NPs were employed.²⁹ Four studies found that effective utilization of physician-PA teams reduced hospitalizations among nursing home residents.^{31,32,33,34} A study of HIV care provided by PAs and NP HIV experts found the quality was similar to that of physician HIV experts and generally better than that of physicians who were not HIV experts.³⁵

The physician-PA team is effective because of the similarities in physician and PA education, the PA profession’s commitment to supervised practice, and the efficiencies created by utilizing the strengths of each professional in the clinical practice setting. The Pew Health Commission, as far back as 1998, recognized the value of the physician-PA team approach: “The traditional relationship between PAs and physicians, the hallmarks of which are frequent consultation, referral and review of PA practice by the supervising physician, is one of the strengths of the PA profession. The characteristics of this relationship are also considered to be the elements of professional relationships in any well-designed health system.”³⁶

PA Roles in the Patient-Centered Medical Home

The patient-centered medical home is a model of practice based upon providing comprehensive primary care using a team-based approach. In the patient-centered medical home model, each patient has a relationship with a primary provider who manages care for that patient. Care is provided by an integrated team of professionals and support staff. With physician oversight, each team collectively takes responsibility for the ongoing care of a patient. The team member assuming lead responsibility for various aspects of patient care is determined by matching individuals’ competencies and skills with patient needs. Ideally, each member of a team practices to the highest level of his or her education, knowledge, skills, and abilities.

Since PA education is rooted in providing team-based care, PAs are particularly suited to the patient-centered medical home. As key members of the team, PAs can help to ensure continuity, comprehensiveness, and coordination of care, working with family physicians and other health care professionals.

Examples of PA roles in medical home practices illustrate the flexibility of the physician-PA team:

- In a small family practice in Maine, with one physician and one PA, each has his own panel of patients, and each manages urgent care and chronic disease patients, covering for one another as needed to maintain their open access schedule.
- A PA in family medicine manages a clinic in rural upstate New York. The community owns the clinic and employs the PA and a supervising physician. The PA is the primary provider and patient care team leader in the clinic. The supervising physician, who runs a family

practice in the next town, provides oversight, is available to the PA by phone, and stops in several times a week. This PA's practice is recognized as a patient-centered medical home in one of the state's pilot programs.

- In a larger practice near Albany, New York, a PA spends about half her day seeing her own panel of assigned patients and about half her day on acute same-day patients, helping to limit patient waiting time.
- A large Wisconsin health system has organized its primary care physicians and PAs into teams of 2-3 physicians and 1-2 PAs, placing each team or "pod" into its own hallway, and using one particularly high-performing physician-PA team as the model for the practice. The patients choose their primary provider but get to know all the clinicians on the team, which helps with continuity and efficiency.

Position Statements of the AAFP and AAPA

Because family physicians and PAs practice in teams providing medical care to patients, they experience many of the same professional challenges, making it an easy task to find common ground on which to develop the following policy statements.

1. AAFP and AAPA believe that family physicians and PAs working together in a team-oriented practice, such as the patient-centered medical home, is a proven model for delivering high-quality, cost-effective patient care. National and state legal, regulatory, and payment policies should recognize that PAs function as primary care providers in the patient-centered medical home as part of a multidisciplinary, physician-directed clinical team.

AAPA and AAFP support practice models, such as the patient-centered medical home, where there is joint communication and decision-making to meet the health care needs of patients. Such models require a shared commitment to achieving positive patient outcomes, a mutual understanding of each team member's roles, and effective communication.³⁷ In every practice model, all professionals should ensure that patients are given the name and title of every person who treats them. This essential part of patient care in any practice takes on even more significance in integrated practices, such as the patient-centered medical home, where team care is the norm.

According to the Institute of Medicine, enhanced infrastructures are needed to ensure effective and timely communication among patients and clinicians in order to improve the quality of patient care.³⁷ Since communication is vital to the success of every physician-PA team, better health information technology will help to support their practices, particularly those where PAs and family physicians are in separate locations. Computer networks and the use of information technology, medical linkages, and long-distance learning and consultation will provide opportunities to enhance communication about patient diagnosis and treatment. Ideally, such technology should ensure the availability of clinical information at the point of care for all providers and patients. AAFP and AAPA support the use of electronic health records as one critical element of the infrastructure needed to facilitate communication among members of an

effective health care team. The availability of such communication systems will enhance opportunities for primary care services to be delivered by integrated teams of providers.

AAPA and AAFP recognize the paucity of research about integrated practice as an opportunity to develop educational resources for each organization's members about professional roles, including delegation and supervision and use of information technology to enhance communication. Innovative models of health care delivery, such as the patient-centered medical home, could serve as examples for such educational efforts. AAFP and AAPA also advocate for research to develop effective systems of teamwork and co-management of patients among family physicians and PAs.

2. AAFP and AAPA encourage interprofessional education of medical students, family medicine residents, and PA students throughout their educational programs.

To foster interprofessional practice, the AAPA and AAFP encourage innovative education programs emphasizing the team approach in medical schools, residency programs, and PA education programs. Medical students, family medicine residents, and PA students must be adequately prepared to work as part of a health care team in order to provide optimal patient-centered care. Interprofessional education will help students and residents better understand the overlapping and complementary skills of the various fields and the importance of interprofessional teams. Communication across disciplines is also extremely important and is best learned during training.

National health care workforce policies should ensure health care providers are adequately educated to work within interprofessional teams. Efforts should focus on providing interprofessional education to both practicing and future clinicians. AAFP and AAPA support policies and funding to explore the effectiveness of interprofessional education, which could include incorporating joint coursework and clinical experience opportunities into educational curricula for medical and PA students; employing faculty from both PA schools and schools of medicine to teach PA and medical students; and offering joint continuing education programs for PAs and family physicians through both in-person and off-site learning.

3. AAPA and AAFP encourage education programs of both professions to expand family medicine rotation sites for PA students, medical students, and residents.

Family physicians often serve as preceptors for students in PA education programs. As preceptors, they become involved in the teaching process and are able to evaluate the skills and abilities of PAs. This function is beneficial to both the preceptor and the PA, as many preceptors go on to hire PAs for their practice. Due to their generalist education and comprehensive approach to care, family physicians are particularly well equipped to serve as faculty and preceptors for PA programs and such opportunities should be promoted.

4. AAPA and AAFP should continue to be represented on the accrediting and certifying bodies of the PA profession (ARC-PA and NCCPA, respectively).

AAFP and AAPA remain committed to their participation on the ARC-PA, the independent body authorized to accredit qualified PA educational programs leading to the professional credential, Physician Assistant. Both organizations cooperate with the ARC-PA as collaborating

organizations to establish, maintain, and promote appropriate standards of quality for entry-level education of PAs and to accredit educational programs that meet the minimum requirements outlined in these standards.

AAPA and AAFP also share a commitment to continue their participation on the NCCPA, the only nationally recognized certifying body for PAs in the United States. Certification by NCCPA indicates satisfactory completion of an accredited PA educational program and passage of the national certification examination. The exam is administered by NCCPA for entry into the PA profession.

5. AAFP and AAPA believe that national workforce policies should ensure adequate supplies of family physicians and PAs in family medicine to improve access to quality care and to avert anticipated shortages of primary care clinicians.

The PA and family medicine communities both are confronted with workforce issues of predicted clinician shortages and increased proportions of clinicians practicing in subspecialties. A 2008 study predicted a shortage of 35,000-44,000 adult primary care physicians by 2025.¹⁰ The latest figures from the Association of American Medical Colleges predict 45,000 too few primary physicians by 2020.³⁸ Data suggest that greater use of PAs is not expected to make up the shortfall.^{10,11,12,13}

AAPA and AAFP are concerned about the level of student interest in careers in family medicine. Fifty years ago, 50 percent of medical graduates chose primary care practice. Today 37 percent of physicians specialize in primary care. Only 30 percent of graduating medical students choose a primary care residency, a percentage that continues to drop.³⁹ Despite a recent uptick in interest seen among new PA graduates, some PA students show initial interest in primary care but decide to go into other specialties and subspecialties. As the number of family medicine practices has decreased, the opportunities for PAs to work in family medicine also have contracted. Both organizations are committed to reversing this decline and encourage workforce development to ensure that there are adequate numbers and types of health professionals to meet the needs of the population.

6. AAPA and AAFP promote flexibility in federal and state regulation so that each medical practice determines within a defined spectrum appropriate clinical roles within the medical team, physician-to-PA ratios, and supervision processes, enabling each clinician to work to the fullest extent of his or her education and expertise.

The physician-PA team is a unique model in the health care world – highly educated physicians overseeing the practice of skilled clinicians who, with a high degree of delegated autonomy, provide medical care to patients. The most effective teams are defined by family physicians and PAs at the practice level to maximize skills of the providers and meet patient needs. Flexibility in federal and state regulations enables physicians to delegate appropriate duties to PAs based on their own assessment of each PA's knowledge, skills, and abilities within their scope of practice. Physician-to-PA ratios and the supervision process should not be restricted in state or federal law. Instead, they should be determined by the physicians, PAs, and facilities involved, based on the needs of the practice and the community. Legislation may provide general boundaries within which physician-to-PA ratios may fall and other guidance for prudent practice.

References

- ¹ **American Academy of Family Physicians.** Policy statements on various areas concerning health, the delivery of medical care and in-house matters. American Academy of Family Physicians. Statements reflect changes from the 2009 Congress of Delegates. <http://www.aafp.org/online/en/home/policy/policies.html>. Accessed October 18, 2010.
- ² **American Academy of Physician Assistants.** 2010-2011 AAPA Policy Manual. July 2010. <http://www.aapa.org/about-aapa/policy-manual>. Accessed October 18, 2010.
- ³ **American Academy of Family Physicians.** Expectations of Family Medicine Residency Graduates. 2009.
- ⁴ **American Academy of Physician Assistants.** Competencies for the Physician Assistant Profession. 2010.
- ⁵ **American Academy of Family Physicians.** Definition of Family Medicine. (1986) (2010 COD).
- ⁶ **American Academy of Family Physicians.** Family Medicine, Scope and Philosophical Statement (1992) (2006).
- ⁷ **American Academy of Family Physicians.** Family Physician Workforce Reform. September Board 2009, Board Chair 1:1. February 2010.
- ⁸ **American Academy of Physician Assistants.** National Physician Assistant Census Report: Results from AAPA's 2009 Census.
- ⁹ **American Academy of Physician Assistants.** AAPA Physician Assistant Census Report. 1996.
- ¹⁰ **Colwill JM, Cultice JM, Kruse RL.** Will generalist physician supply meet demands of an increasing and aging population? *Health Aff (Millwood)*. 2008 May-Jun;27(3):w232-w241. Epub 2008 Apr 29.
- ¹¹ **Dill MJ, Salsberg ES.** Association of American Medical Colleges. The Complexities of Physician Supply and Demand: Projections through 2025. November 2008. <http://services.aamc.org/publications/showfile.cfm?file=version122.pdf>. Accessed October 18, 2010.
- ¹² **Cooper RA.** New directions for nurse practitioners and physician assistants in an era of physician shortages. *Acad Med*. 2007;82(9):827-828.
- ¹³ **Bodenheimer T, Chen E, Bennett HD.** Confronting the growing burden of chronic disease: can the U.S. health care workforce do the job? *Health Aff (Millwood)*. 2009 Jan-Feb;28(1):64-74.
- ¹⁴ **Pezzi C, et al.** The present and future use of physician extenders in general surgery training programs: one response to the 80-hour work week. *J Am Coll Surg*. 2009 Apr;208(4):587-591.
- ¹⁵ **Yoon HH.** Adapting to duty-hour limits – four years on. *N Engl J Med*. 2007 Jun 28;356(26):2668-2670.
- ¹⁶ **Physician Assistant Education Association.** Twenty-third Annual Report on Physician Assistant Educational Programs in the United States, 2006-2007.
- ¹⁷ **Physician Assistant Education Association.** Twenty-fifth Annual Report on Physician Assistant Educational Programs in the United States, 2008-2009.
- ¹⁸ **American Academy of Physician Assistants.** Issue Brief: Physician Assistants Scope of Practice. January 2010.
- ¹⁹ **American Academy of Family Physicians.** Guidelines on the Supervision of Certified Nurse Midwives, Nurse Practitioners and Physician Assistants. 1992, 2008.
- ²⁰ **American Academy of Family Physicians.** Integrated Practice Arrangements. 1996, 2004.
- ²¹ **American Academy of Physician Assistants.** Issue Brief: Supervision of Physician Assistants: Access and Excellence in Patient Care. January 2010.
- ²² **Roblin DW, et al.** Patient satisfaction with primary care: does type of practitioner matter? *Med Care*. 2004;42(6):579-590.
- ²³ **Roblin DW, et al.** Use of midlevel practitioners to achieve labor cost savings in the primary care practice of an MCO. *Health Serv Res*. 2004 June;39(3):607-626.
- ²⁴ **American Academy of Physician Assistants.** Issue Brief: Physician Assistants in Primary Care. January 2010.

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- ²⁵ **American Academy of Physician Assistants.** National Physician Assistant Census Report: Results from AAPA's 2008 Census.
- ²⁶ **Bodenheimer T.** Building Teams in Primary Care: 15 Case Studies. California HealthCare Foundation; 2007:36-40.
- ²⁷ **Bodenheimer T.** Building Teams in Primary Care: 15 Case Studies. California HealthCare Foundation; 2007:9-11.
- ²⁸ **Hooker RS, Cipher DJ, Sekscenski E.** Patient satisfaction with physician assistant, nurse practitioner, and physician care: A national survey of Medicare beneficiaries. *J Clin Outcomes Manag.* 2005;12(2):88-92.
- ²⁹ **Dower C, Christian S.** *Physician Assistants and Nurse Practitioners in Specialty Care: Six Practices Make It Work.* San Francisco, CA: Center for the Health Professions, University of California, San Francisco; June 2009.
- ³⁰ **Medical Group Management Association.** *Physician Compensation and Production Survey: 2010 Report Based on 2009 Data.* July 2010.
- ³¹ **Ackerman RJ, Kemle KA.** The effect of a physician assistant on the hospitalization of nursing home residents. *J Am Geriatr Soc.* 1998 May;46(5):610-614.
- ³² **Intrator O, Zinn J, Mor V.** Nursing home characteristics and potentially preventable hospitalizations of long-stay residents. *J Am Geriatr Soc.* 2004 Oct;52(10):1730-1736.
- ³³ **Ouslander, JG, et al.** Potentially avoidable hospitalizations of nursing home residents: frequency, causes, and costs. *J Am Geriatr Soc.* 2010;58(4):627-635.
- ³⁴ **Phillips VL, et al.** Health care utilization by old-old long-term care facility residents: how do Medicare fee-for-service and capitation rates compare? *J Am Geriatr Soc.* 2000;48(10):1330-1336.
- ³⁵ **Wilson IB, et al.** Quality of HIV care provided by nurse practitioners, physician assistants, and physicians. *Ann Intern Med.* 2005;143(10):729-736.
- ³⁶ **Pew Health Professions Commission.** *Charting a Course for the Twenty-First Century – Physician Assistants and Managed Care.* San Francisco, CA: Center for the Health Professions, University of California, San Francisco; 1998.
- ³⁷ **Institute of Medicine.** *Crossing the Quality Chasm: A New Health System for the 21st Century.* Washington, DC: National Academy Press; 2001.
- ³⁸ **Association of American Medical Colleges.** Physician Shortages to Worsen without Increases in Residency Training. <http://www.aamc.org/newsroom/presskits/mdShortage1.pdf>. Accessed October 20, 2010.
- ³⁹ **Macy Foundation.** Developing a Strong Primary Care Workforce. Meeting Summary, 2009.