

Physician Assistant and Nurse Practitioner Roles in Patient-Centered Medical Homes

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I. Executive Summary/Key Findings

Team-based care involving physician assistants (PAs) and nurse practitioners (NPs) is one recommended strategy for improving access and quality and reducing cost in the patient-centered medical home (PCMH). PAs and NPs can, and do, perform a variety of roles on primary care teams. This suggests that there is plasticity within the professions and between PAs, NPs, and physicians.

Primary care PA and NP clinical roles can be defined by the approach to care distribution between PA or NP and the collaborating physician. When PAs and NPs provide the majority of primary care and perform all of the functions of primary care for a group of patients in a manner similar to physicians, they are acting as a primary provider of care. When PAs and NPs provide only a subset of the functions of primary care, such as providing same-day acute care visits only, they are acting as a supplemental provider.

While some studies have described PA and NP roles within a given PCMH, it is unclear the extent to which different PA and NP roles are being implemented in PCMHs nation-wide. This project aims to describe PA and NP roles currently implemented in primary care practices participating in public and/or commercial PCMH programs, and to assess primary care PA and NP perceptions of role changes due to PCMH implementation.

CONCLUSIONS AND IMPLICATIONS FOR POLICY

- 1) The finding that PAs and NPs perform different patterns of clinical tasks in primary versus supplemental provider roles may be useful for workforce modeling of the task substitution potential of PAs and NPs.**
- 2) PCMH PA and NP roles seem to be well suited to current training, but since PAs and NPs report not maximally using their training up to 30% of the time, team modifications and training that promote task delegation by PAs and NPs to staff with less training might increase efficiency of care.**
- 3) Few PAs and NPs report performing tasks for which they are underqualified, but since these situations are potentially dangerous, provisions for back-up should be available to these PAs and NPs.**
- 4) Few PAs and NPs are spending significant time performing some newer PCMH functions such as population health management and quality improvement. Increased training in these areas may improve the likelihood of performing some of these functions.**
- 5) Additional investigation is warranted to find potential causes and solutions to the dissatisfaction reported by the PAs and NPs who did experience role changes associated with PCMH implementation.**

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With support from the National Center for Health Workforce Analysis and the Carolina Health Workforce Research Center, housed at the Cecil G. Sheps Center for Health Services Research (Sheps Center) at the University of North Carolina at Chapel Hill, we conducted a cross-sectional survey in 2015 of a sample of PAs and NPs employed in practices participating in public or commercial PCMH programs in 5 states.

Results show that a large majority of PAs and NPs in PCMHs report practicing in primary provider roles, with a small minority reporting practice in supplemental roles only. Most PAs and NPs report that their roles are well-defined and matched to their level of training. When work did not match their training, it was much more frequently work that could be done by someone with less rather than more training. PAs and NPs working in primary provider roles report different clinical task distributions than those who work in supplemental roles. For example, when acting in supplemental roles, PAs and NPs report more frequently providing acute care, but less frequently providing chronic illness and preventive care than when acting in primary provider roles. Time spent on newer tasks associated with PCMH status varies widely. Care coordination and management are performed by many PAs and NPs for at least a few hours weekly, but population health and quality improvement are less commonly reported. PCMH implementation does not appear to have resulted in clinical role changes for many PAs or NPs. However, when role changes did occur, they sometimes resulted in PA or NP dissatisfaction.

Understanding how primary care PA and NP roles are affected by PCMH implementation is essential for accurate workforce modeling, training, and policy. Developing an understanding of PA and NP tasks and roles in the PCMH model can contribute to modeling the plasticity of the primary care workforce. Determining if PA and NP roles change with PCMH implementation, if new tasks are performed, and the challenges associated with role changes (e.g., adequacy of training for new roles and tasks) can inform education and training programs for these professions. The results of this project can also assist organizations transforming to PCMHs with primary care team redesign, help state policymakers with issues related to scope of practice, and inform federal policymakers with workforce planning and financing of healthcare delivery.

II. Background

The implementation of team-based care is considered essential to addressing the fragmented and inefficient US health care system.¹ Team-based care involving physician assistants (PAs) and nurse practitioners (NPs) is one recommended strategy for improving access, quality, and cost of care in the patient-centered medical home (PCMH).² PAs and NPs can, and do, perform a variety of roles on primary care teams.³ Primary care PA and NP clinical roles can be defined by the approach to care distribution between clinicians on the team, including PAs, NPs, and physicians. Historically, the role of PA/NPs has been classified into two categories reflecting the level of PA and NP involvement and the division of responsibilities between the PA or NP and the collaborating physician: primary provider of care and supplemental provider of care.⁴⁻⁶ When PAs and NPs provide the majority of primary care and perform all of the functions of primary care for a group of patients in a manner similar to physicians, they are acting as a primary provider of care. When PA/NPs provide only a subset of the functions of primary care, such as providing same-day acute care visits only, they are acting as a supplemental provider. These roles either supplement, or substitute for physicians to varying degrees and are associated with different patterns of outcomes.^{3,7} This suggests there is plasticity, or the capacity to shift primary care tasks, within the professions and between PAs, NPs and physicians.⁸ While some studies have described PA and NP roles within a given PCMH, it is unclear the extent to which each potential role is being implemented in PCMHs nation-wide.^{3,9}

Since PCMHs emphasize access and quality of care, new functions such as population health management and care coordination may alter the roles of PAs and NPs on primary care teams. To participate in public and commercial PCMH programs, practices must meet certain standards, including enhanced access, care coordination and performance improvement.¹⁰ Meeting these standards can expand tasks such as care management (e.g., patient education and coaching), care coordination, population health, and quality improvement. Adding these new functions may significantly shift tasks between team members, resulting in new or different roles for PAs and NPs.¹¹⁻¹³

Understanding how primary care PA and NP roles are affected by PCMH implementation is essential for accurate workforce modeling, training, and policy. Developing an understanding of PA and NP tasks and roles in the PCMH model can contribute to modeling the plasticity of the primary care workforce. Determining if PA and NP roles change with PCMH implementation, if new tasks are performed, and the challenges associated with role changes (e.g., adequacy of training for new roles and tasks) can inform education and training programs for these professions. The results of this project can also assist organizations transforming to PCMHs with primary care team redesign, help state policymakers with issues related to scope of practice, and inform federal policymakers with workforce planning and financing of healthcare delivery.

This research brief: 1) describes PA and NP roles currently implemented in primary care practices participating in public and commercial PCMH programs in 5 states; and 2) assesses primary care PA and NP perceptions of role changes due to PCMH implementation.

III. Methods

Sample

Using the following sampling scheme, we ultimately selected 5 states to serve as our primary sampling frame: first, we excluded states that are listed by the Patient-Centered Primary Care Collaborative (PCPCC) as having non-significant PCMH activity. From the remaining states, we selected states in each Census region (West, South, Midwest, Northeast). Our aim was to produce a final sample that expressed variation in state legislation and regulation related to PCMHs as well as variation in the existence of PCMH demonstration programs, population characteristics, Medicaid spending and expansion, and health professional workforce supply. The 14 states meeting these criteria were: Arkansas, California, Idaho, Kentucky, Maine, Michigan, Minnesota, North Carolina, Nebraska, New Jersey, Nevada, Oregon, Pennsylvania, and Texas (See Appendix for details). The five states selected for this study were Maine, Michigan, Arkansas, Idaho, and Oregon.

A survey was piloted then mailed to 1,450 PAs and NPs working in primary care practices participating in public or commercial PCMH programs in the selected states. PAs and NPs were identified by the research team using the Patient-Centered Primary Care Collaborate website (<https://www.pcpcc.org>). This is a publically available resource that lists public and commercial PCMH programs in each state. Provider information was found either on the PCMH program website, or obtained from the clinic website. The response rate to the survey was 15.9% (N=230).

Survey Tool

Respondents were given the option to complete the anonymous survey in paper or electronic format. Initial and follow-up surveys were sent to all PAs and NPs in the sample in an attempt to improve response rates. The survey instrument contained a mix of categorical and open-ended questions. Questions assessing PA and NP clinical roles were based on a previously developed conceptualization of primary care PA and NP roles, which posits that clinical roles are defined by the level of involvement (primary care vs. supplemental provider), types of services provided (chronic disease care, acute care, preventive care, etc.), and the complexity of patients served.⁷ Additional survey items assessed the performance of new tasks associated with PCMH designation, such as population health management, care management, care coordination, and performance improvement. The presence of a role change was assessed with a single binary question. Qualitative and quantitative features of PA and NP role change (type and magnitude) and challenges associated with those role changes, such as adequacy of training, were assessed with categorical and open-ended questions. Information on each PA or NP was also collected, including profession, gender, level and type of training, years of experience, years with the practice, and panel size. Items also assessed clinic characteristics, such as geographic location, specialty of the clinic, clinic size, and descriptions of the patient population.

Analysis

Descriptive statistics including means and percentages were calculated to describe clinic and PA and NP characteristics and current PA and NP roles. Role and task changes involved multiple analyses. For categorical and binary variables, such as the indicator variable for role change, descriptive statistics such as means and percentages were calculated. Responses to open-ended

questions assessing PA and NP perceptions of role and task changes were qualitatively analyzed to identify themes in responses.¹⁴

IV. Results

The respondents were 82% female with 61% reporting their profession as NP and 38% reporting to be PAs. The majority of the respondents reported they were Master's-trained with a mean of 11 years since graduation, but a mean time of less than 3 years with their current clinic. (**Table 1**). The majority of respondents reported practicing in Family Medicine clinics (71%) or in small towns (51%). Thirty-eight percent (38%) reported working in a private practice and 40% reported working for a health system. Most reported working with traditional primary care practitioners such as physicians, other PAs and NPs, and nurses but a wide range of health professionals were less frequently represented in the practices. (**Table 2**)

Table 1. PA/NP Characteristics (N=217)

Respondent Characteristics	Freq.	%	Mean	Std. Dev.	Min.	Max.
<i>Gender</i>						
Female	186	82				
Male	41	18				
<i>Profession</i>						
Physician assistant	82	38				
Nurse practitioner	132	61				
Other	3	1				
<i>Average years at this clinic</i>						
Less than 1 year	17	7				
1-3 year	94	41				
4-10 years	74	32				
Greater than 10 years	43	19				
<i>Highest degree - Physician Assistants</i>						
PhD	1	1				
Master's degree	47	57				
Other degree (includes PA-C)	34	41				
<i>Highest degree - Nurse Practitioners</i>						
PhD	2	2				
Clinical doctorate (DNP)	13	10				
Master's degree	124	94				
Other degree	4	3				
Average years since graduation			11	9	1	40
Average number of hours worked per week			40	15	5	200

Table 2. Clinic Characteristics (N=203)

Clinic Characteristics	Frequency	Percent
<i>State where clinic is located</i>		
Arkansas	23	10
Idaho	17	8
Maine	76	34
Michigan	39	17
Oregon	70	31
<i>Location type</i>		
Rural	38	17
Small Town	113	51
Suburban	25	11
Urban	47	21
<i>Clinic type</i>		
Private practice	78	38
Part of a hospital system or other health system	82	40
Community health center	35	17
Free clinic	0	0
School-based clinic	0	0
Other	8	4
<i>Clinic Specialty</i>		
Family Medicine	151	70
General internal medicine	23	11
General pediatrics	18	8
General geriatrics	0	0
Other	23	11
<i>Percent of clinics with at least one...</i>		
Physician	209	91
Medical assistant	198	86
Nurse practitioner	184	80
Nurse (excluding NPs)	177	77
Physician assistant	138	60
Social worker	92	40
Pharmacist	44	19
Health educator	41	18
Nutritionist	37	16
Other type of worker	37	16
Community health worker	32	14
Psychologist	28	12
Psychiatrists	25	11
Physical therapist	21	9
Dentist	18	8
Occupational therapist	5	2
Public health worker	2	1

Primary Care PA and NP Roles

More than 90% of respondents report their roles are well defined. **(Table 3)** Seventy-three percent report acting in a primary care role for an average panel size of 930 patients (SD=770). Only 27% of respondents report practicing in a purely supplemental role. PAs and NPs report between one-third and two-thirds of their patients are social or medically complex. **(Table 4)** Approximately two-thirds of respondents report that greater than 75% of their work is well matched to their training. Similarly, 81% report they do not have adequate training for less than 5% of the work they perform, but most also report at least a small portion of their work could be performed by someone with less training (44% report <5% of tasks and 43% report 6-24% of tasks). **(Table 5)**

Table 3. PA and NP Reported Clinical Roles (N=228)

PA & NP Role	Very clearly defined	Somewhat clearly defined	Neither clear nor ambiguous	Somewhat ambiguous	Very ambiguous
PCP only (N=3)	100	0	0	0	0
PCP and supplemental provider (N=163)	73	22	4	1	0
Supplemental provider only (N=62)	58	31	2	10	0

PCP=primary care provider

Table 4. Percent of patients that are medically or socially complex, by provider role type (PCP Role N=160; supplemental provider N=135)

PA & NP Role	PCP Role Patients		Supplemental Role Patients	
	% Medically Complex	% Socially Complex	% Medically Complex	% Socially Complex
PCP and supplemental provider	63%	56%	34%	33%
Supplemental provider only	N/A	N/A	51%	42%

Table 5. Perception of Amount of Work Matching Training (N=230)

Percentage of respondents saying X percentage of their work is:	<5%	6-24%	25-49%	50-74%	>75%
Work that could be done by someone with less training	44	43	9	3	0
Work for which you do not have enough training	81	16	2	1	0
Work that is well-matched to your training	1	1	6	24	67

Tasks Performed in Primary (PCP) versus Supplemental Provider Roles

A wide range of clinical tasks are performed by PAs and NPs in different roles, but different patterns of service delivery exist by role. Forty-seven percent (47%) of PAs and NPs report they perform chronic illness care in more than 50% of their visits when acting as primary care providers, but only 12% report similar chronic illness care when acting as supplemental providers. (Table 6) Similarly, 16% of PAs and NPs in primary provider roles report they provide preventive care in greater than 50% of their visits, compared to 6% when acting as supplemental providers. In contrast, 8% of PAs and NPs in primary provider roles report they provide acute care in greater than 50% of their visits, compared to 37% when acting as supplemental providers. Many respondents report performing care coordination (89%), care management (79%), transitional care (73%) and quality improvement (53%) at least 1 hour per week. However, only 35% report performing population health management tasks. (Table 7)

Table 6. Percentage of PA/NPs Reporting Delivery of Primary Care Service Types by Role During Visit (in PCP role N=168; In supplemental provider role N=228)

Primary Care Service Type	In Role as Primary Care Provider					In Role as Supplemental Provider				
	0%	1-25%	26-50%	51-75%	>75%	0%	1-25%	26-50%	51-75%	>75%
Acute care	2	52	38	6	2	8	30	25	20	17
Chronic Illness Care	2	19	34	34	11	17	55	16	9	3
Preventive care	4	45	35	14	2	27	48	19	5	1
Mental health care	2	55	26	14	4	21	59	12	5	2
Behavioral health care	10	48	25	11	6	32	53	9	5	2
Pregnancy	80	19	1	0	0	89	10	0	1	0
Post-hospital care	10	76	10	4	1	33	59	5	3	0
Other services	95	2	1	0	2	91	4	1	1	3

Table 7. Additional PCMH Tasks (N=225)

Percentage of respondents spending X hours p/week engaged in each task	0 hrs	1-5 hrs	6-10 hrs	11-15 hrs	16-20 hrs	>20 hrs
Population health management	64.89	31.11	3.11	0	0	0.89
Quality improvement projects	44.39	52.91	2.24	0	0.45	0
Care coordination	10.67	71.11	11.11	2.22	0.89	4
Care management	20.63	64.57	6.73	2.24	2.24	3.59
Supervisory tasks	56.44	32.89	5.33	1.78	1.78	1.78
Transitional care	26.58	59.91	9.46	2.25	0.45	1.35
Teaching	24.32	31.53	24.32	8.11	4.95	6.76

Role Changes

Role switching associated with PCMH implementation was infrequently reported by respondents and occurred for a variety of reasons. **(Table 8)** Seventeen percent of respondents (n=39) report their role has changed since PCMH implementation. For those reporting a role change, increases in administrative paperwork and electronic medical record (EMR) work were most frequently reported (38%). Reports of increases in new tasks related to PCMH implementation were also common, including care coordination and transitions (11%), population health activities (5%) and quality improvement (8%). A smaller number of respondents reported structural changes in their role. Some reported they were moved from a primary provider role to a supplemental role (8%), now acted as a member of a team (8%), or had increased leadership roles (5%). Of the nine respondents who volunteered their attitude towards the changes, most were dissatisfied (n=8).

Table 8. Role Changes: themes from responses to open-ended question about role change after PCMH implementation (N=39)

Provider role change after PCMH implementation	Frequency	Percent
Respondents who answered "yes" their role changed	39	17
<i>Type of role change</i>		
More paperwork/EMR entry	14	38
More care transition and coordination	4	11
Scheduling changes	4	11
Can't see as many patients	4	11
More quality improvement activities	3	8
No longer a PCP/switched to a support role	3	8
Work as part of a team	3	8
More/different meetings	2	5
Population health involvement	2	5
Develop more detailed care plans		3
More leadership	1	3
More stress	1	3
More standardized care	1	3
More involvement with patient's families	1	3
More access to services	1	3
<i>Response to role change</i>		
Dissatisfied	8	22
Satisfied	1	3

V. Discussion

The PCMH approach relies heavily on team-based delivery of primary care.^{10, 15} Increasing the incorporation of NPs and PAs into teams has been suggested as one approach to implementing PCMHs. Given that implementing a PCMH also requires completing new tasks, such as population health management and quality improvement, it has been unclear how the roles of PAs and NPs have evolved to address these new functions. The results of this study suggest that PCMH implementation has not drastically affected the roles of primary care PAs and NPs.

A large majority of NPs and PAs in PCMHs report primary care provider roles, with a minority reporting supplemental roles only. Seventy-three percent of respondents report they act as a primary care provider to an average of 930 patients. This report did not examine the reasons related to the small panel sizes reported by PAs and NPs acting as PCPs. The high proportion of PAs and NPs reporting a PCP role may be due to requirements for PCMH clinician eligibility.¹⁶ However, it may be related to the fact that many PAs and NPs perform multiple roles (i.e., PCP and supplemental), and they may perform supplemental roles for a larger proportion of patients.³ Less than one-third report their only role to be purely supplemental, such as a provider of same-day visits.

Most NPs and PAs report their roles are well-defined and matched to their level of training. When work did not match their training, it was more frequently work that could be done by someone with less training than more training. According to most respondents, if they do perform work that could be completed by someone with more or less training, it is generally less than 25% of their work time. This suggests that at least from the PA and NP perspective, their skills are efficiently used without subjecting patients to undue risk.

PAs and NPs working in a primary care roles report different clinical task distributions than those who work in supplemental roles. Most PA and NPs that report primary care provider roles responded that they perform a wide range of primary care clinical tasks, with a high proportion of visits focusing on chronic illness care, preventive care and mental health. In contrast, PA and NPs reporting supplemental roles reported a higher proportion of visits spent on acute care.

Time spent on newer tasks associated with PCMHs varies widely. Care coordination and management are performed by most PA and NPs, but population health and quality improvement are less commonly reported. This study did not examine the reasons for these differences, but several possible explanations exist. First, care coordination and management are considered one of the functions of primary care, and may have been a part of the PA and NP role even before PCMH implementation.⁴ Second, population health and quality improvement may be assigned to another team member. However, given the reported clinic staffing patterns and the fact that PA and NPs are acting as primary care providers, this explanation seems unlikely. More likely, these new functions were not part of the curriculum for currently practicing PAs and NPs who averaged of 11 years of practice in our study. Curricular focus and increased continuing education opportunities may result in more primary care PAs and NPs taking on these new PCMH tasks.

Role switching has not played a large part in PCMH implementation, but role changes often resulted in dissatisfaction. Less than 20% of respondents reported a role change with PCMH implementation. Many reported changes included the increased tasks associated with PCMH implementation, including EMR requirements, population health, and quality improvement. A small number of PA and NPs reported having roles switch from that of a primary care provider to strictly a supplemental provider. Of those that offered opinions on the change, the majority were dissatisfied. This finding would suggest that risk for PA/NP turnover within clinics considering PCMH implementation may be high, and that clinics may wish to consider consulting PA and NPs prior to altering roles.¹⁷

Limitations

Several significant limitations to this work exist. First, the low response rate increases the risk of biased results.¹⁸ Second, the survey captures the perceptions of PA and NPs, which is a subjective source of data. However, given that roles are patterns of behavior, the person performing the role is frequently a good source of information.¹⁹

VI. Implications for Policy

1. The finding that PAs and NPs perform different patterns of clinical tasks in primary provider roles than in supplemental provider roles may be useful for workforce modeling of the task substitution potential of PAs and NPs.
2. PCMH PA and NP roles seem to be well suited to current training, but since PAs and NPs report not maximally using their training up to 30% of the time, team modifications and training that promote task delegation by PAs and NPs to staff with less training might increase efficiency of care.
3. Few PAs and NPs report performing tasks for which they are underqualified, but since these situations are potentially dangerous, provisions for back-up should be available to these PAs and NPs.
4. Few PAs and NPs are spending significant time performing some newer PCMH functions such as population health management and quality improvement. Increased training in these areas may improve the likelihood of performing some of these functions.
5. Additional investigation is warranted to find potential causes and solutions to the dissatisfaction reported by the PAs and NPs who did experience role changes associated with PCMH implementation.

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Appendix: State Characteristics

	State	Census Region	MH Payments for Medicaid/Chip UNDERWAY (NASHP)*	Multi-payer initiatives*	ACA Home health planning grant*	ACA approved health home state plan amendments*	Payment aligned with national or state qualification standards*	Shared Support Teams*	Population (millions)	Uninsured (%)**	Total Medicaid Spending FY 2012 (billions)**	Overweight/Obese Adults (%)**	Poor Mental Health among adults**	Medicaid Expansion**	More PCMH-related activity**	% of counties that are PC HPSA****	% PAs in Primary care****	Primary Care physicians (# patients to 1 PC MD)***	Poor or fair health (%)***	Unemployment (%)***
Selected for surveys	Arkansas	Midwest	x	x	x		x		15	4.1	68.7	38.9	Yes	x	0.73	40.7	1586	19	7.3	
	Idaho	West	x	x	x	x	x		1.6	14	1.5	62.5	36.2	No		1	42.9	1683	15	7.1
	Maine	Northeast	x	x	x	x	x	x	1.3	10	2.4	64.2	37.3	No	x	0.94	30.3	935	13	7.3
	Michigan	Midwest	x	x			x	x	9.8	11	12.5	65.6	37.8	Yes	x	0.96	27.2	1268	14	9.1
	Oregon	West	x	x		x	x		3.9	13	4.6	61	39	Yes	x	1	35.4	1115	14	8.7
Not selected for surveys	California	West			x				38.1	15	50.2	60.3	39.1	Yes		0.98	33.8	1326	18	10.5
	Kentucky	South			x				4.3	13	2.7	66.9	38.5	Yes		0.68	31.1	1560	21	8.2
	Minnesota	Midwest	x	x	x		x	x	5.4	7	8.9	63	32.5	Yes	x	0.71	33	1116	11	5.6
	Nebraska	Midwest	x	x			x		1.8	10	1.7	65	31.8	No		0.67	39.6	1404	12	3.9
	Nevada	West			x				2.7	20	1.7	62.5	36.9	Yes		1	32.9	1742	17	11.1
	New Jersey	Northeast	x	x	x		x		8.8	12	10.4	61.6	30.2	Yes		0.67	17.8	1174	15	9.5
	North Carolina	South	x	x	x	x	x	x	9.6	16	12.3	65.8	32.1	No	x	0.87	31.8	1462	18	9.5
	Pennsylvania	Northeast	x	x			x		12.8	10	20.4	64.9	35.7	Yes	x	0.88	23.4	1244	14	7.9
	Texas	South							26	20	28.3	65.1	34.1	No		0.85	37.2	1743	18	6.8

* National Academy for State Health Policy. www.nashp.org. Accessed February 2, 2015

** Patient-Centered Primary Care Collaborative. <https://www.pcpcc.org/resource/medical-home-and-patient-centered-care-medicaid-map>. Accessed February 2, 2015.

*** County Health Rankings. 2014. Robert Wood Johnson Foundation. <http://www.countyhealthrankings.org/>.

**** Health Resources and Services Administration. Data Warehouse: HPSA Find. <http://datawarehouse.hrsa.gov/tools/analyzers/hpsafind.aspx>. Accessed February 2, 2015

***** National Commission on the Certification of Physician Assistants. 2014 Statistical Profile of Certified Physician Assistants. March 2015.