The Supply & Distribution of Physician Assistants

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Physician Assistant Education Association
October 2014

Philadelphia, PA
Aims of the Study

• **Objective:**
  1. Project the number of actively practicing PAs in the health workforce in the coming years.
  2. Utilize new and improved workforce data

• **Why?** – Health workforce planners and policymakers need to have reliable estimates of the number of PAs.
# U.S. PAs at a Glance —2013

## Physician Assistants in 2013

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed as of January 2013 (Provider 360 Database)</td>
<td>84,168</td>
</tr>
<tr>
<td>Female</td>
<td>75%</td>
</tr>
<tr>
<td>Age (mean years)</td>
<td>42</td>
</tr>
<tr>
<td>Mean age at graduation from PA program</td>
<td>29 years</td>
</tr>
<tr>
<td>Mean years in clinical practice</td>
<td>10 years</td>
</tr>
</tbody>
</table>

## Employer type (BLS 2013)

<table>
<thead>
<tr>
<th>Employer Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office of Physicians</td>
<td>50,510</td>
</tr>
<tr>
<td>General Medical and Surgical Hospitals</td>
<td>19,380</td>
</tr>
<tr>
<td>Outpatient Care Centers</td>
<td>6,040</td>
</tr>
<tr>
<td>Government employment (Federal)</td>
<td>2,410</td>
</tr>
<tr>
<td>Colleges, Universities, and Professional Schools</td>
<td>2,210</td>
</tr>
</tbody>
</table>

## Work setting (BLS 2013)

<table>
<thead>
<tr>
<th>Work Setting</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital inpatient unit</td>
<td>10%</td>
</tr>
<tr>
<td>Hospital emergency department</td>
<td>10%</td>
</tr>
<tr>
<td>Hospital outpatient unit</td>
<td>7%</td>
</tr>
<tr>
<td>Community health center</td>
<td>8%</td>
</tr>
<tr>
<td>Rural community</td>
<td>15%</td>
</tr>
</tbody>
</table>

## Primary practice specialty

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary care (family/general medicine, general internal medicine, general pediatrics)</td>
<td>34%</td>
</tr>
<tr>
<td>Surgery/surgical subspecialties</td>
<td>25%</td>
</tr>
<tr>
<td>Internal medicine subspecialties</td>
<td>11%</td>
</tr>
</tbody>
</table>

## Miscellaneous

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual wage (mean wage for more than 32-hour workweek; may include second job)</td>
<td>$98,496</td>
</tr>
<tr>
<td>Percent who report working two or more jobs (AAPA &amp; NCCPA 2013)</td>
<td>14%</td>
</tr>
<tr>
<td>Percent with two or more active state licenses (P360)</td>
<td>17%</td>
</tr>
</tbody>
</table>
The State of PA Data (2013)

- 100,000 PAs ever certified (NCCPA 2012)
- 86,500 PAs “currently certified” (NCCPA 2012)
- 84,168 “Licensed PAs” in 2013 (Provider 360 Database™)
- 181 PA programs accredited (PAEA 2013)
- 158 produced graduates in 2012
- **76** PA programs seeking accreditation (ARC PA 2013)
- The Bureau of Labor Statistics: PAs are the second-fastest-growing profession, increasing from 86,700 in 2012 to 120,000 in 2022 (6 step calculation, transparent data).
- NCCPA states that in 2018 there will be 125,000 certified PAs (Black Box projections – disclosure refused).
Forecasting the Supply of PAs

Important to establish the correct “base” number

Limitations of existing data sources on the number of PAs:
- AAPA Census (decreasing participation rate)
- NCCPA certificates (renewal every 6 years, going out to 10 years)

New Source: **Provider 360 Database™**
- Uses number of PAs with active state licenses

**84,168 Licensed in 2013**
- May be the most reliable and accurate database available

*Stock & Flow Model*
US Licensed PA Population in 2013
(N = 84,168)

Source: Hooker RS & Muchow AN, Provider 360 Database™ 2013.
Sources of Health Workforce Data

• The baseline number of PAs in active clinical practice (stock) is commercially available (e.g.,)
  – Provider 360 Database™ (OptumInsight)
  – National Center for the Analysis of Healthcare Data
  – MMS (AMA)
  – SK&A: A Cedegim Company
  – Enclarity (LexisNexis®)
  – NPI (CMS)
  – Others

• The annual supply of PAs can be estimated within reasonable limits (input) using better data than AAPA census

• The historical retirement patterns of PAs are beginning to be understood (attrition)
Input
PA graduates in 2012

- Number of accredited programs = 170
- Programs with graduates = 158
- Average graduates per program = 44
- New programs applied for accreditation or provisionally accredited in 2013 = 181
- Graduates in 2012 = 7,380 (est.)
2012 Graduates of US PA Programs

Source:
PAEA – CASPA, 2013

CASPA has matured to the point of knowing a great deal about matriculates.

With most matriculates known the missing are imputed for age and gender.

Knowing CASPA matriculates for 6 years permits developing models of age and gender.
Accreditation Applications: 75

262 by 7/1/2019
as of 8/06/14
Attrition

- **Attrition** (not functioning as a PA; departing clinical practice)
  - Death (>900 in AAPA Death Registry)
  - Retirement
  - Other

- **Critical piece of any predictive model**
  - High attrition
  - Low attrition

- **Estimating the right number is challenging because so little is known**
  - 2.9% for US PAs (may change)
  - 2.9% CDC rate for 25-75 year olds (2010)
  - Military and VA PA attrition is 9%

- **Retention is the opposite of attrition**
  - Can be a problem with certain industries (such as pilots and professors)
  - Senior members are expensive and stand in the way of succession.
Attrition Patterns: US Physicians

Source: 2006 Association of American Medical Colleges Survey plus CDC mortality rates
Career Duration of Physician Assistants

- Survey of 12,500 PAs over 55
- Survey of 4,500 PAs who were retired
- Virtually no attrition first 10 years
- Attrition patterns are identical for both men and women (p = 0.264)

J. Coombs et al, 2013
PAs per Capita by State
(2013 Location Quotient)
## Metadata

<table>
<thead>
<tr>
<th>Provider 360 Database</th>
<th>Monthly update on &gt;3 million <strong>licensed</strong> and registered health providers. Critical information for billing purposes. Data on PAs includes 20 variables and includes age, gender, location by latitude, longitude, ZIP Code, date and location of graduation, language, NPI, etc.</th>
</tr>
</thead>
</table>
| American Academy of Physician Assistants (AAPA)                                       | Surveys PA members and those with addresses  
* Maintains a “Masterfile” of PAs                                                                                                           |
| Physician Assistant Education Association (PAEA)                                      | Annually surveys all PA programs for information on characteristics, students, faculty and graduates.  
* Calculates the average number of graduates per PA program.  
* Estimates the expansion likelihood of existing programs                                                                                   |
| National Commission on the Certification of Physician Assistants (NCCPA)              | Nationally certifies all PAs who want to work clinically in the US as PAs.  
* Administers a recertification examination for PAs  
* Administers additional examinations for specialized PAs                                                                                     |
| Accreditation Review Commission on Education for the Physician Assistant (ARC PA)     | Accredits PA programs both active and in development. Evaluates capability of existing programs seeking to expand.  
* Suspends PA program accreditation.  
* All potential PA programs must work with the ARC PA (which permits estimates of new programs in development).                                |
| Central Application System for Physician Assistants (CASPA)                           | One electronic application system permits aggregated characteristics of PA applicants and matriculates including age groups and gender.                                                                |
Number of PA Programs in the Accreditation Pipeline

- Baseline number of programs as of 2012 = 170 (includes both accredited programs and provisionally accredited programs)
- 158 programs graduated students in 2012
- Mean number of students per graduating class = 44
- There will be a significant expansion of the number of institutions sponsoring PA educational programs seeking to attain ARC-PA accreditation in the coming years
- PA Program Projection:
  - 201: 181
  - 2019: 262

- Source: ARC-PA October 2014
Projecting US PA Program Growth

Number of PA Programs
## Assumptions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Key Assumptions</th>
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| New Graduates          | • Domestic students only  
                          | • Mean age remains stable at 29 years  
                          | • Percentage female remains stable at 64%                                                                                                                                 |
| Attrition from PA Activity | • Includes: retirement, illness, death, sanction, emigration, not qualified, and other reasons for leaving clinical practice: 4.5%        |
| New PA programs        | • New programs 2013 = 17  
                          | • Lag time from provisional accreditation to graduation of first class: 2.5 years  
                          | • Start up to full maturity averages 8 years                                                                                                                                 |
| Existing PA Programs   | • The mean length of a PA program remains at 28 months.  
                          | • The number of PA programs with a graduating class at the end of 2012 was 158.  
                          | • The mean number of graduates per program is 44 (steady yearly growth).                                                                                           |
Results

- Growth of the US PA supply will continue at approximately 7% annually.
- Annual attrition will be 4%±1%:
  - aging graduation cohorts of the 1970s and 1980s
  - young women are replacing older men
- 30 year clinical career span (range 10-40 years)
- 100,000 clinically active PAs will be reached by 2017.

![PA Stock by Age and Sex, 2013](image)
PA Supply Projections: 2010-2026

- 2010-2026
- 2015: 91,153
- 2020: 109,979
- 2025: 127,428
## Additional Assumptions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Assumption</th>
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</table>
| Primary Care      | • Remains stable at 34%  
• (24% of all clinically active PAs are in family medicine) |
Inhibitors of PA Expansion

• Insufficient clinical sites
• *Insufficient faculty*
• Opportunity cost of education becomes too great and qualified applications drop off
• *Professional esteem declines*
• Perceptions of market oversupply drives applicants away
Predictions

• PA education will not reach a steady state of new programs before 2020

• Contingencies:
  – Some programs may close or merge
  – Some satellite programs may become independent
  – Some programs will expand their class size

• *Average* graduation rate per program will gradually change from the current rate of 44 graduates per year to 46 per year by 2020.
Wildcards

1. Retirement trends change
   a. New Social Security adjustment changes retirement trends
   b. A large cohort of PAs who trained in the 1970-80s are retiring (and dying) in the timeframe 2012 to 2022
   c. Optimal retirement strategies permits early retirement

2. Lifestyle of 40 hour week changes
   a. Working less per week increases demand for providers (some countries have 35 hour workweeks)
   b. Longer workweek due to reconfiguring employment organizations (less workers with longer workweek saves employment costs)

3. Internal medicine concedes primary care to family medicine and nurse practitioners

4. PA education becomes specialized (reductionist model)
Projections

• As of 2014 there are ~89,000 Licensed PAs in clinical practice
• By 2020, there will be over 100,000 PAs in active clinical practice
• By 2025, assuming a 4.5 percent attrition rate, there will be about 127,000 PAs in active clinical practice

Hooker, RS, Muchow AN. Supply of Physician Assistants: 2012-2026. JAAPA 2014
Summary

• The number of PAs in active clinical practice will grow in the next ten years despite the retirement of the first large cohort of PAs

• Health policy makers can reasonably count on PAs to augment physician supply in the medical workforce

• The proportion of PAs in primary care will not increase substantially
Acknowledgements

• This research was made possible through the generous time and information supplied by:
  – The Accreditation Review Commission on Education for the Physician Assistant
  – Tony Miller & Rachel Haman at PAEA
  – James F Cawley and Christine M Everett (critical reviewers)
• The PA data was provided by Provider 360 Database™ an OptumInsight Company wholly owned by UnitedHealthcare Insurance Co
• Ashley N. Muchow is an doctoral student at Pardee RAND Graduate School of Public Policy
Projecting the Supply of Physician Assistants in the US Health Workforce

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