The Supply and Demand of Physician Assistants and Nurse Practitioners in the US

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14th Princeton Conference
Healthcare Workforce Issues of the 21st Century

May 2007

Problem: "Missing in Action"

- Continued debate about physician workforce supply and demand
- Feeble attempts to add the PA/NP supply & demand to medical workforce projections (40 years)
  - Largely a hidden workforce
  - PAs & NPs reduce shortages (Grumbach, others)
- Reasons to include PA/NPs in the equation:
  - Education time: 24-30 months
  - Education costs: ~$1,000/month per student
  - Task transfer >87% of all primary care - safely
  - 4th most satisfying career in America (>10 studies)
  - Career trajectory >30 years

Question

Will the projected supply of PA/NPs in the US be sufficient to meet the projected medical demand by 2020?

COGME
Council on Graduate Medical Education

United States Department of Health & Human Services

Approach to the Question

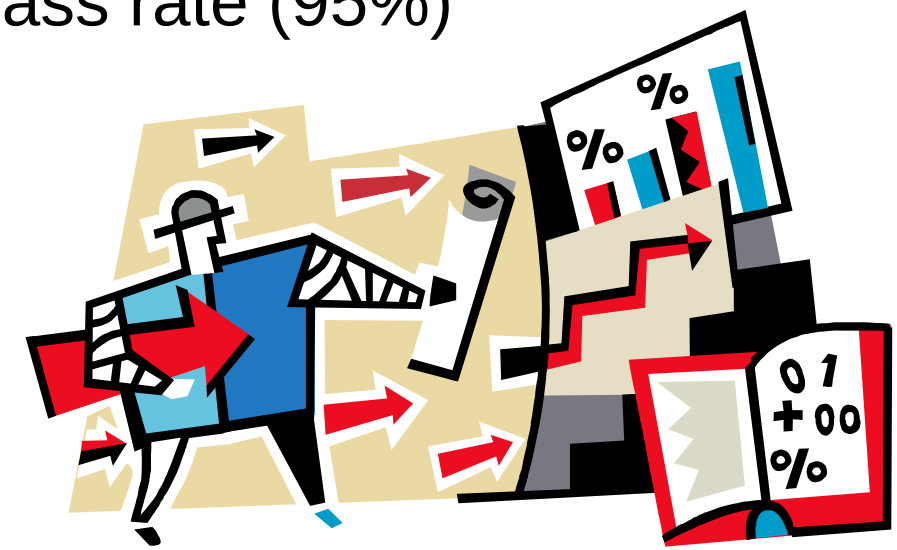
- Describe the current status of the PA/NP professions.
- Delineate a demand model (GDP and US population estimates).
- Improve the supply model (PA/NP pool, new entrants and annulments).
- Create alternative scenarios:
  - status quo
  - 10% increase
  - 25% increase

Data Sources

- American Academy of Physician Assistants (AAPA) Census Data
- American Association of Colleges of Nursing
- American Academy of Nurse Practitioners (AANP)
- US Census Bureau
- Bureau of Economic Analysis (BEA)
- Physician Assistant Education Association (PAEA)
- National Commission on the Certification of Physician Assistants (NCCPA)
- National Organization of Nurse Practitioner Faculties

Assumptions

- Supply Side
  - Retirement age (67)
  - Attrition from education programs (7%)
  - NCCPA certification pass rate (95%)



Literature Review Highlights

"Just as there are no little people or unimportant lives, there is no insignificant work."

- Elena Bonner

Physician Workforce Studies

- Flexner (1910)
- Bane (1959)
- GMENAC (1981)
- COGME (1994)
- Weiner (1994)
- Cooper (1995, 2001)
- COGME (2005)

Workforce Forecasting Approaches

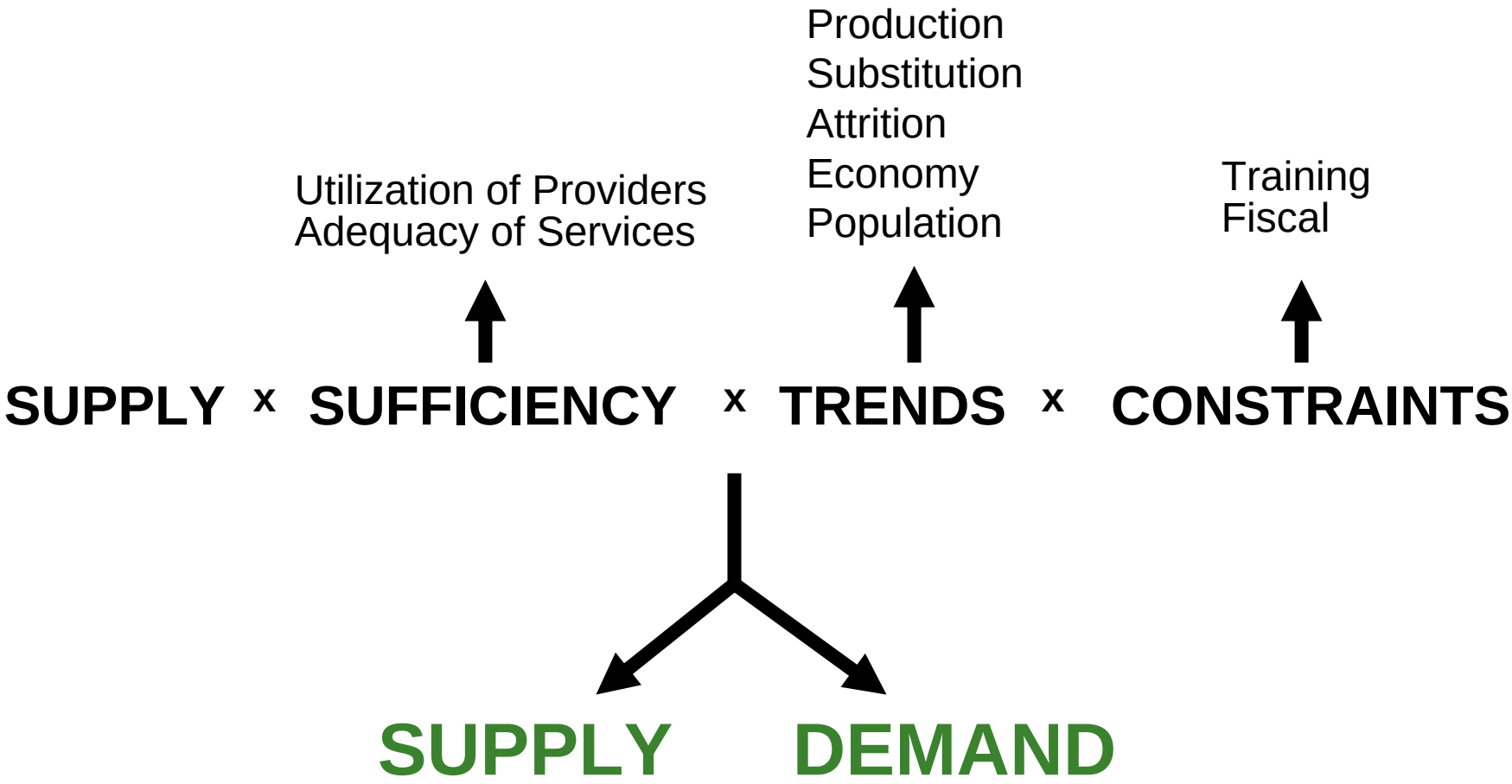
Methodologies

- Needs-based
- Utilization-based
- Benchmarking
- Econometric (trend)

Characteristics

- Substantial data needs
- “Best Practices”
- Macroanalytic approach

The Cooper Trend Model (Occam's Razor)



Sufficiency

- Utilization of PAs and NPs
  - Perry and Breitner (1982)
  - Riportella-Muller, Libby, & Kindig (1995)
  - Dial, Palsbo, Bergsten, Gabel, & Weiner (1995)
  - Anderson and Hampton (1999)
  - Hooker (2006)
- Trends
  - Cooper (2001)
  - Hooker and Berlin (2002)

Trends

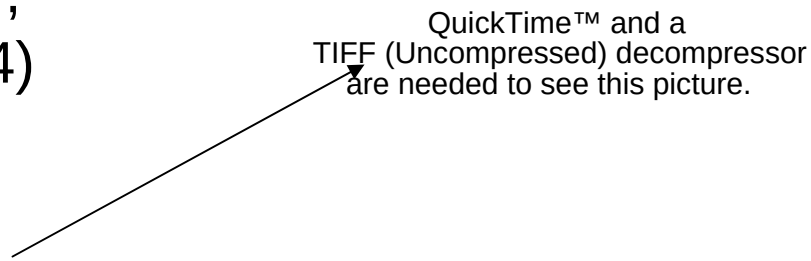
- US Economic Trends
- US Population Trends

Trends: PAs and NPs

- Productivity Trends
  - Congressional Budget Office Report (1979)
  - Record (1981)
  - OTA (1986)
  - Hooker (2002)
  - Roblin, Howard, Becker, Adams & Roberts (2004)

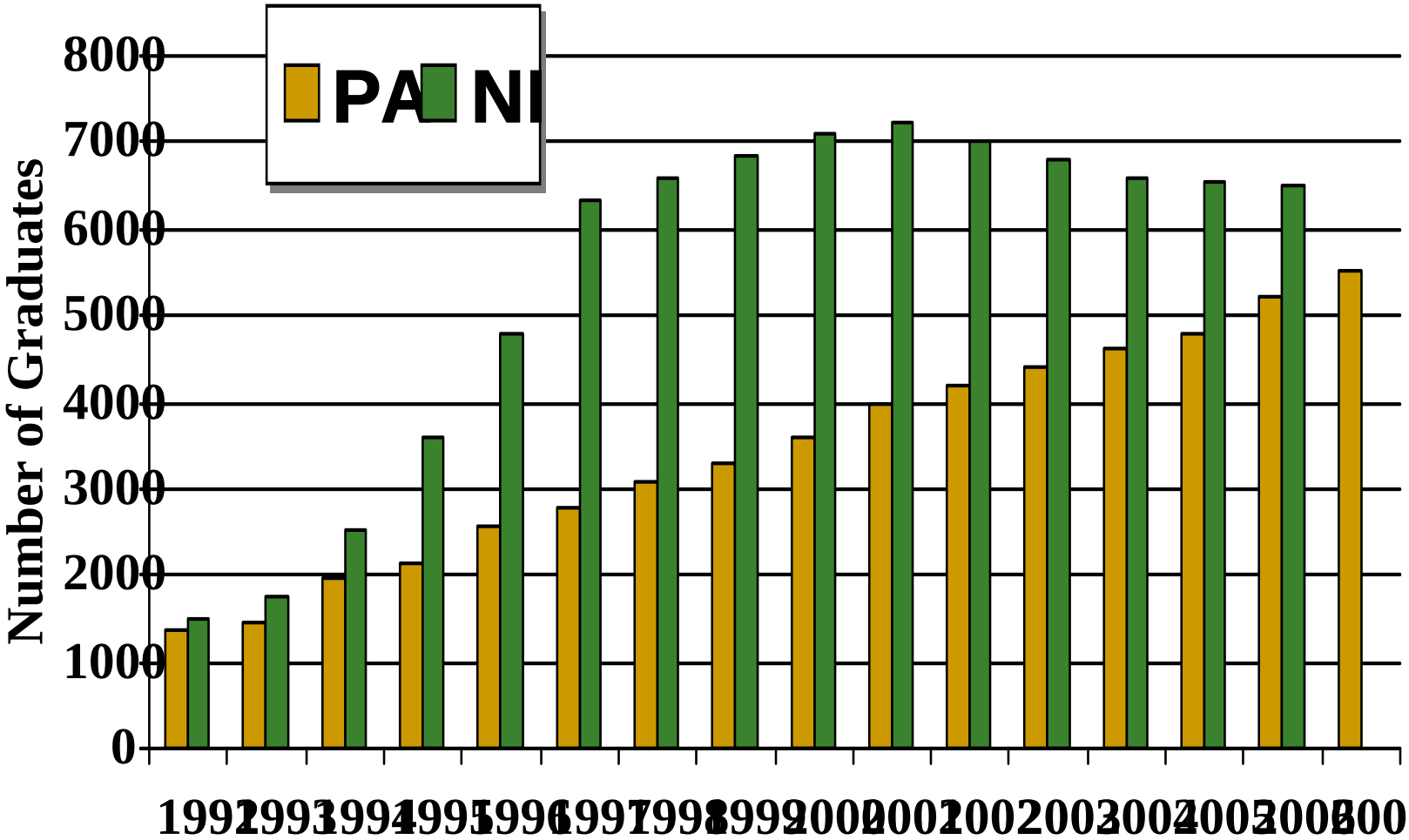
- Attrition Trends

  American Academy of Family Physicians

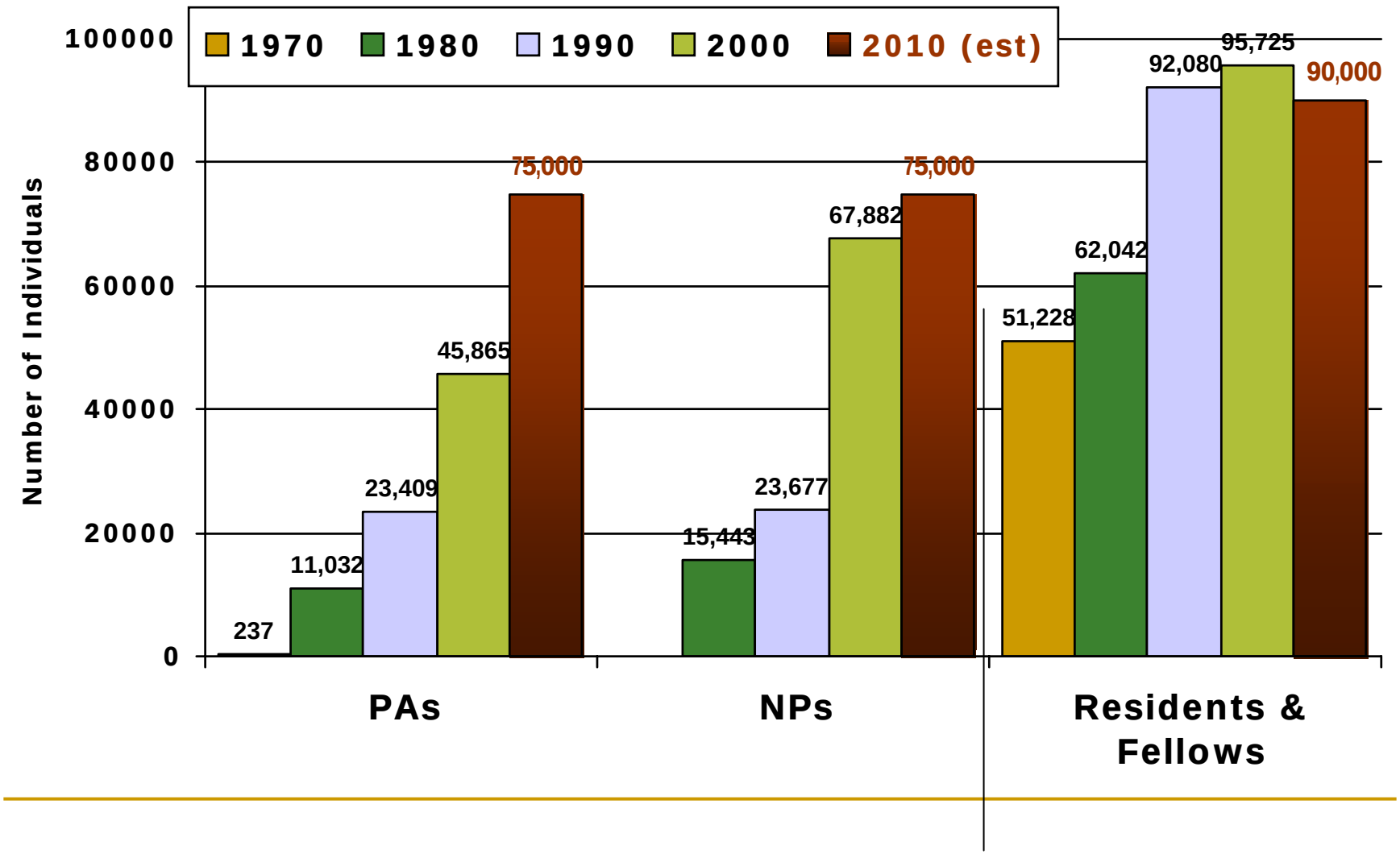


Wishful thinking?

US PA and NP Graduates Per Year (1992-2007)



Decennial Growth of US PAs, NPs [Residents & Fellows] (1970-2110)



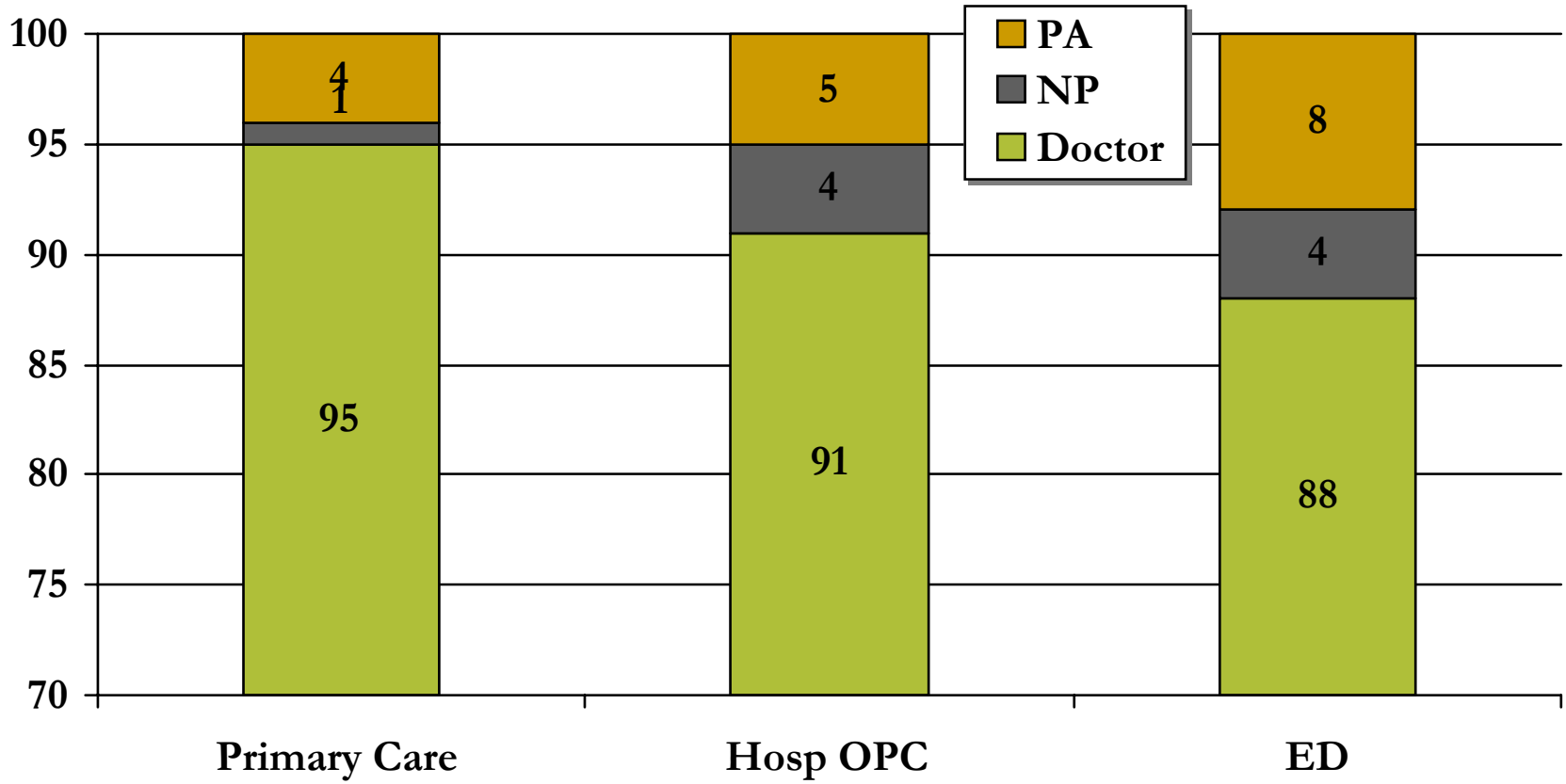
Constraints

- PA Training Factors
  - 134 active PA Programs
  - 40 graduates/program annually
  - 2006 graduates: 5,200
  - Attrition rate = 6.2%, 25 year avg = 7.5%
- NP Training Factors
  - 334 NP Programs
  - 20 graduates/program annually
  - 2006 graduates: 6,500
- Fiscal
  - Program funding sources
  - Reimbursement for PA/NP services

Comparison of household and provider surveys

Survey Component nickname	NAMCS (OBV)	NHAMCS-OPD	NHAMCS-ED	MEPS-OBV	MEPS-OPD
Survey Component Full name	National Ambulatory Medical Care Survey	National Hospital Ambulatory Medical Care Survey-hospital outpatient department	National Hospital Ambulatory Medical Care Survey-hospital emergency department	Medical Expenditure Panel Survey-Office Based provider Visits	Medical Expenditure Panel Survey, Hospital outpatient department visits
Primary sponsor	National Center for Health Statistics			Agency for Healthcare Research and Quality	
Data source	Providers			Households	
Setting	Office-based	Hospital outpatient department	Hospital emergency department	Office-based	Hospital outpatient department

Percent of PAs and NPs (Under)represented in National Outpatient Surveys

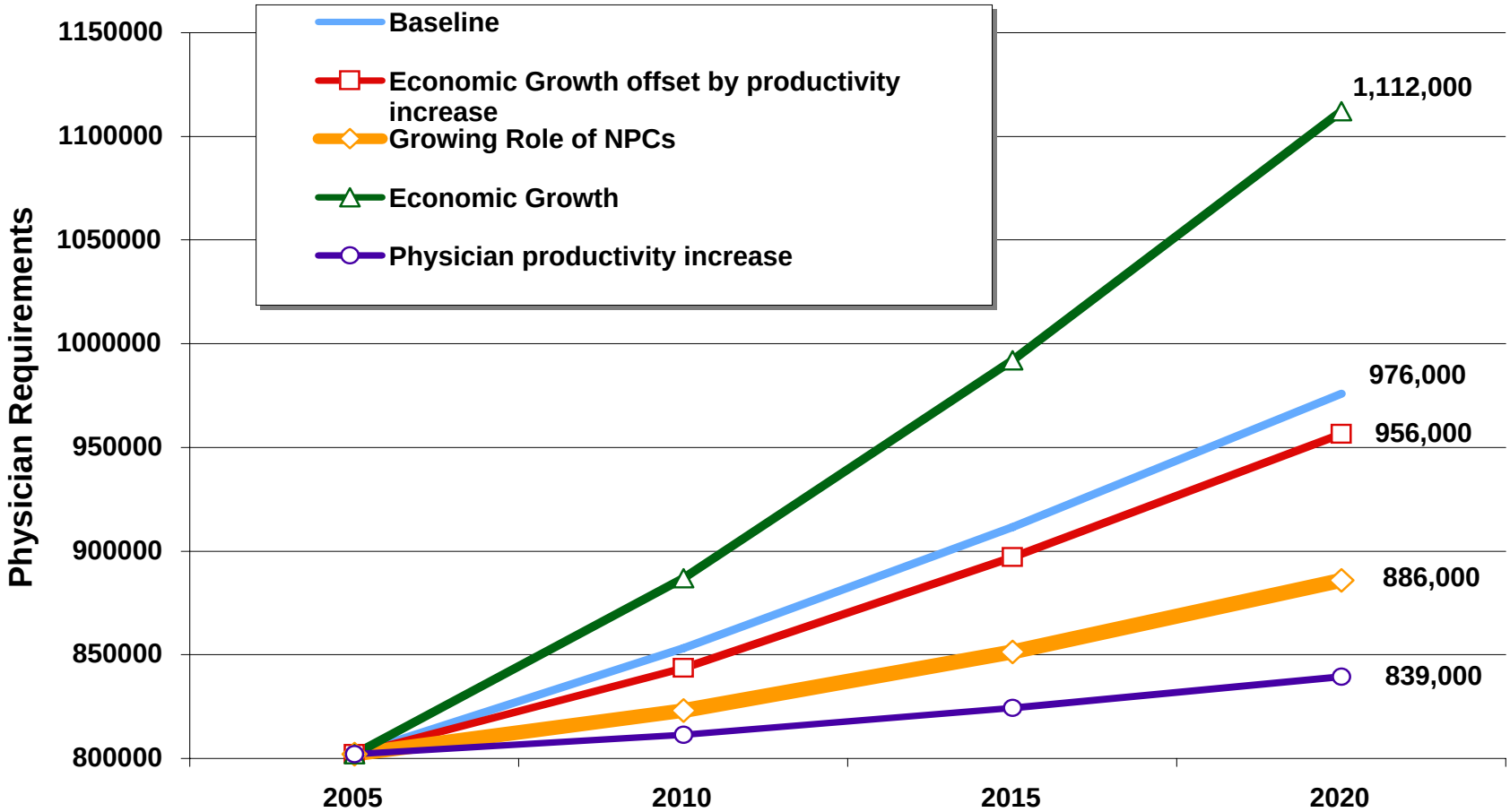


1990 – 2005: National Centers for Health Statistics

What Proportion of Patient Visits Should We Expect to be Attended by NP/PAs?

- Physician: PA ratio 10:1
- Assume that PAs see about 85% as many patients/week as physicians (75-110%)
- Prediction: PAs = 7% of all patient visits
- Databases = Physician:PA visit ratio 14:1

Projected Increases to 2020



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Objective One: Profession Status

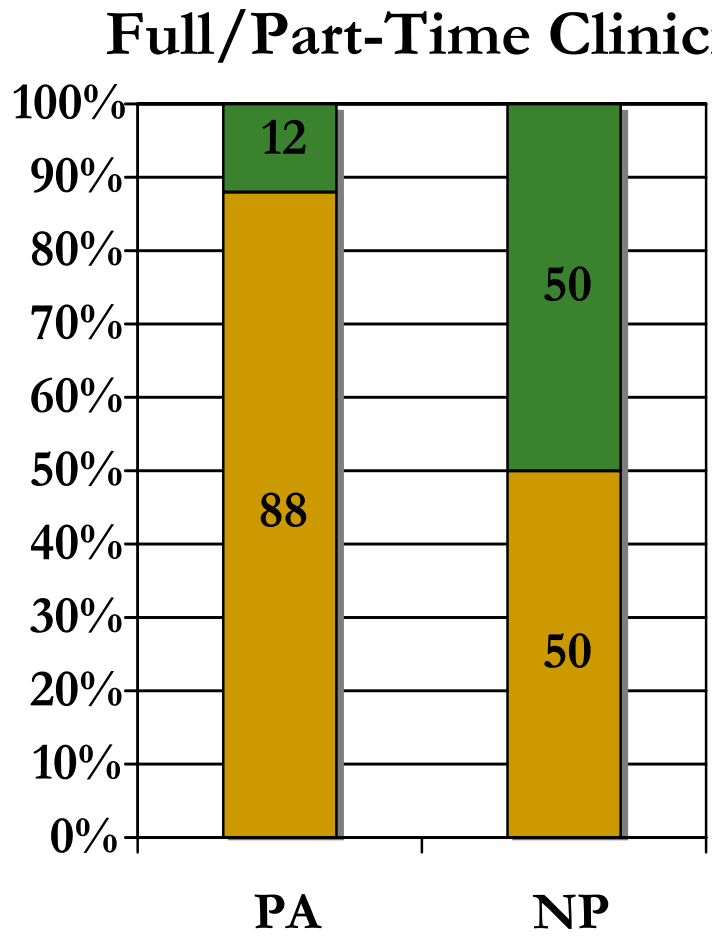
- AAPA Census Data: 1996 – 2006
- NP Census Data:
  - Gender
  - Specialty
  - Practice Setting

Objective Two: Demand Model

- Variables: NP, PA, GDP, US Population
- Model Selection
  - Autoregressive data
  - Dynamic regression (transfer function)
    - The Dynamic regression model is similar to regression analysis, but it is believed to produce more realistic results because it emphasizes the ripple effects the input variables can have on the dependent variable.
    - For example, a price change made today might effect sales volumes in a variety of ways for many periods in the future.

Objective Three: Supply Model

- Baseline:
  - Certified PAs 2006: 59,629
  - Clinically-active NPs 2006: 65,000
  - (age 22-67)
- New entrants
  - Program capacity
    - PA: 5,700
    - NP: 7,000
  - Attrition (non-graduation rate): **7%**
  - Certification Exam Pass Rate: **95%**
- Annual Annulments
  - Death
  - Retirement



Objective Four: Scenario Building

- *Status quo*
  - No growth in NP/PA capacity
  - Stability in demographics
- 10% increase
  - Growth in PAs
  - No growth NPs
- 25% increase
  - Growth PAs
  - Growth NPs

RESULTS

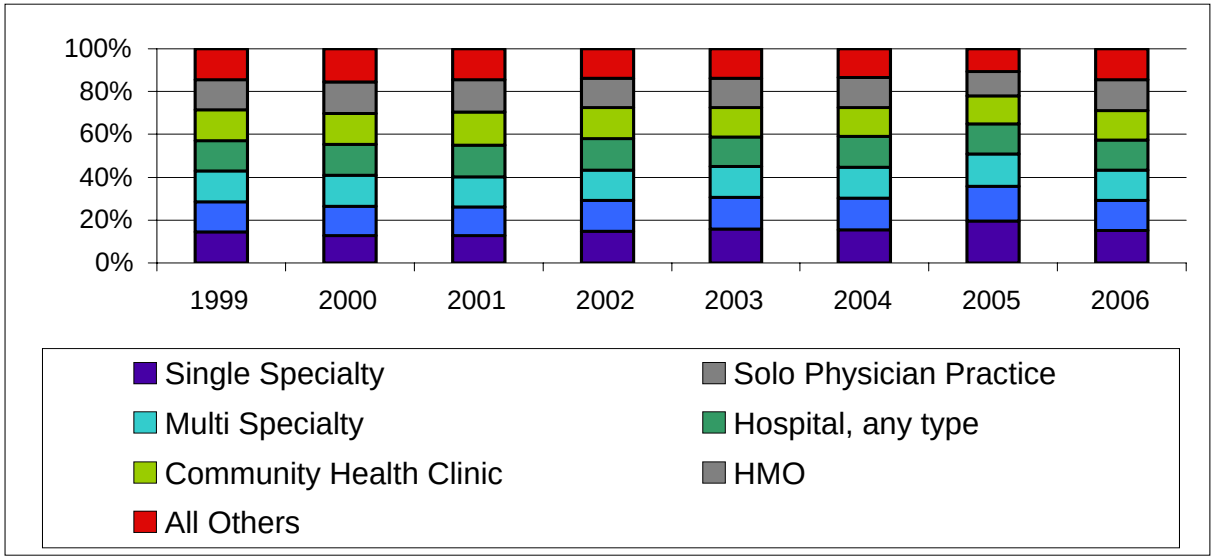
Venitia Orcutt, PhD

"Prediction is very difficult, especially about the future."

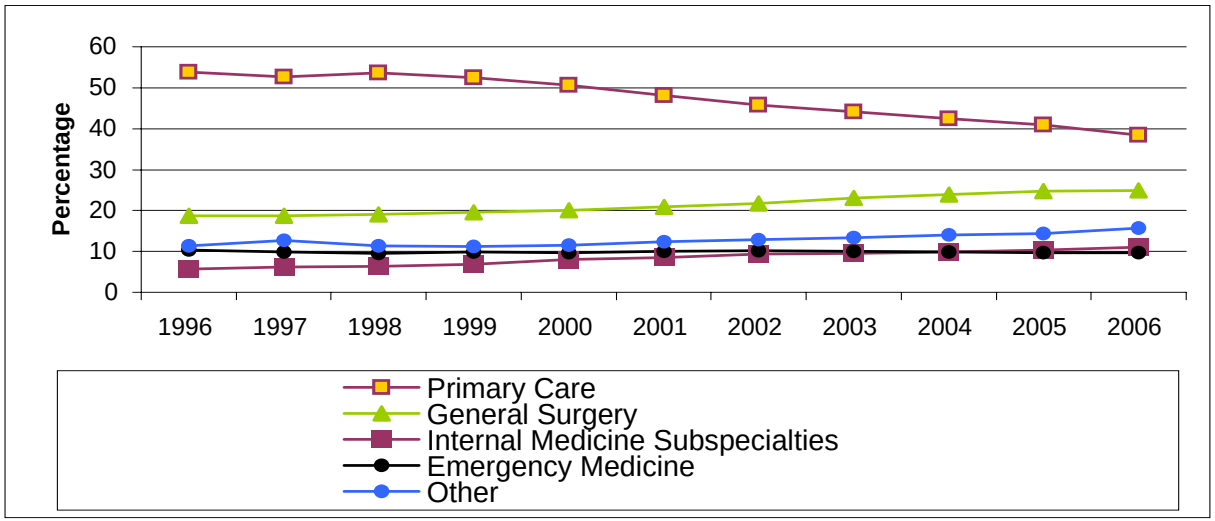
- Niels Bohr

PA Practice in the US

Practice Setting

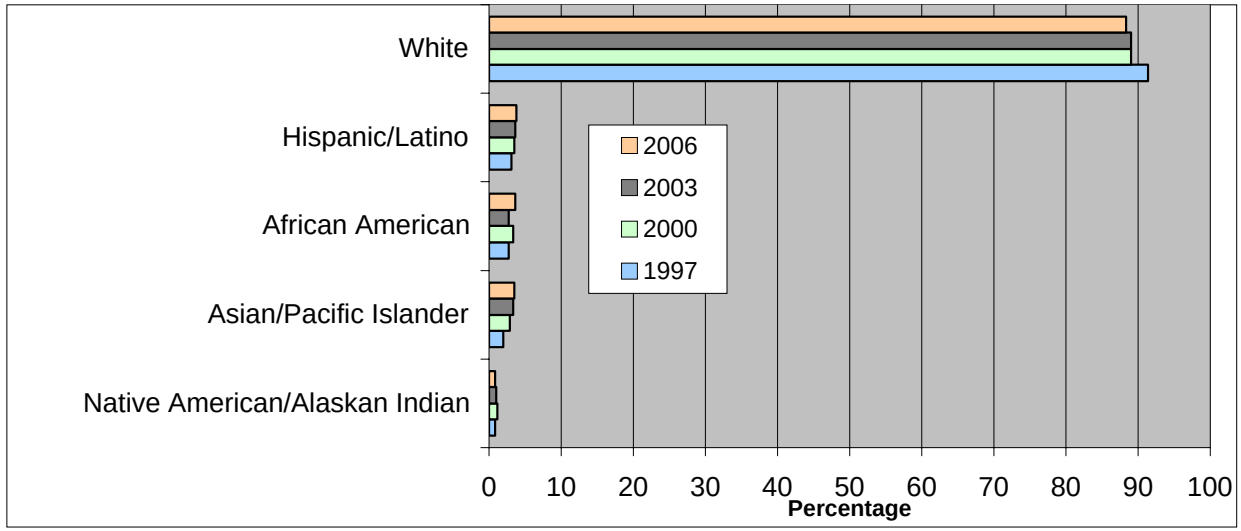


Specialization Trends

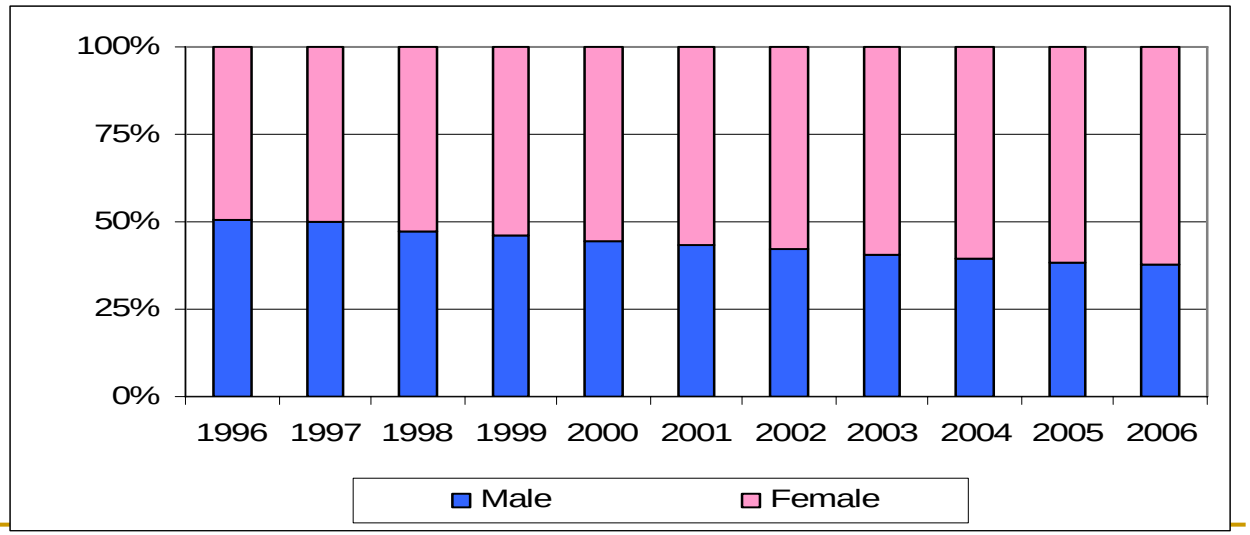


PA Practice in the US

- Diversity



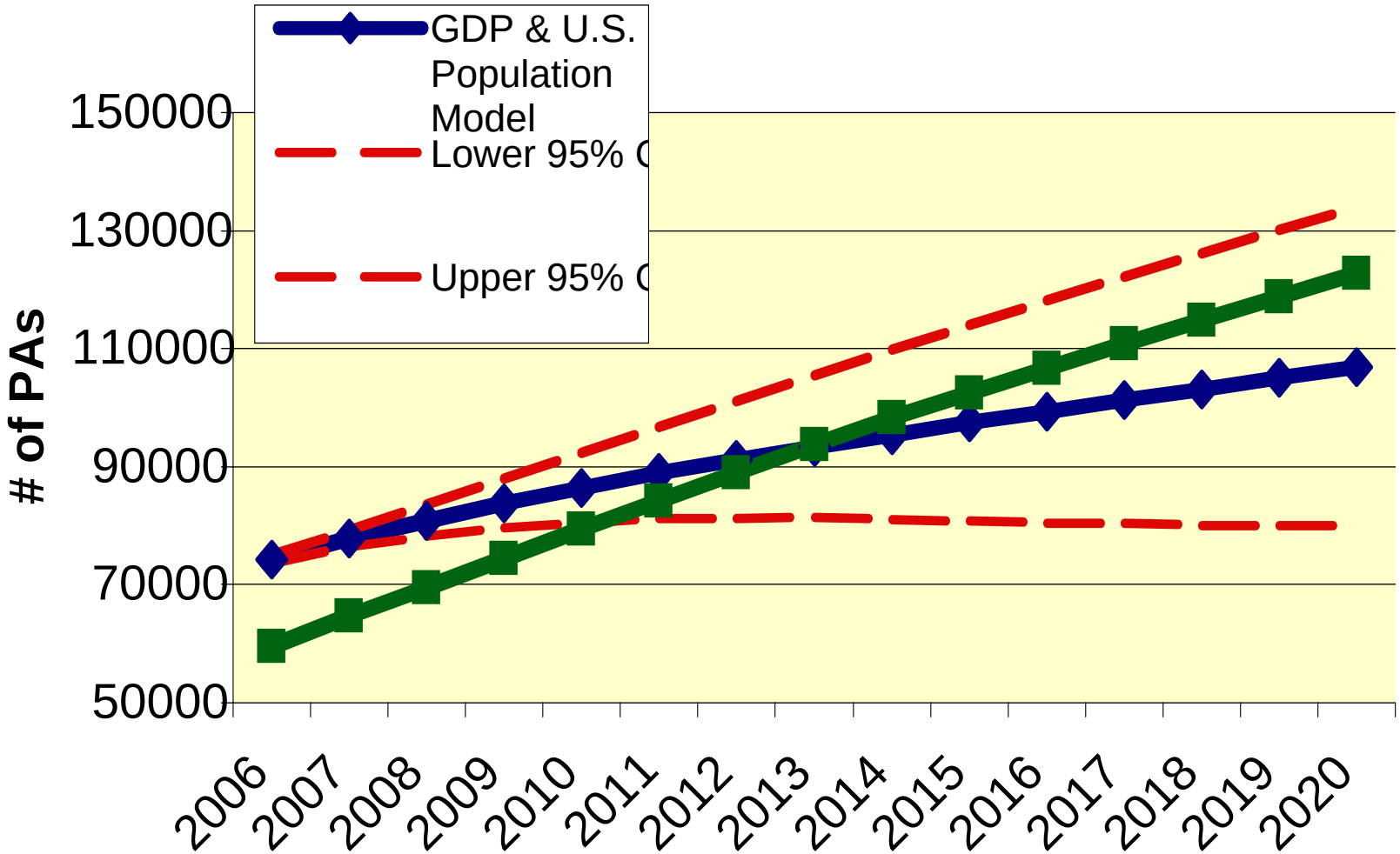
- Feminization



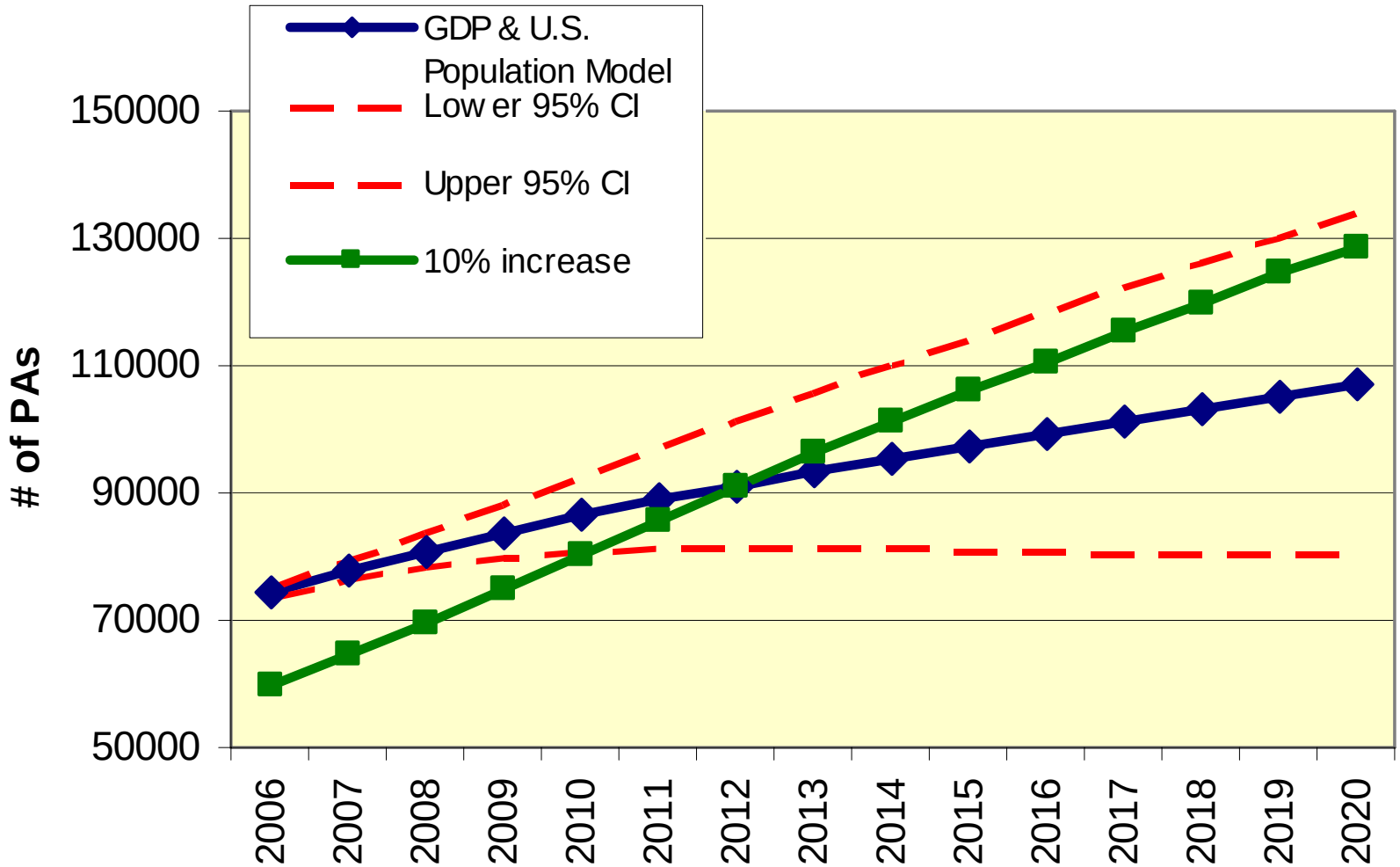
Supply Model Delineation (2007)

- Base: 59,629 certified PAs
- Deleted > 67 years old
- New entrants per annum
  - 5,707 graduates (or 10% = 6277, 25% = 7134)
  - Adjusted by assumed attrition rate (7%)
  - Age & gender derived from PAEA data
- Pool ages across forecasts with >67 y/o deleted

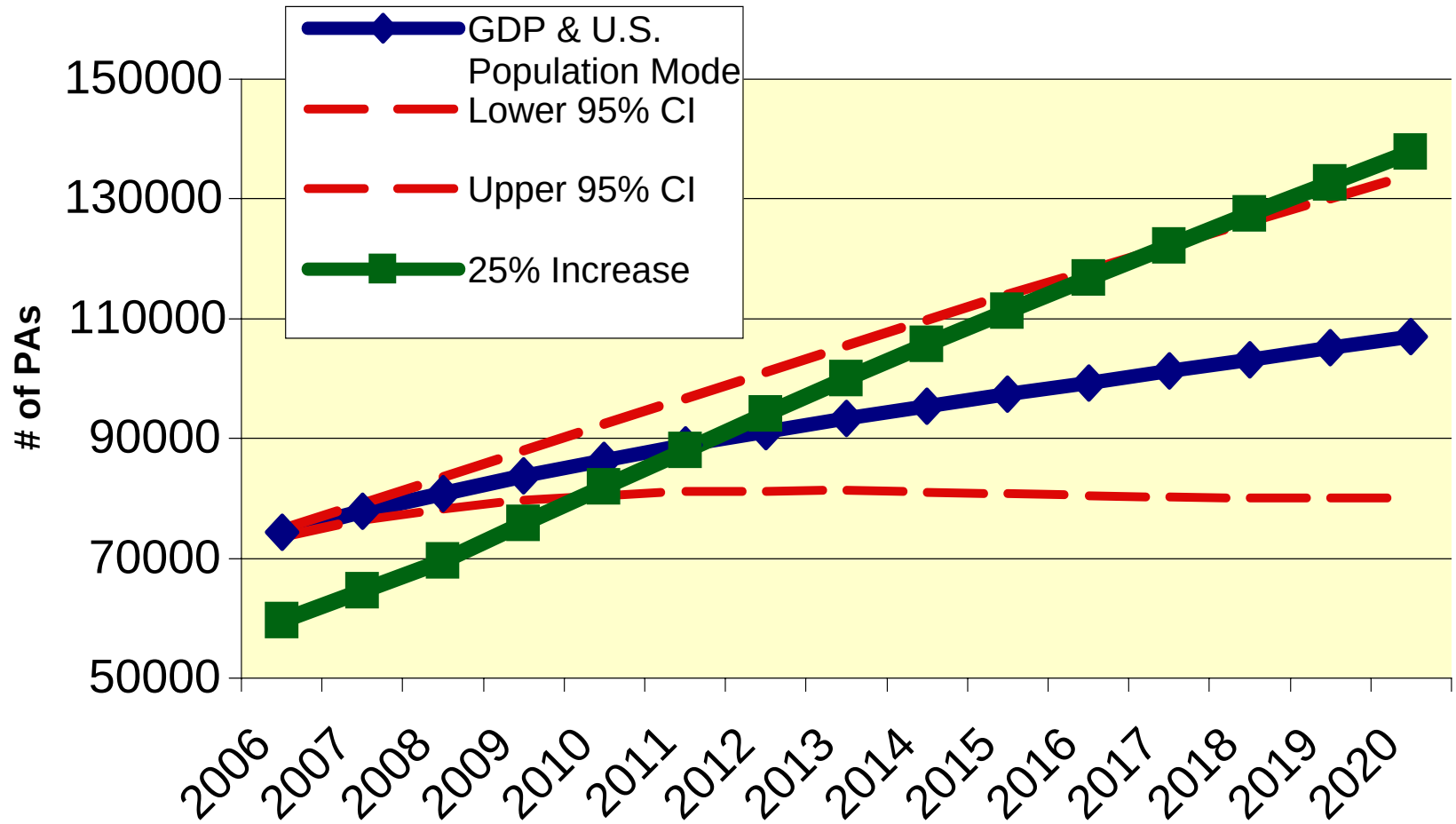
Status Quo Scenario



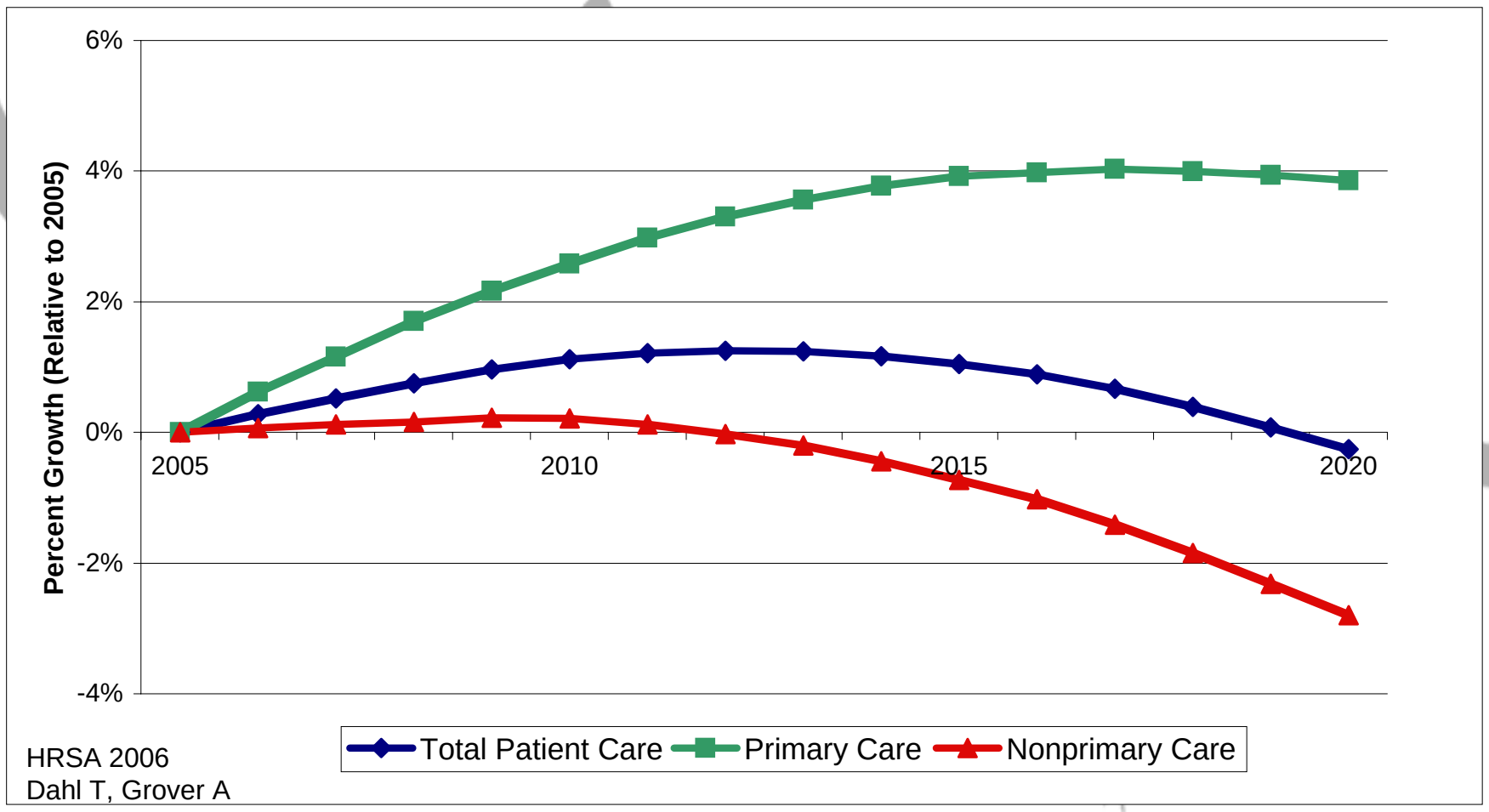
10% Increase Scenario



25% Increase Scenario



2000-2020 Growth Primary/Non-Primary Care



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Implications

"The highest reward for a person's toil is not what they get for it, but what they become by it."

- John Ruskin

US Medical Workforce Composition

- Department of Health and Human Services
- Bureau of Health Statistics
- Specialization trend
- Diversity trends
- Additional (unknown) influences

NP/PA Educational Institution Challenges

- Faculty recruitment and retention
- Clinical training sites
- Diversity
- Financial support

Limitations

- Lack of inclusion of NP/PAs in national surveys obviates a critical variable
- Insufficient data on lifestyle changes
- Productivity of PAs and NPs in specialty settings needs to be delineated
- Other predictors of demand
  - Sustainability of diseases
  - 1/3 of all baby girls will live to 100
  - Technology

Questions?

"Whosoever uses the crystal ball must be prepared to eat ground glass."

- Romanian gypsy proverb

Precision of 2003 National Estimates

	NAMCS office-based	NHAMCS hospital outpatient department	NHAMCS emergency department	MEPS office-based	MEPS hospital outpatient department
Physician visits (millions)	**864 (777-953)**	**75.1 (61.3-88.8)**	**105.2 (94-115)**	**970.4 (925-1016)**	**54.9 (48.5-61.4)**
PA visits in millions (95% CL))	**12.9 (6.6-19.2)**	**6.9 (2.3-11.5)**	**7.5 (5.4- 9.4)**	**12.7 (10.6-14.8)**	**0.56 (.26-.86)**
With physician	**6.4 (3.0-9.8)**	**0.6 (0.2-0.9)**	**3.9 (2.6- 5.1)**		
Without physician	**6.5 (2.0-11)**	**6.3(1.7-10.9)**	**3.6 (2.0-5.1)**		
% visits to[a]					
Physicians	**98.5**	**91.6**	**93.3**	**98.7**	**99**
PAs	**1.5**	**8.4**	**6.7**	**1.3**	**1**
Visit ratio Physician:PA	**67:1 (43:1,146:1)**	**12:1 (6:1, 41:1)**	**14:1 (8:1, 47:1)**	**76:1 (49:1,165:1)**	**98:1 (27:1,?)**

a. % visits calculations reflect only visits to PAs and physicians. Visits to other providers are excluded