# The robustness of the healthcare workforce

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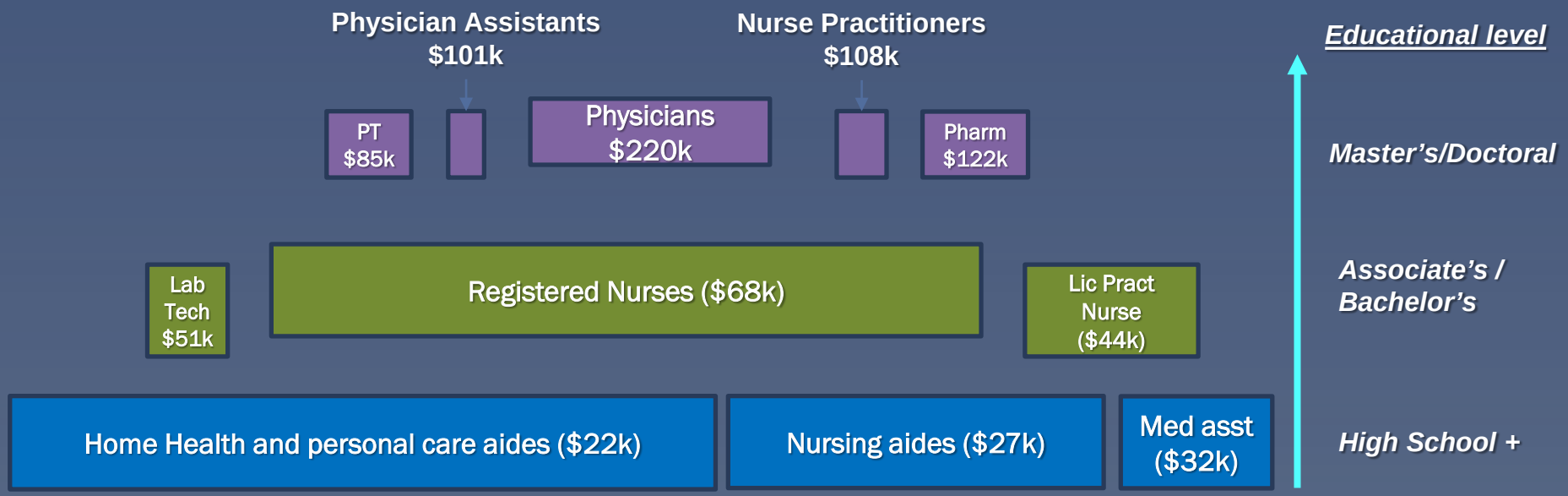
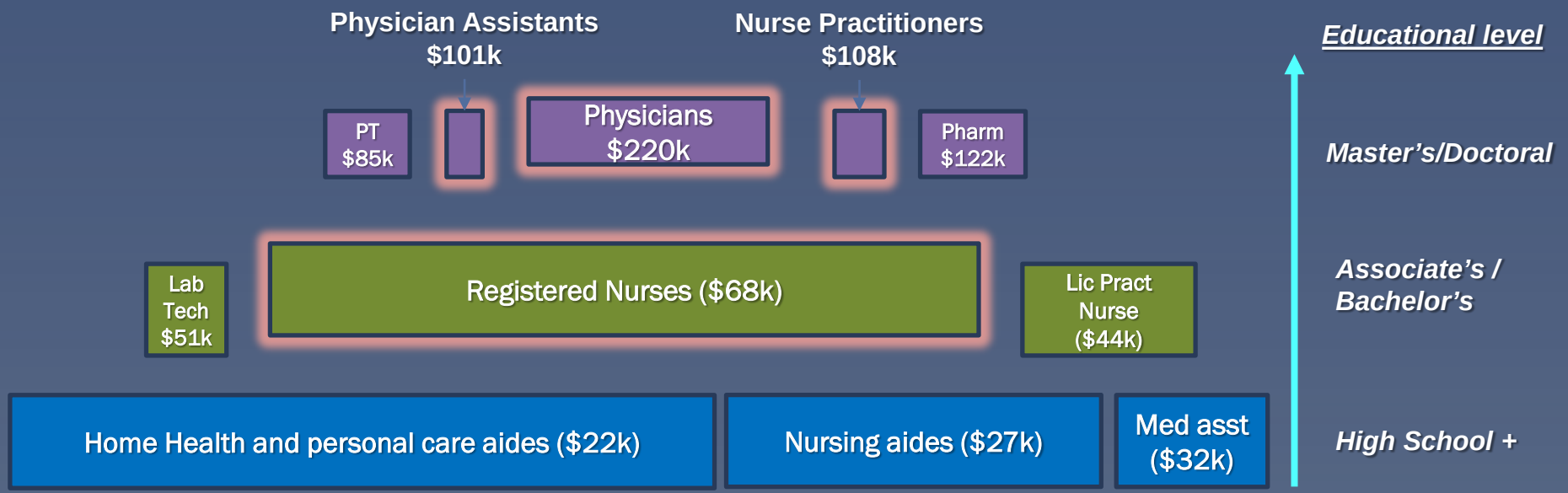
# The health care workforce in 2016




Note: Areas are proportional to number of workers with each job title. Combined workers total ~10 million.
Sources: Bureau of Labor Statistics, 2016

# The health care workforce in 2016

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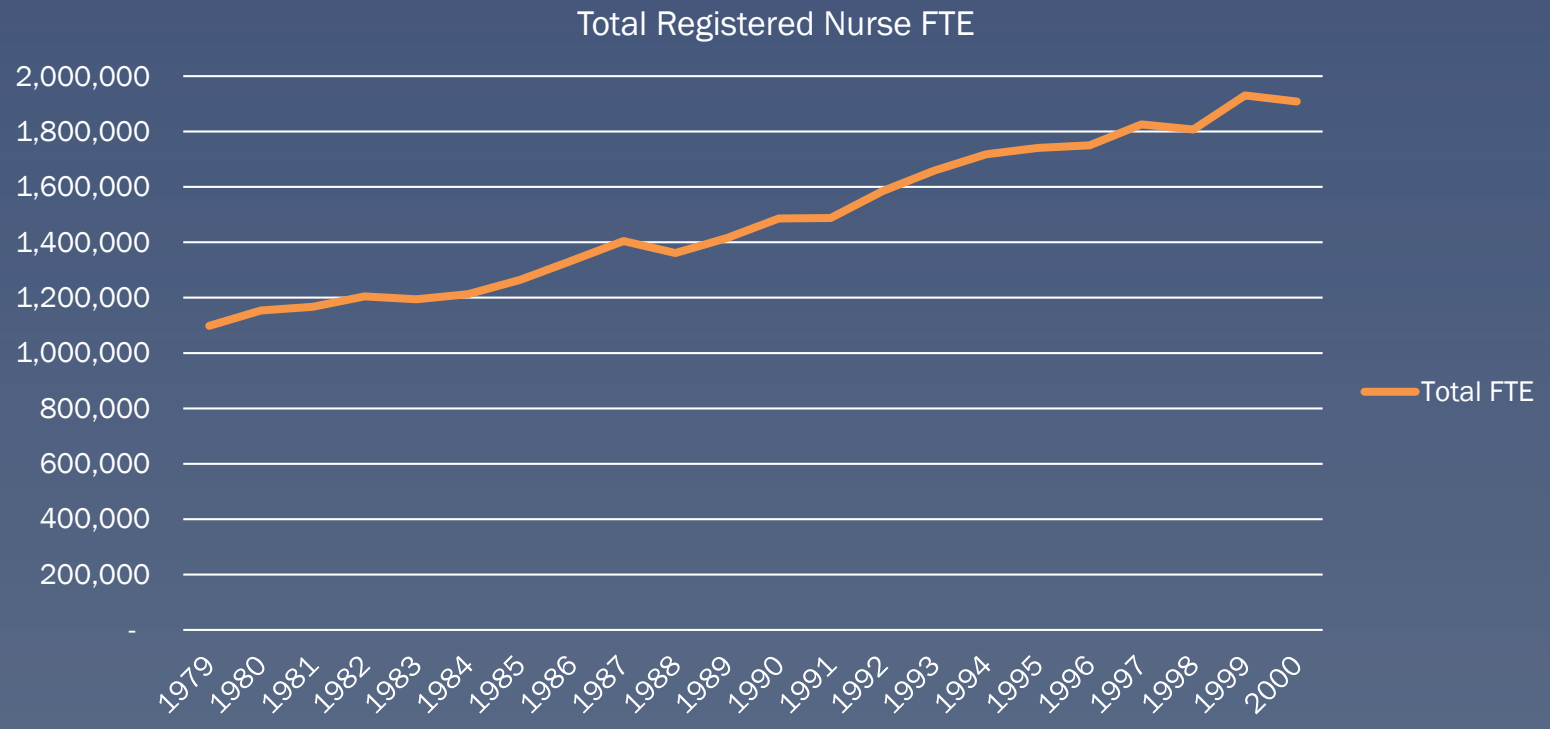
# The base of the pyramid

- Some upward mobility
  - Nursing assistant → RN → Nurse Practitioner
- Medical assistants are taking on enhanced roles in patient care
- Home health and other aide jobs tend to be low-skill, minimum-wage, high-turnover with little mobility. From a recent Massachusetts study*:
  - Agencies, on average, hired 18 workers over a three month period and lost 15 workers
  - Home care agencies reported a quarterly home care aide turnover rate of 16%
  - Nearly 90% of the agencies indicated that recruiting qualified home care aides was their top workforce challenge
  - Over 47% of the aides who responded to our survey have at least one other job
  - 40% live in households with an annual income of less than $20,000
  - 48.4% were Medicaid recipients

*Home Care Aide Council, "Setting the agenda: Data-driven advocacy to address home care aide policy," Tufts Health Plan foundation, 2018

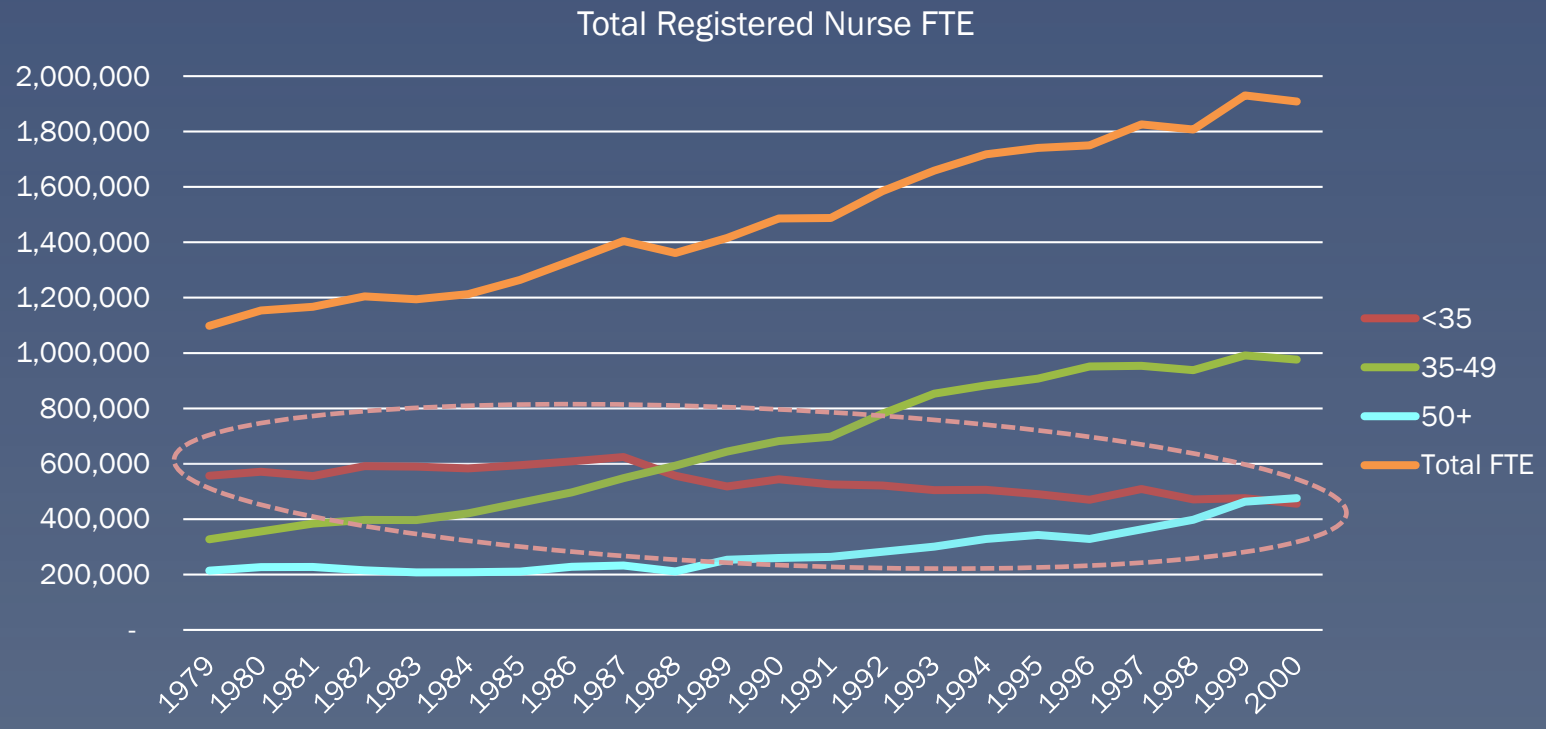
# The center of the pyramid: RNs

# The RN workforce numbers looked healthy in 2000




**Authors' analysis of workforce data from the Current Population Survey. FTE based on a 40-hour workweek.**

# But there was a problem…

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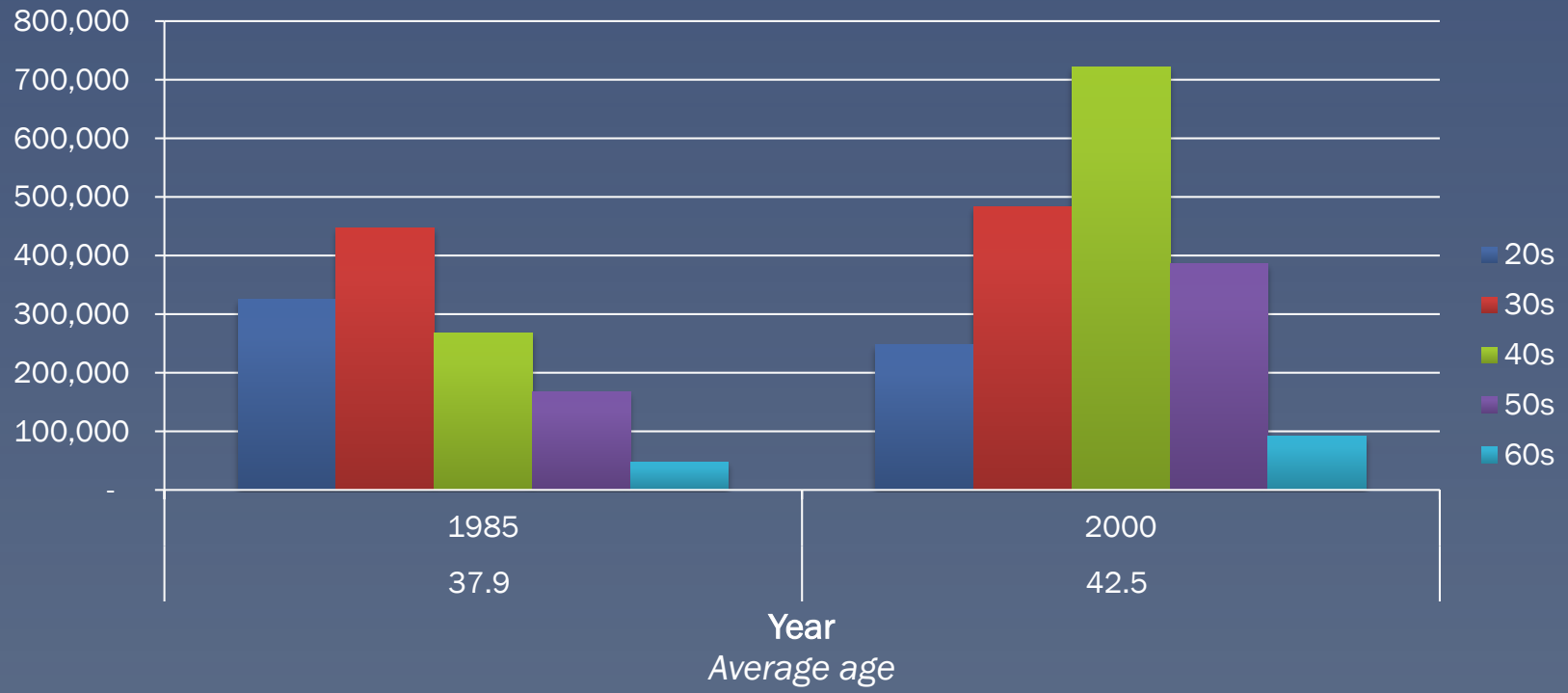
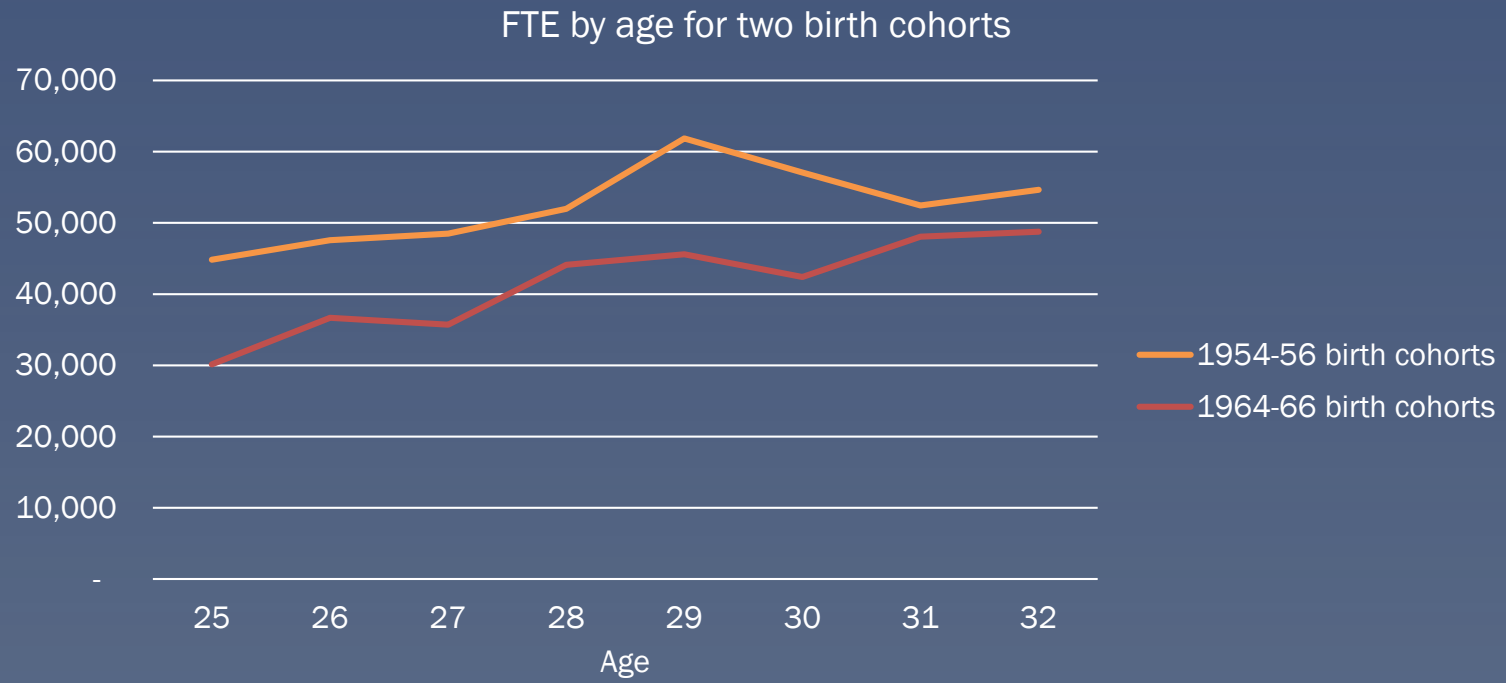
# The workforce had aged dramatically in 15 years



# The newer entry cohorts were smaller at every age

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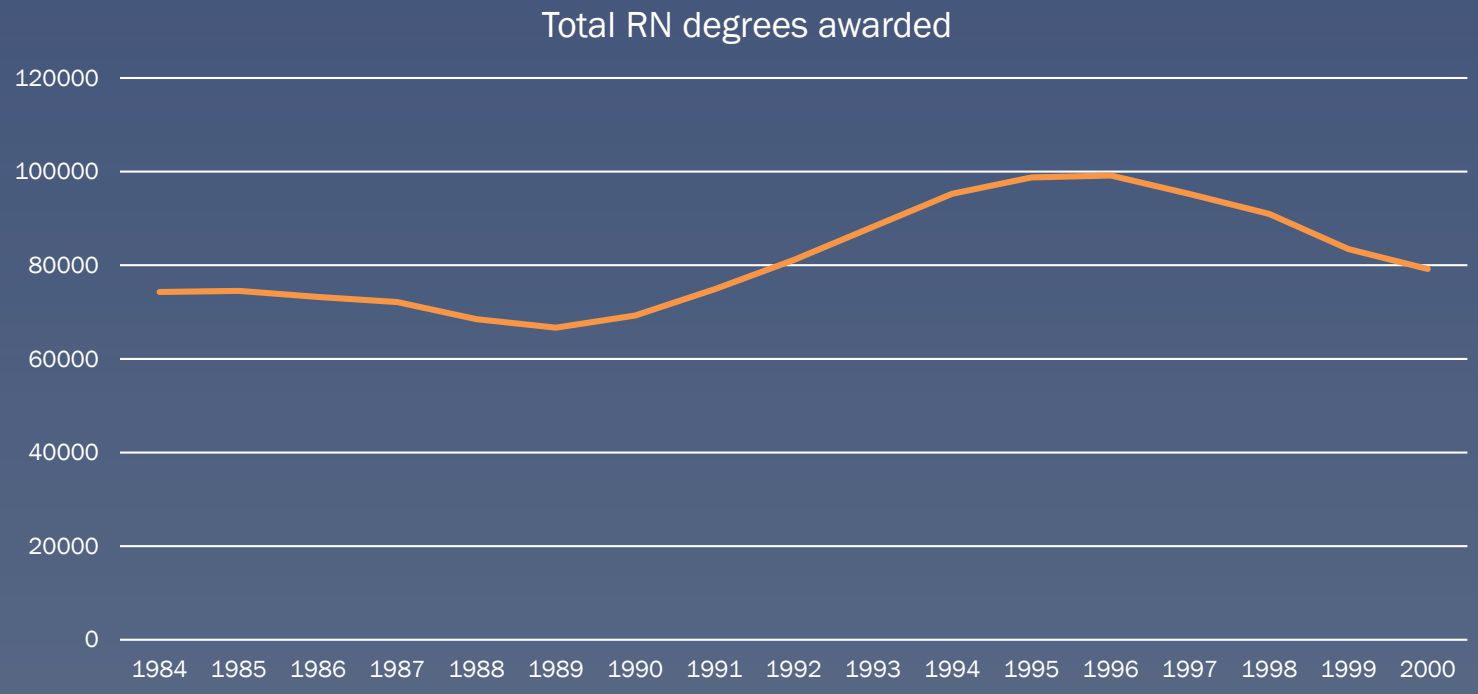
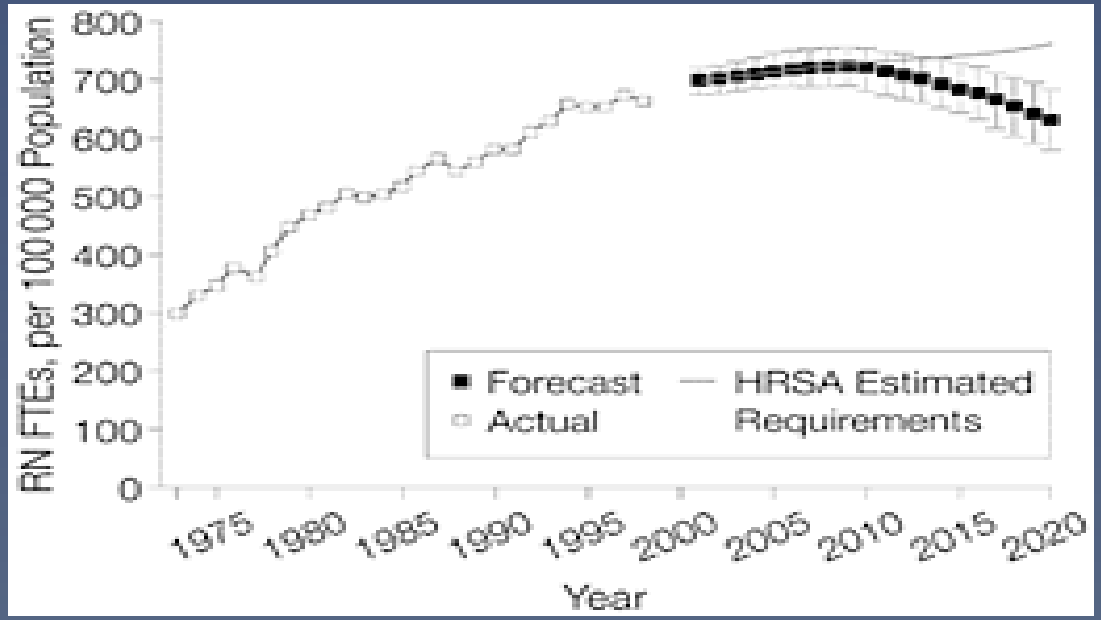
# Nursing schools saw enrollment declines




Authors' analysis of data from the Integrated Postsecondary Education Data System (IPEDS)

# When we applied a workforce supply model, projected workforce size would peak in 2010 and then decline




- ***Shortages would be as high as 500k-1m***

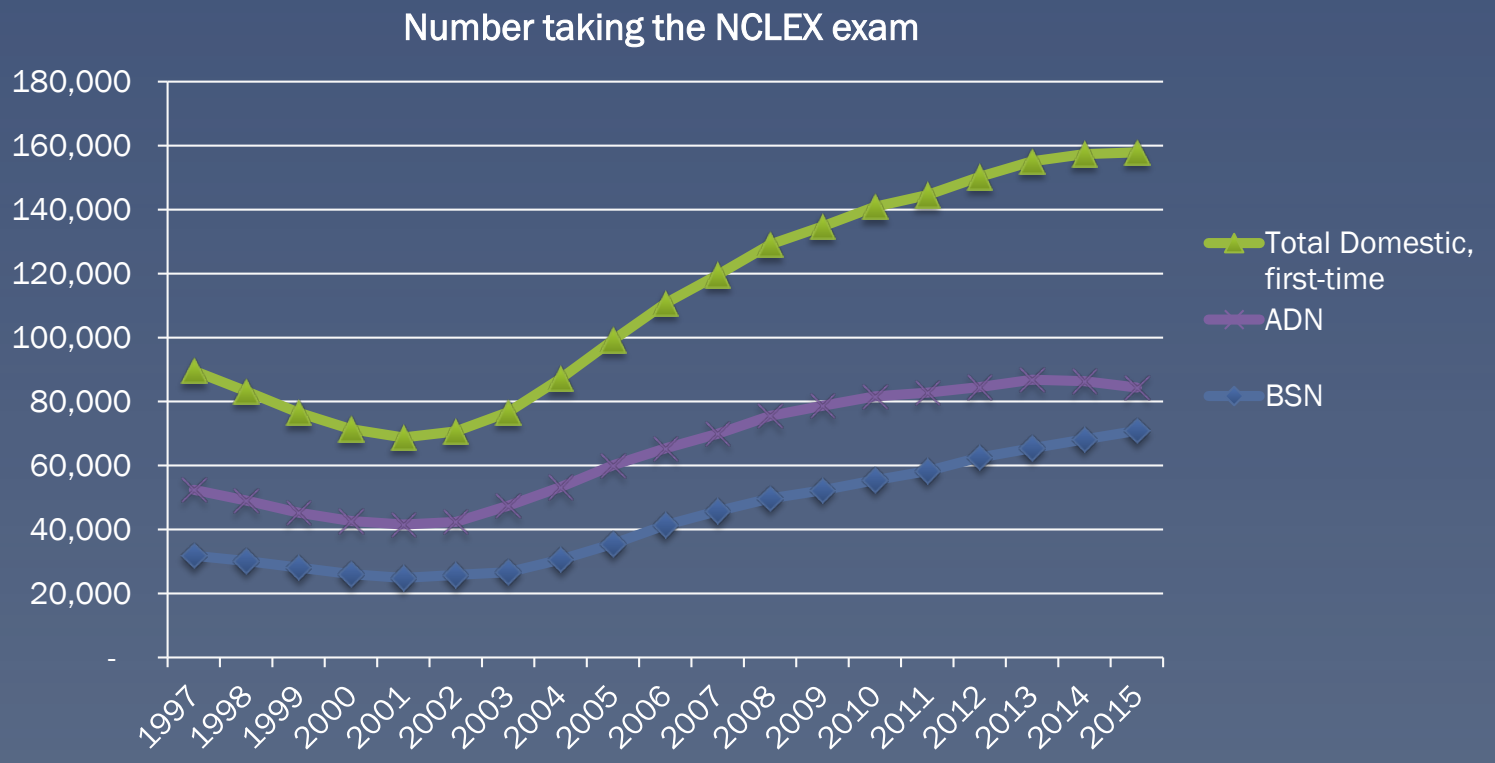
Buerhaus, Peter I., Douglas O. Staiger, and David I. Auerbach. "Implications of an aging registered nurse workforce." *Jama* 283.22 (2000): 2948-2954.

# The shortages did not come to pass

| Nursing education programs in 2002 and 2012, by type | | | |
|---|---|---|---|
| Characteristics | 2002 | 2012 | Percentage growth |
| Public | 1,121 (70%) | 1,343 (59%) | 222 (20%) |
| Private not-for-profit | 456 (28%) | 635 (28%) | 179 (39%) |
| Private for-profit | 34 (2%) | 292 (13%) | 258 (759%) |

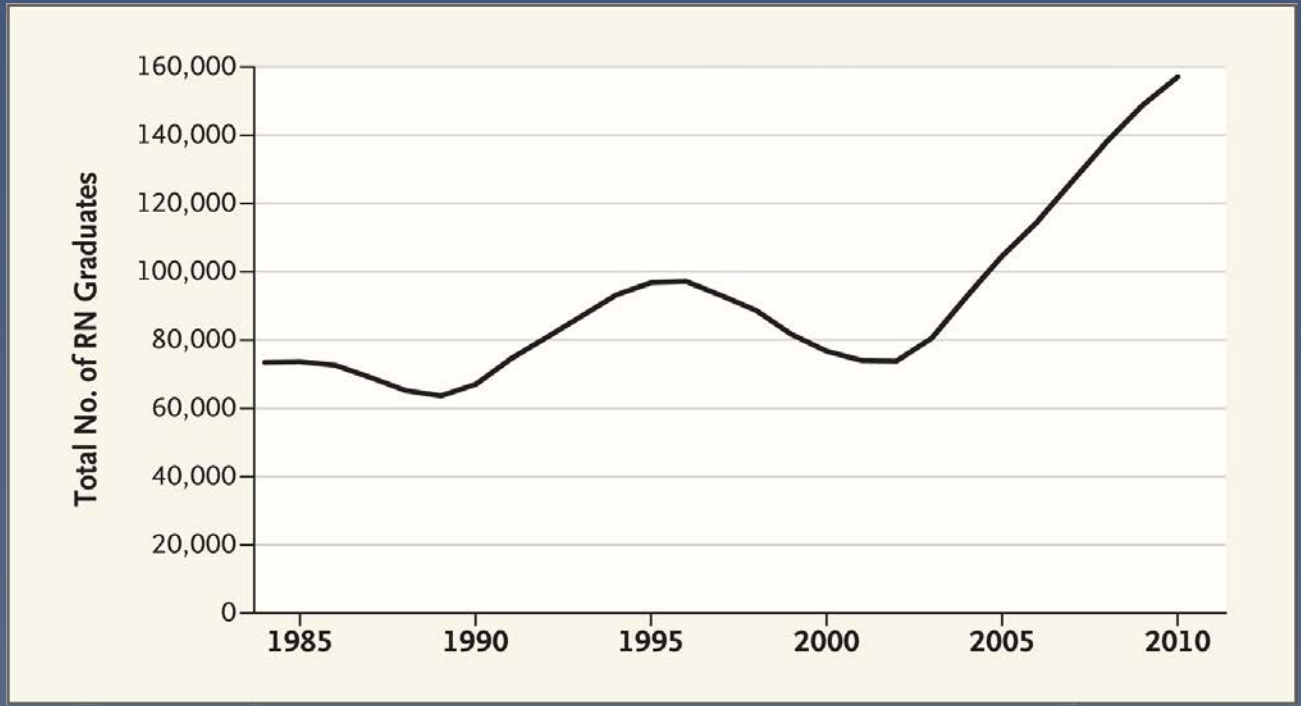
Buerhaus, P., Auerbach, D., Staiger. D. (2014). The rapid growth of graduates from associate, baccalaureate and graduate programs in nursing. *Nursing Economic$. 32*(6), 290-295, 311.

# Students taking the NCLEX exam doubled



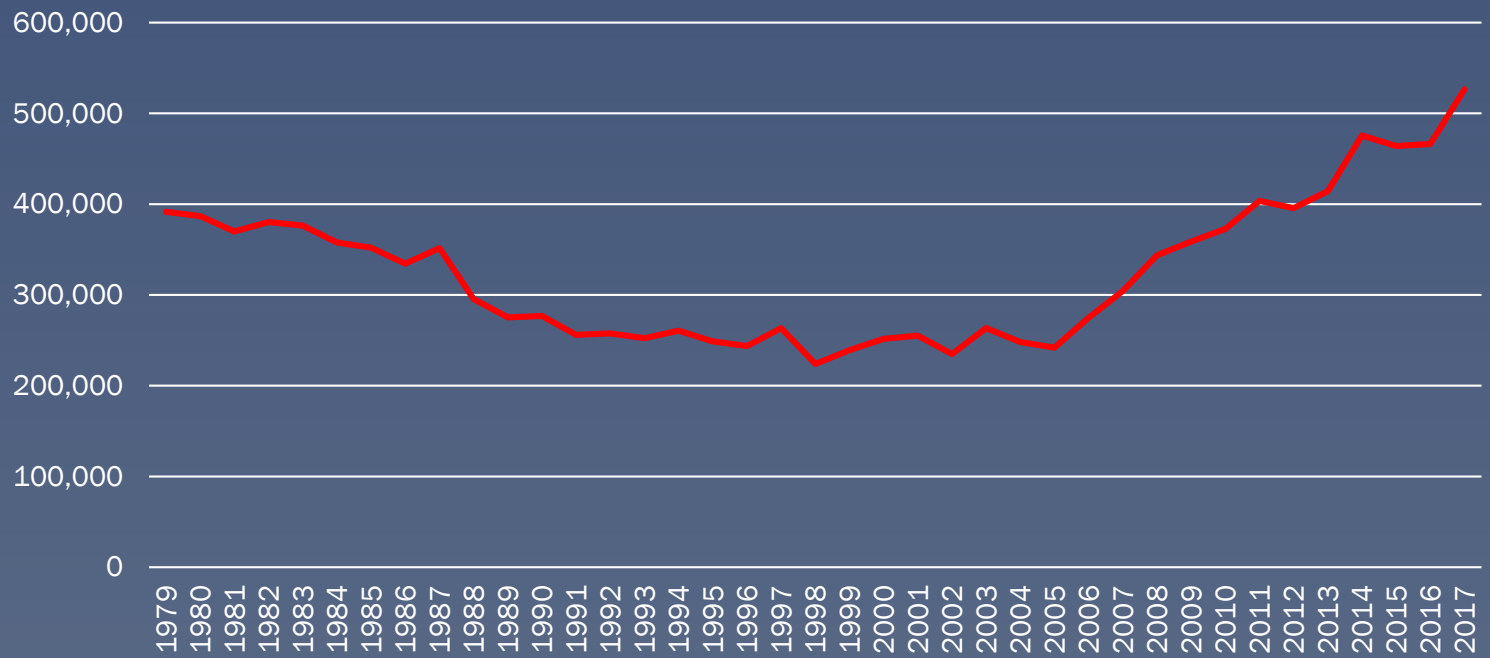

Authors' analysis of data from National Council of State Boards of Nursing

# As did RN graduates



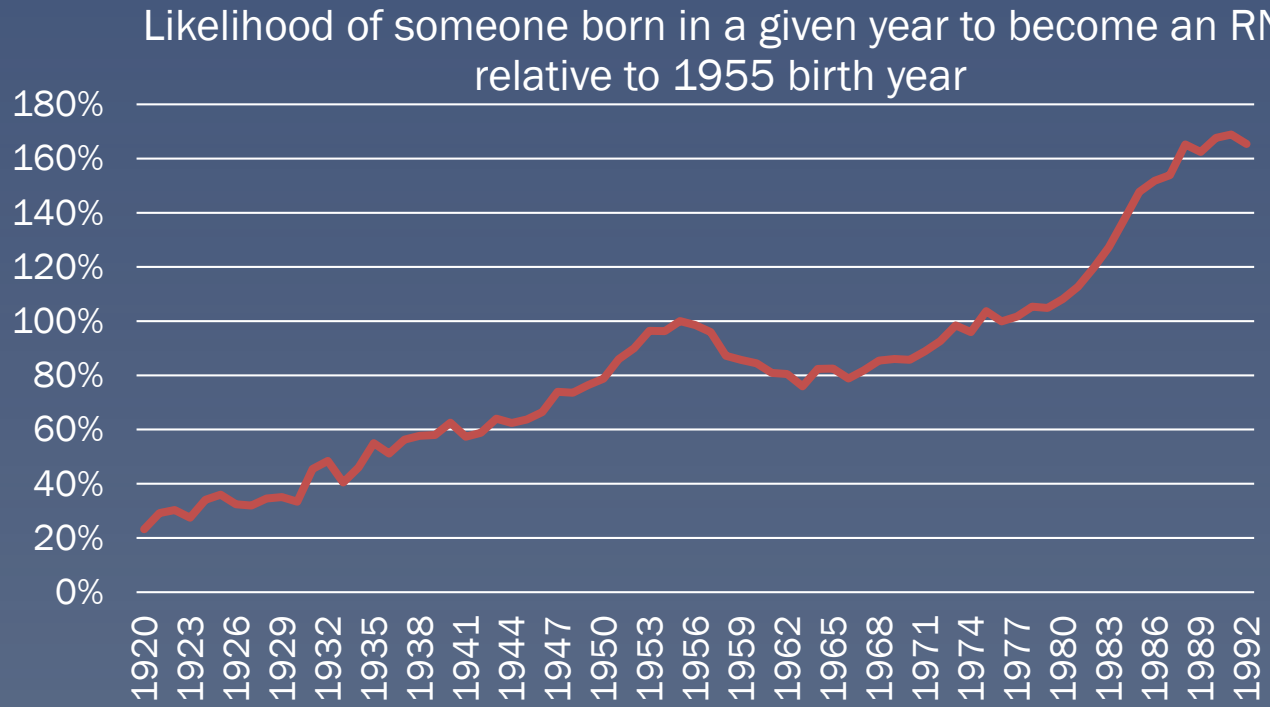

Auerbach, David I., et al. "The nursing workforce in an era of health care reform." *New England Journal of Medicine* 368.16 (2013): 1470-1472.

# Number of RNs (FTE) under age 30



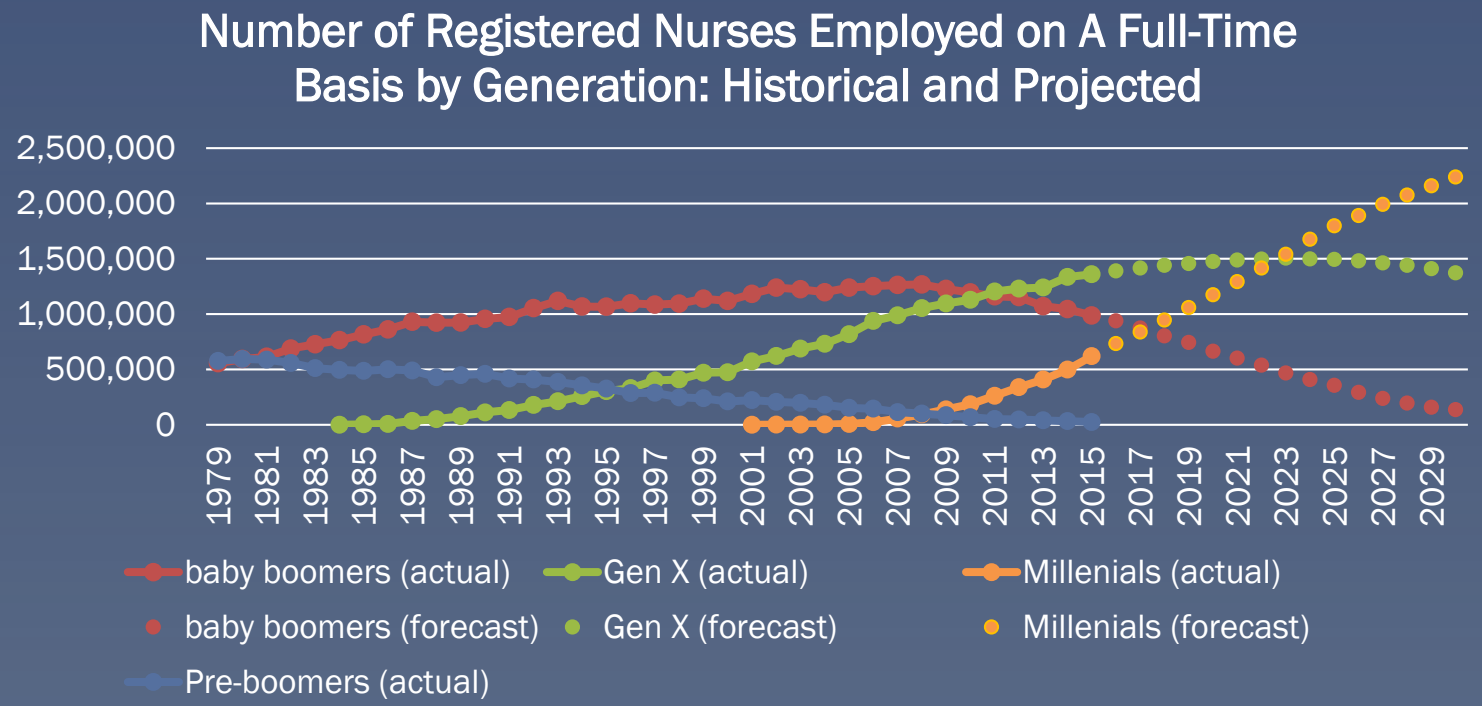

Authors' analysis of workforce data from the Current Population Survey. FTE based on a 40-hour workweek.

# New RN cohorts (Millennials) have now far surpassed the baby boomer generation



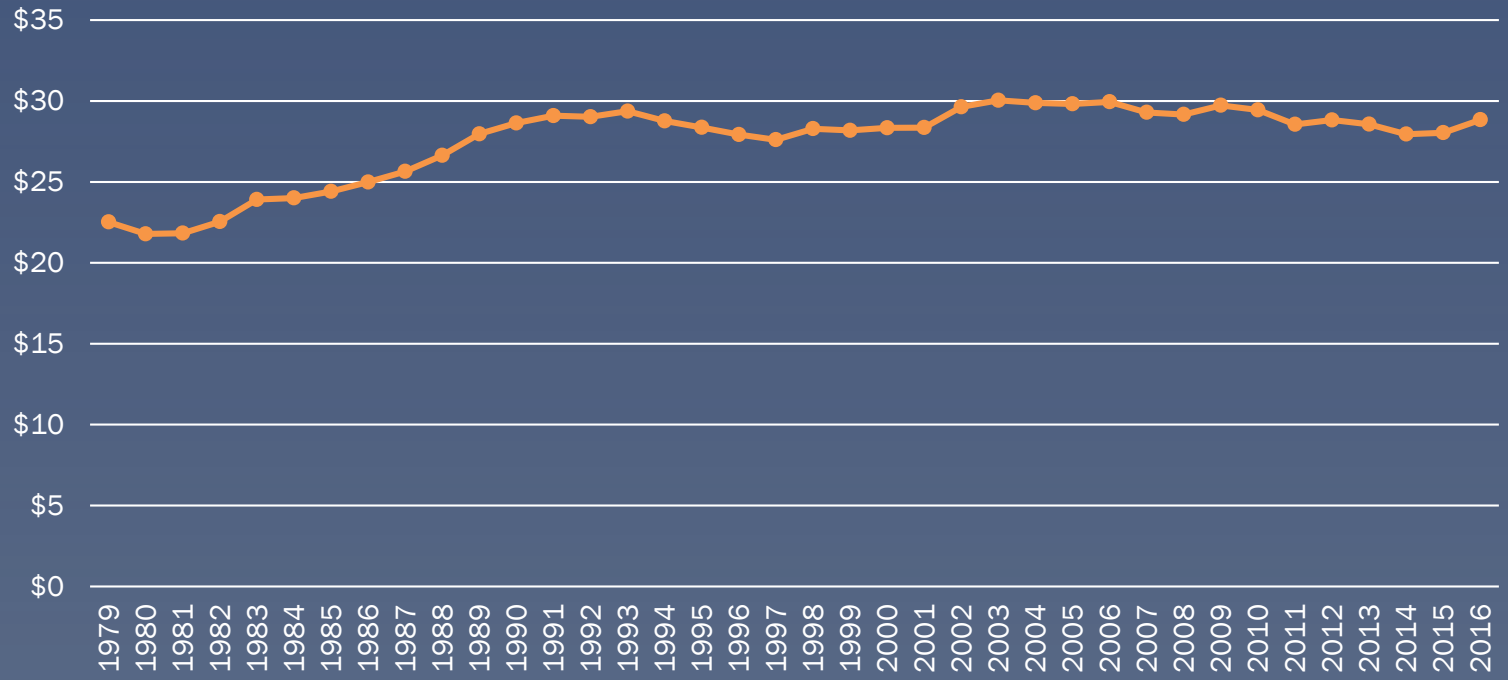

Authors' analysis and modeling of workforce data from the Current Population Survey and the American Community Survey

# And Millennial RNs are projected to far surpass the peak numbers of baby boom RNs




Auerbach, David I., Peter I. Buerhaus, and Douglas O. Staiger. "Millennials Almost Twice As Likely To Be Registered Nurses As Baby Boomers Were." *Health Affairs* 36.10 (2017)

# RN hourly earnings have been flat since 1990

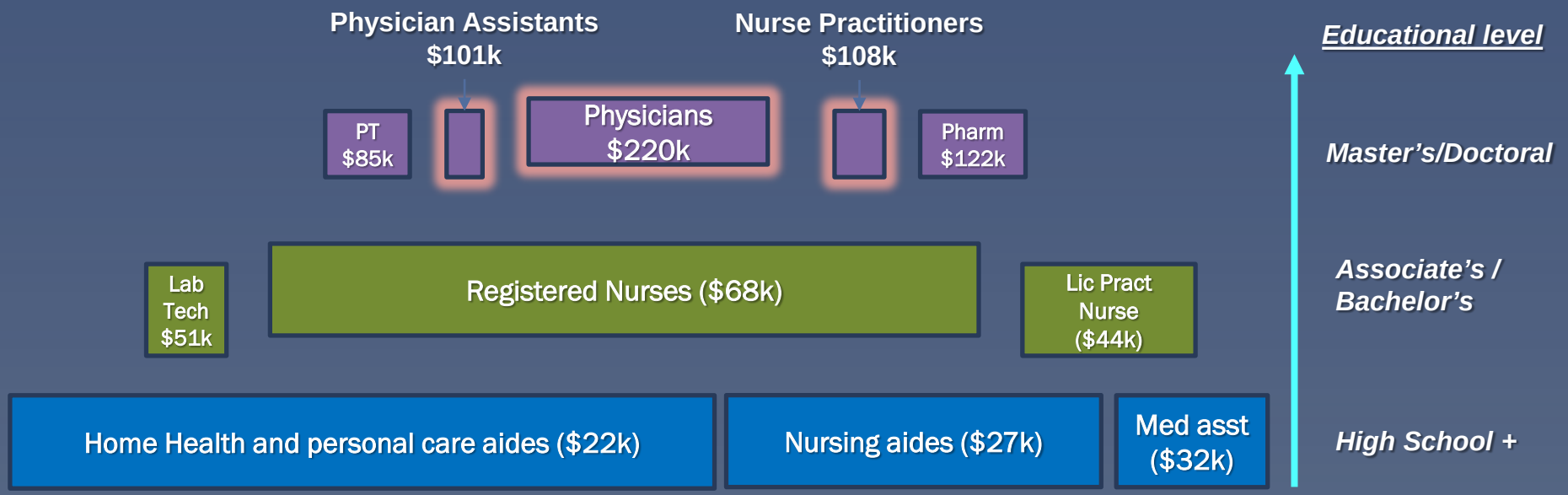



Authors' analysis of workforce data from the Current Population Survey

# What caused the surge?

- Stagnant wages, uncertainty in other sectors increased the relative attractiveness of nursing
  - Stable, low-risk employment in a career with other psychic benefits
- Public (e.g. Title VIII) and private (e.g. J&J) efforts to boost interest in nursing
- Expanded educational opportunities and pathways
- Forecasts of future shortages?

# Physicians, NPs and PAs

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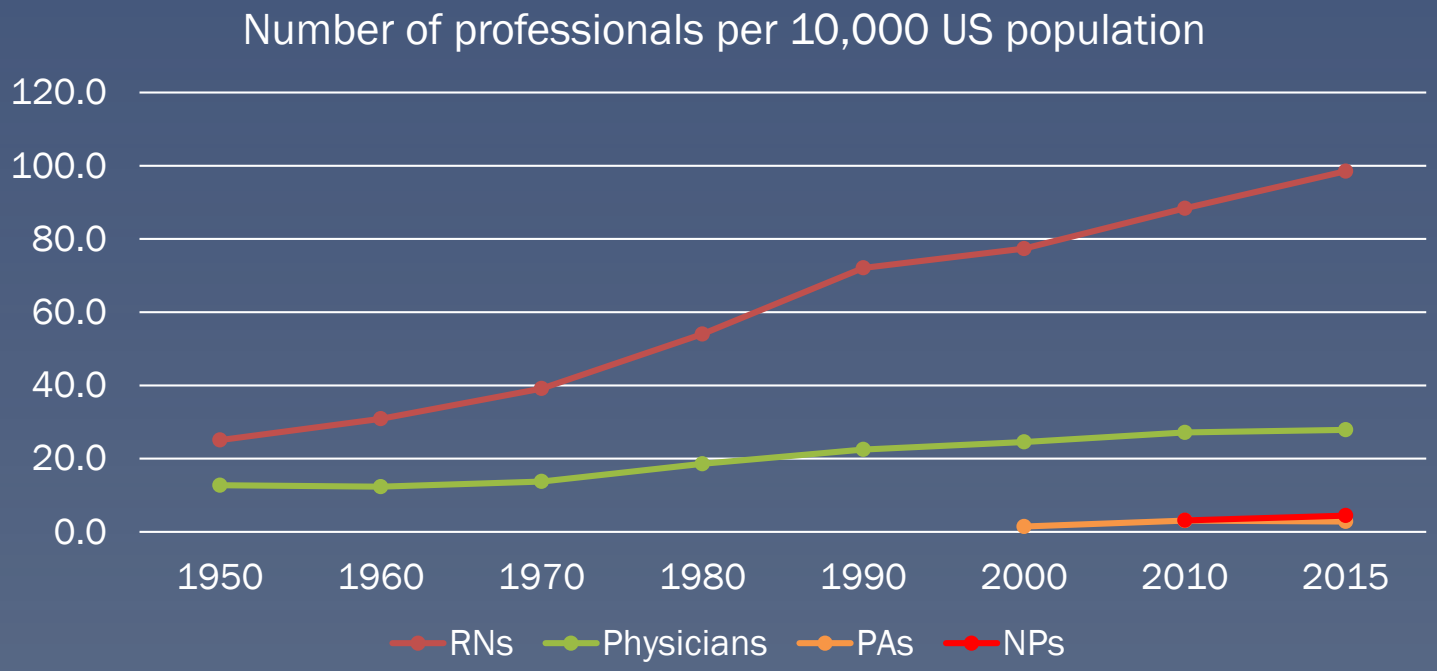
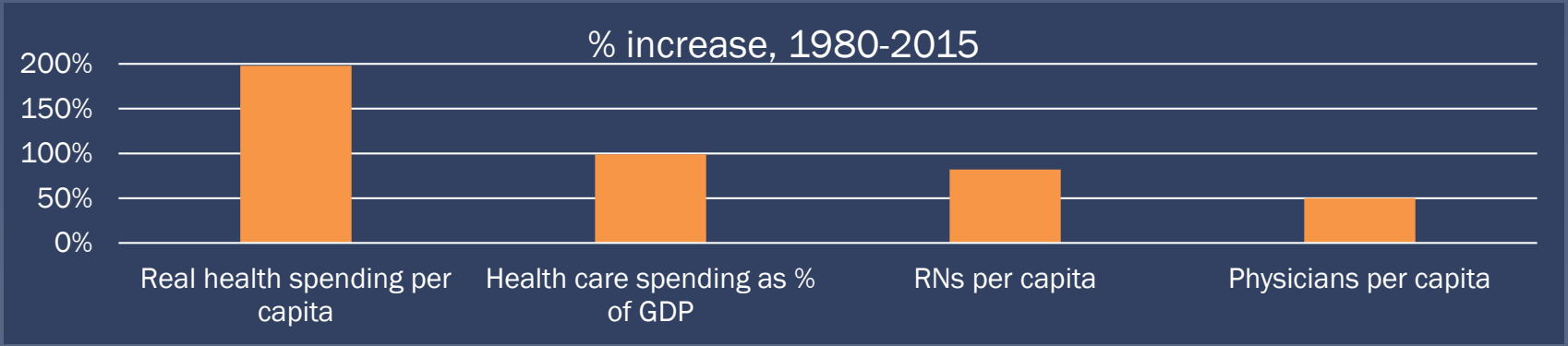
Sources: Bureau of Labor Statistics, 2016

# Physician supply has grown much more slowly than RN supply



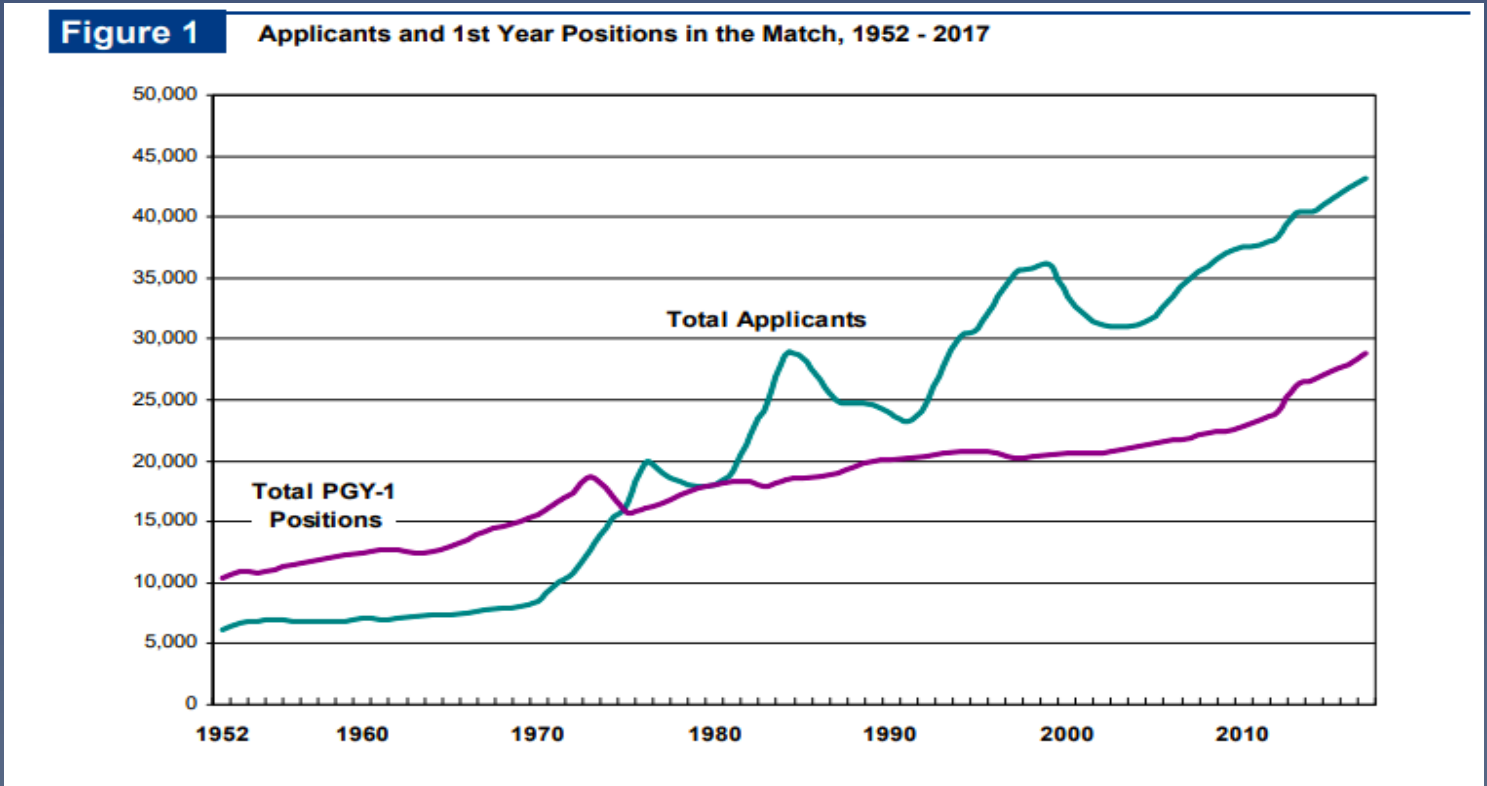
# Physician supply has not kept pace with health spending

| | 1980 | 2015 | % increase |
|---|---|---|---|
| Real health spending per capita | $3,354 | $9,994 | 198% |
| Health care spending as % of GDP | 8.9% | 17.7% | 99% |
| RNs per capita | 54.0 | 98.5 | 82% |
| Physicians per capita | 18.6 | 27.9 | 50% |




Health care spending adjusted by CPI to 2015 dollars

# Physician residency slots and applicants




National Residency Match Program, 2017. http://www.nrmp.org/wp-content/uploads/2017/06/Main-Match-Results-and-Data-2017.pdf

# Higher-paying specialty slots are filled by US students – others are mostly backfilled by international students

## (50% of international applicants do not get any slot)

**727 total slots**

1 (<1%) unfilled

13 (2%) filled by IMGs

713 (98%) filled by US med students (845 applicants)

***Orthopedic surgery***

**(mean 2016 salary; $535,668)**

**3,356 total slots**

141 (4%) unfilled

996 (30%) filled by IMGs

2,219 (66%) filled by US med students

***Family medicine***

**(mean 2016 salary; $227,541)**

Salary data from Doximity as reported in The Atlantic, 2015. https://www.theatlantic.com/health/archive/2015/01/physician-salaries/384846/

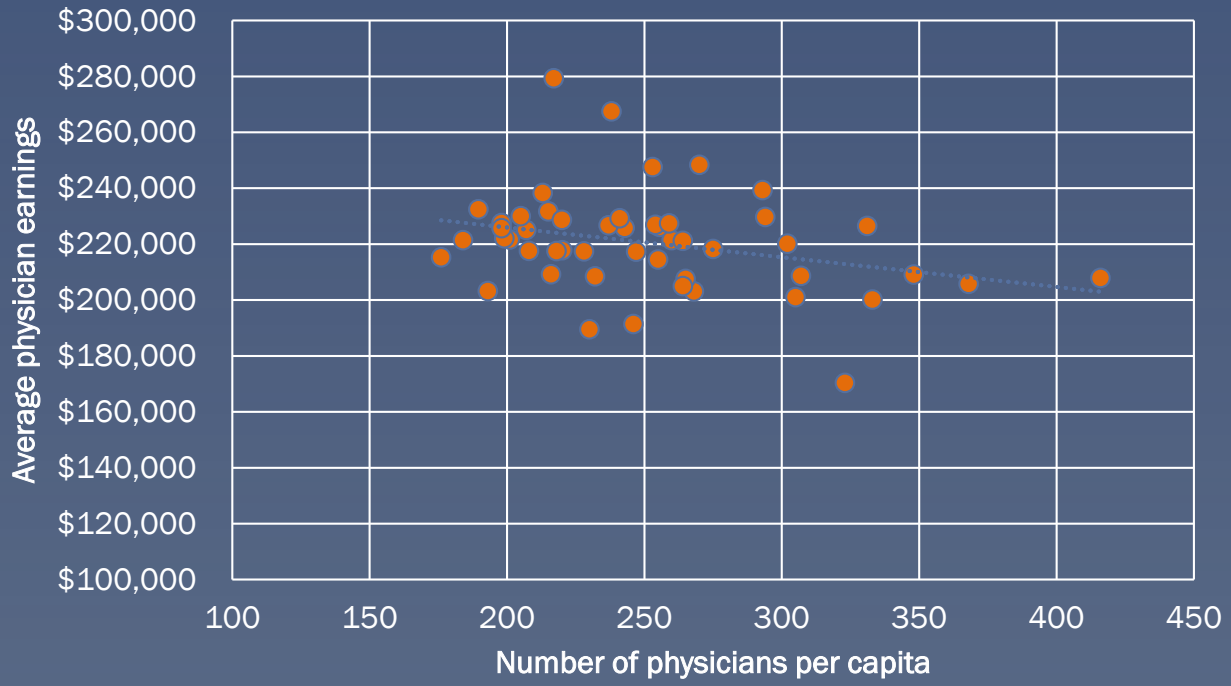
Residency data from the national residency matching program (NMRP): http://www.nrmp.org/wp-content/uploads/2017/06/Main-Match-Results-and-Data-2017.pdf

# Barriers to entry in the physician market

- Residency is required to practice in the US
- The number of positions is jointly determined by hospitals and specialty societies (residency review committees) along with a national accrediting body
  - RRCs may limit slots, acting as a guild
  - Minimum patient volume requirements and hospitals' financial interests may also limit slots

Nicholson, Sean. *Barriers to entering medical specialties*. No. w9649. National Bureau of Economic Research, 2003.

# States with more physicians have lower physician earnings




Active physician per capita from AAMC databook, 2010. Earnings data from American Community Survey pooled data from 2005-2016 excluding physicians earning <$10,000

# Highest physician fees in low-density areas

| Highest physician fees | | | Lowest physician fees | |
|---|---|---|---|---|
| Metro area | Relative fee | | Metro area | Relative fee |
| La Crosse, WI | 1.49 | | Baltimore, MD | .73 |
| Wausau, WI | 1.46 | | Lowell, MA | .74 |
| Eau Claire, WI | 1.42 | | Nassau-Suffolk, NY | .74 |
| Madison, WI | 1.41 | | Washington, DC | .75 |
| Jonesboro, AR | 1.35 | | Fort Lauderdale, FL | .75 |
| Janesville-Beloit, WI | 1.32 | | West Palm Beach, FL | .75 |
| Great Falls, MT | 1.29 | | Miami, FL | .76 |
| Green Bay, WI | 1.28 | | Providence, RI | .76 |
| Appleton-Oshkosk, WI | 1.27 | | Dutchess County, NY | .77 |
| Racine, WI | 1.24 | | San Francisco, CA | .77 |

Government Accountability Office, 2005. "Federal Employees Health Benefits Program: Competition and Other Factors Linked to Wide Variation in Health Care Prices" https://www.gao.gov/assets/250/247411.pdf

# The adequacy of physician supply

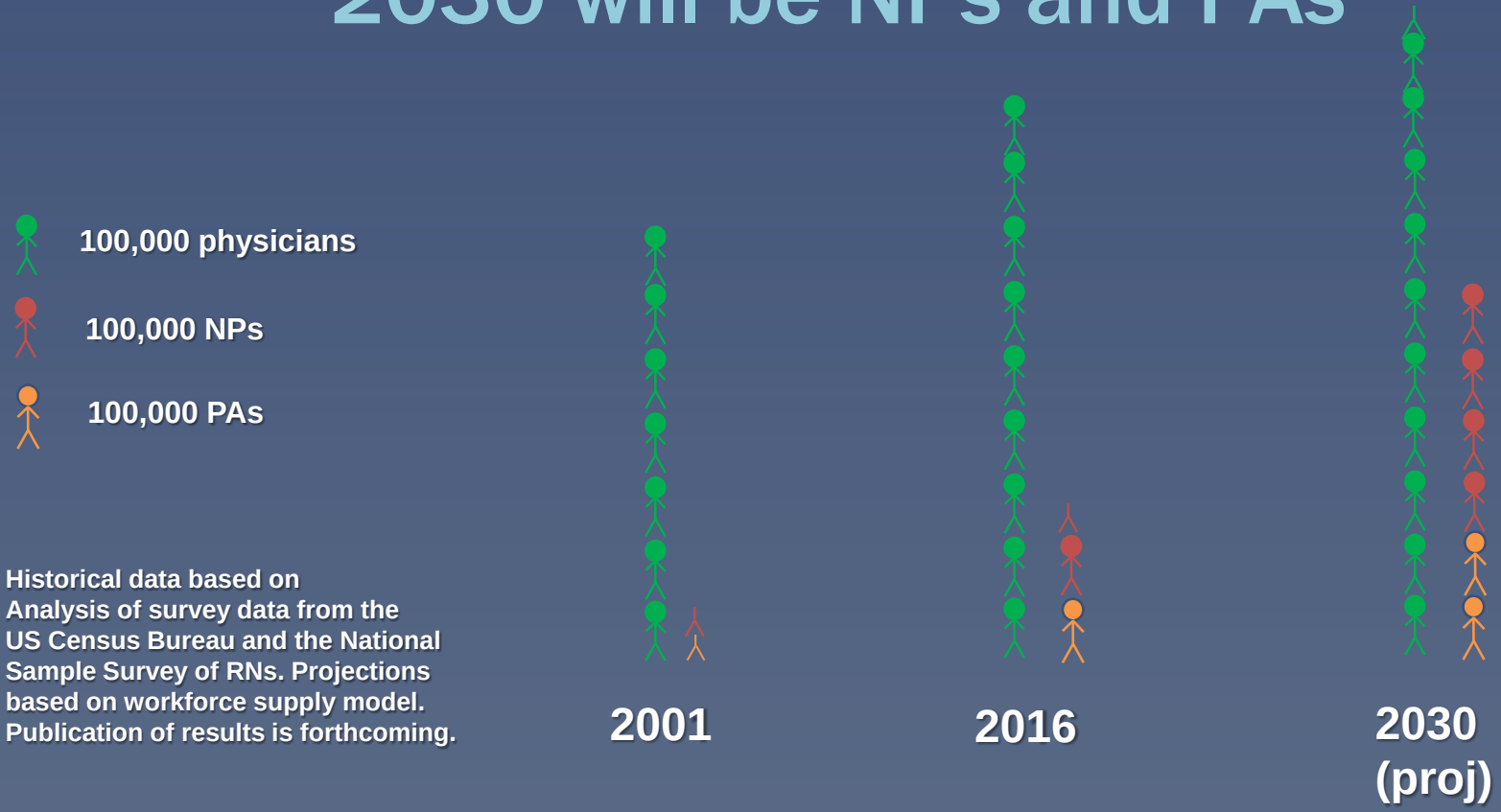
- It is debatable how many physicians we need
  - Supply may be artificially limited, pushing up wages
  - But specialists would likely still be highly paid
- Nevertheless, demand for health care will continue to grow faster than physician supply
  - CMS projects annual health spending growth >5%/year from 2017-2026, driven by population aging, prescription drugs
  - Physician supply is projected to grow <1% per year*
    - We project that it will actually decline (per capita) in rural areas

AAMC, 2017. The Complexities of Physician Supply and Demand:Projections from 2015 to 2030, 2017 update.

# Other clinicians will likely fill some of the gap

- Physician assistants (PA), nurse midwives (NM), nurse practitioners (NP) and nurse anesthetists (NA)
  - Typically 2-3 years educational requirements beyond baccalaureate degree (more NPs earning doctorates)
  - Earnings are roughly half of physicians
  - Considerable overlap with physician-provided care
    - AAMC 'high' assumptions for reduction in physician demand: anesthesiology (60%), women's health (40%), primary care (50%), medical specialties (30%), surgery (20%), and other medical specialties (30%).
  - Scope of practice authority is increasing
  - Education is expanding (282 NP programs in 2000; 424 in 2016)

# Most added practitioners between 2015 and 2030 will be NPs and PAs




Historical data based on Analysis of survey data from the US Census Bureau and the National Sample Survey of RNs. Projections based on workforce supply model. Publication of results is forthcoming.

# Final thoughts

- The markets for RNs, NPs and PAs appear flexible, more than that for physicians
- Slow-growing supply of physicians and expanded insurance coverage will increase pressure on states to remove scope of practice laws
- Added cost pressures from ACOs, narrow network plans should push health care organizations to use non-physicians to meet demand