

# Rapid growth in NP and PA supply will likely mitigate national physician shortage

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UNC

THE CECIL G. SHEPS CENTER  
FOR HEALTH SERVICES RESEARCH



# Introduction

I'm not a

- Physician or
- Nurse Practitioner or
- Physician Assistant

I'm

- English
- A mid-life crisis cyclist
- A workforce analyst



# Many projections of a varying future shortage of physicians

- Search “physician shortages in the us” gives
  - Google – 7,300 hits
  - Pubmed – 86 hits
- 2017 AAMC forecast projects shortfalls of between 7,300 and 43,100 primary care physicians and 40,800 and 104,900 total physicians by 2030<sup>1</sup> The projection acknowledge the increase in supply of APRNs and PAs –although unsure of the effect on physician demand
- Federal government (HRSA) forecasts shortage of 6,400 primary care physicians in 2020<sup>2</sup> with increased use of NPs and PAs

<sup>1</sup> AAMC, [https://aamc-black.global.ssl.fastly.net/production/media/filer\\_public/a5/c3/a5c3d565-14ec-48fb-974b-99fafaeeecb00/aamc\\_projections\\_update\\_2017.pdf](https://aamc-black.global.ssl.fastly.net/production/media/filer_public/a5/c3/a5c3d565-14ec-48fb-974b-99fafaeeecb00/aamc_projections_update_2017.pdf)

<sup>2</sup> HRSA, <http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/primarycare/projectingprimarycare.pdf>



# Also many projections of a varying supply of NPs & PAs

- Bureau of Labor Statistics<sup>1,2</sup> projects that from 2014 to 2024 the:
  - PA workforce will grow by 30% and
  - NP, CRNA and Nurse Midwife workforce is estimated to increase by 31%
- HRSA<sup>3</sup> forecasts between 2013 and 2025:
  - PA growth of 76% growth and
  - 93% increase in NP supply.

1. Bureau of Labor Statistics (BLS), U.S. Dept. of Labor (DoL), *Occupational Outlook Handbook, 2016-17 Edition*, Physician Assistants, <http://www.bls.gov/ooh/healthcare/physician-assistants.htm> (visited April 26, 2017).

2. BLS, U.S. DoL, *Occupational Outlook Handbook, 2016-17 Edition*, Nurse Anesthetists, Nurse Midwives, and Nurse Practitioners, <http://www.bls.gov/ooh/healthcare/nurse-anesthetists-nurse-midwives-and-nurse-practitioners.htm> (visited April 26, 2017).

3. Health Resource and Services Administration. National and Regional Projections of Supply and Demand for Primary Care Practitioners: 2013-2025. November 2016. <http://bhwh.hrsa.gov/sites/default/files/bhwh/health-workforce-analysis/research/projections/primary-care-national-projections2013-2025.pdf>



# The Research Question

- Compare the effect that different growth rates in NP and PA supply would have on physician shortage estimates
- Used FutureDocs Forecasting Tool developed at Sheps Centre UNC-CH  
<https://www2.shepscenter.unc.edu/workforce/>



# The Sheps model – supply side

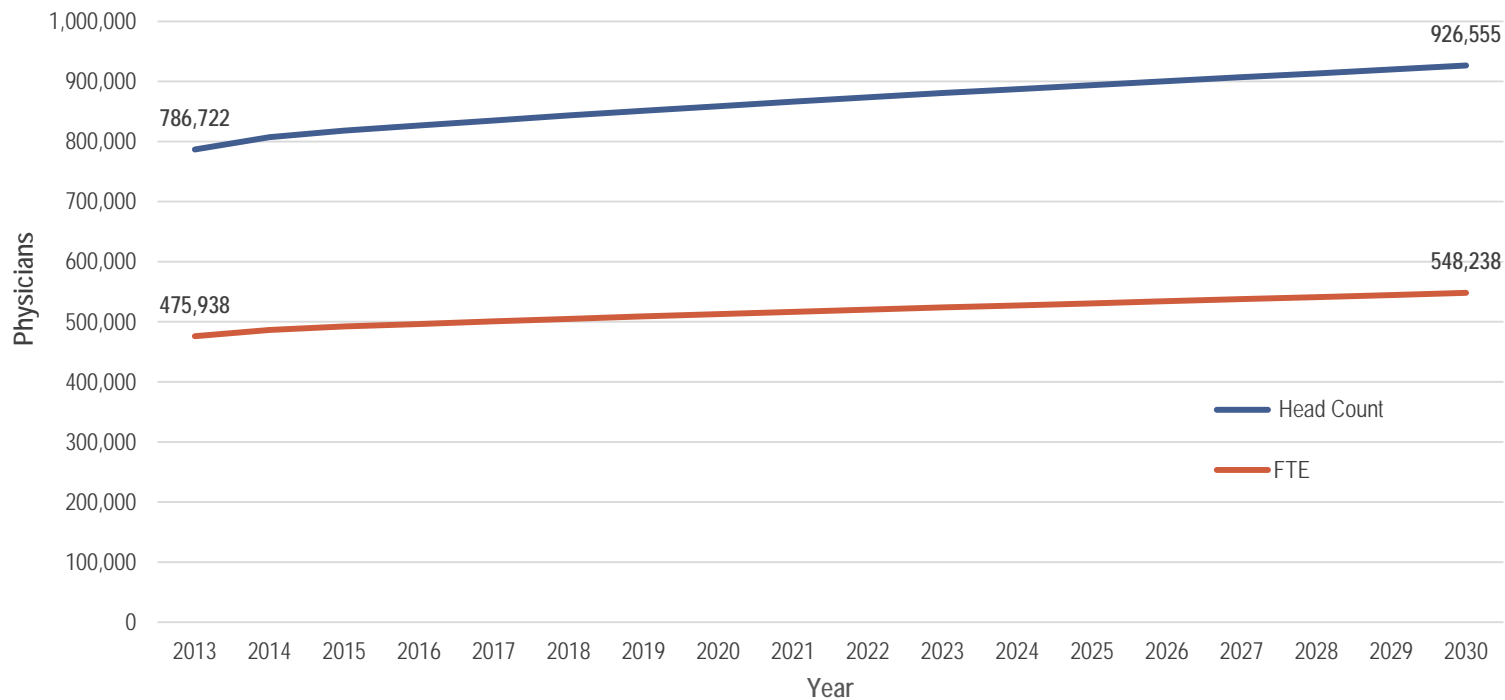
- Micro simulation individual physician by
  - Age, Gender
  - 35 specialty categories
  - In 293 Tertiary Service Areas (that approximate medical markets) and for each State
- Based on data from:
  - 2013 AMA Masterfile
  - AAMC GME Track<sup>1</sup> survey of residency supply
  - NC HPDS<sup>2</sup> to estimate patient care FTE

1. AAMC GMETrack <https://www.aamc.org/services/gmetrack/>

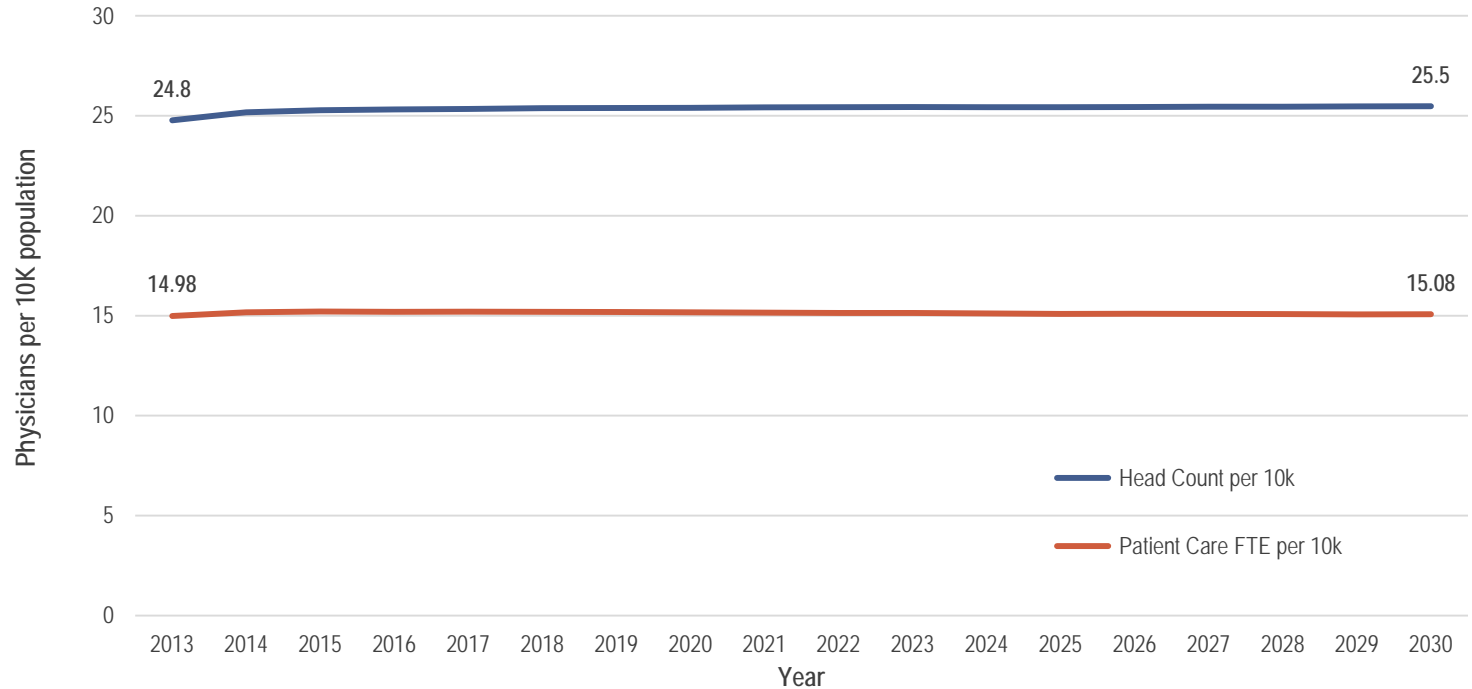
2. NC Health Professions Data System <http://www.shepscenter.unc.edu/programs-projects/workforce/projects/hpds/>



# Supply forecast to increase 18% by headcount & 15% by FTE



# Per capita supply forecast to increase 3% by headcount per 10K & 1% by FTE per 10K





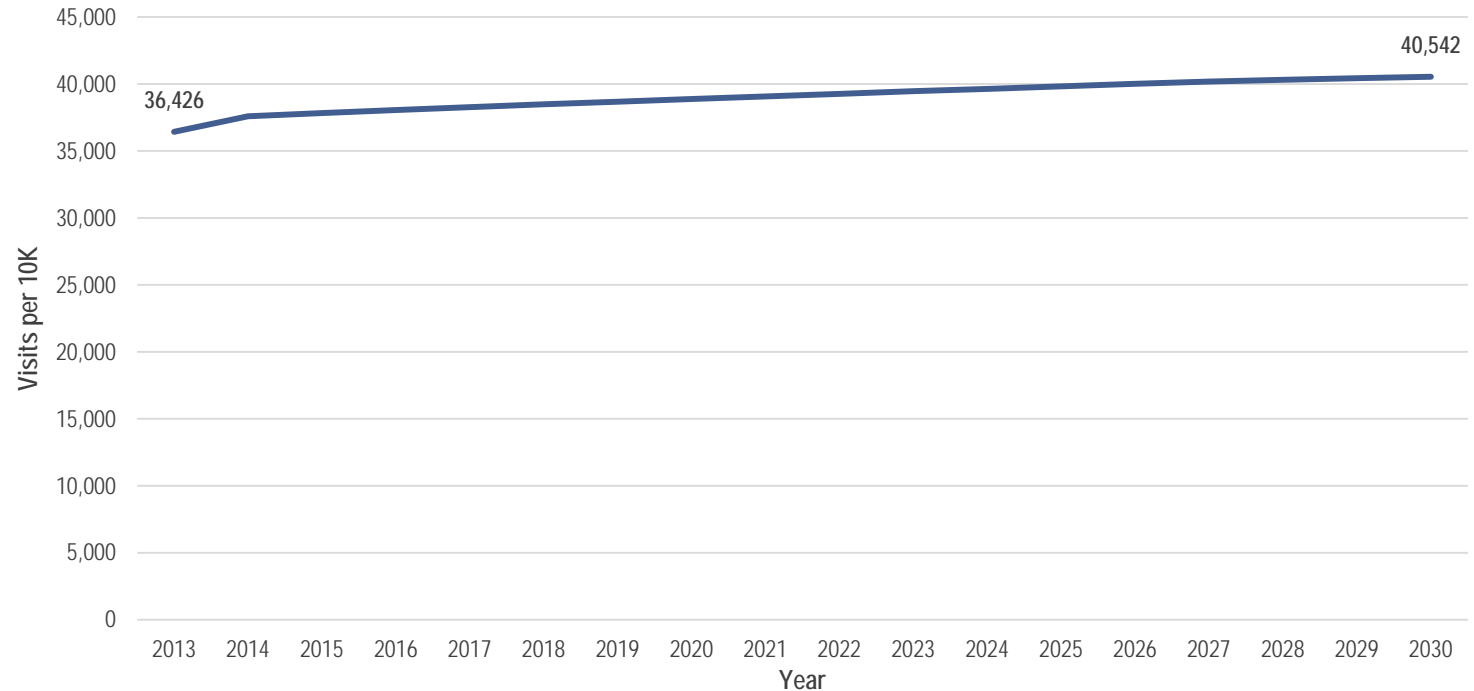
# The Sheps model – demand side

- Based on the
  - Medical Expenditure Panel Survey (MEPS)<sup>1</sup> data
  - Population growth and demographic changes
- Generates forecast of demand by visits by:
  - 19 clinical service areas
  - In 293 Tertiary Service Areas and for each State

1. Medical Expenditure Panel Survey (MEPS) <https://meps.ahrq.gov/mepsweb/>



# Demand forecast to increase by 11% by visits per 10K



# Bringing together supply and demand

- From MEPS we have the total number of visits provided by each specialty in each clinical service area =  $V$
- For 2013 we have estimate of total FTE for each specialty =  $F$
- $V/F$  = Average Number of Visits per FTE for each specialty
- Which then gives a forecast of the number of visits provided by physician supply in each clinical service area

# “Relative Capacity”: Indicator of how well physician supply matches use of services

Model calculates “**relative capacity**” —  
a measure for each clinical service area in each geography

= supply of visits physicians in that TSA/State can provide  
utilization of visits needed by population in TSA/State



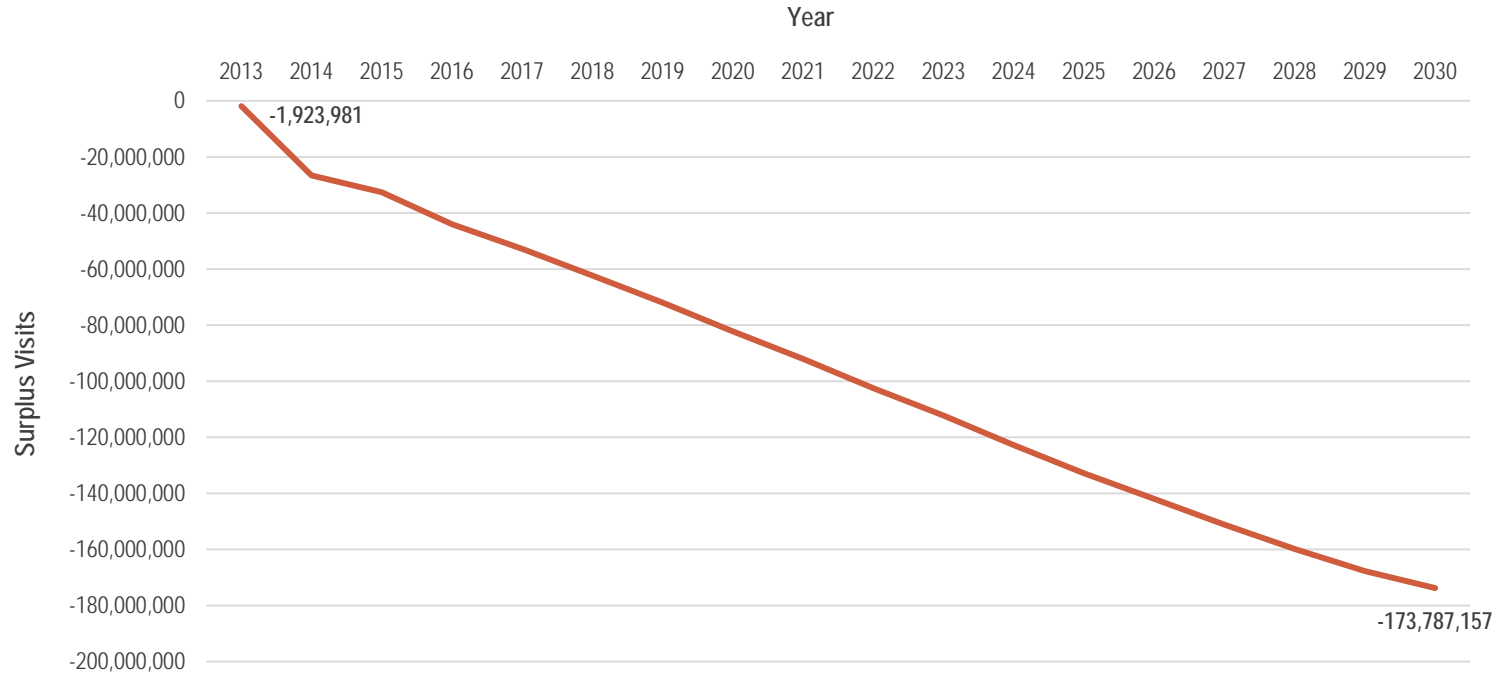
**<.85=shortage**

**.85-1.15=in balance**

**>1.15=surplus**



# Model forecasts a shortage of 170 million visits or 4.7K visits per 10K



# Even More projections of a varying future shortage of physicians

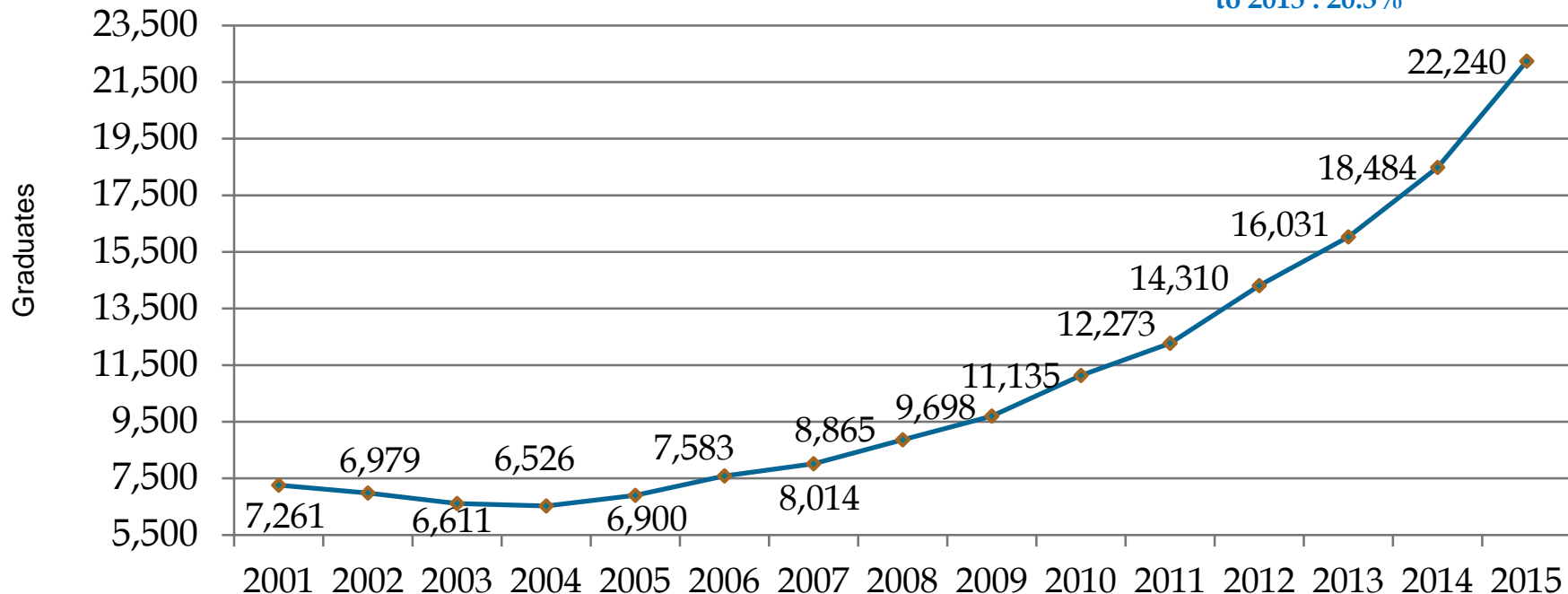
- 2017 AAMC forecast projects shortfalls of between 7,300 and 43,100 primary care physicians and 40,800 and 104,900 total physicians by 2030. The projection acknowledges the increase in supply of APRN and PAs –although unsure of the effect on physician demand
- Federal government (HRSA) forecasts shortage of 6,400 primary care physicians in 2020 with increased use of NPs and PAs
- Based on average of 2,500 visits per physician FTE, Sheps forecasting shortage of ~70,000 FTE physicians in 2030.



# But we have growth in Nurse Practitioner Graduates\*

2001 - 2015

Growth from 2014  
to 2015 : 20.3%



\*Counts include master's and post-master's NP and NP/CNS graduates, and Baccalaureate-to-DNP graduates.

Source: American Association of Colleges of Nursing (AACN) and National Organization of Nurse Practitioner Faculties (NONPF) Annual Surveys

# NPs and PAs are already doing “some of that”

- MEPS records visits undertaken by NPs & PAs across the 19 clinical service areas.
- They do not work
  - Across all clinical service areas
  - Complete as many visits per FTE as physicians
- But they are NOW undertaking activity that otherwise would be undertaken by physicians
- So why not use this dataset to model the effect of an increase supply of NPs and PAs



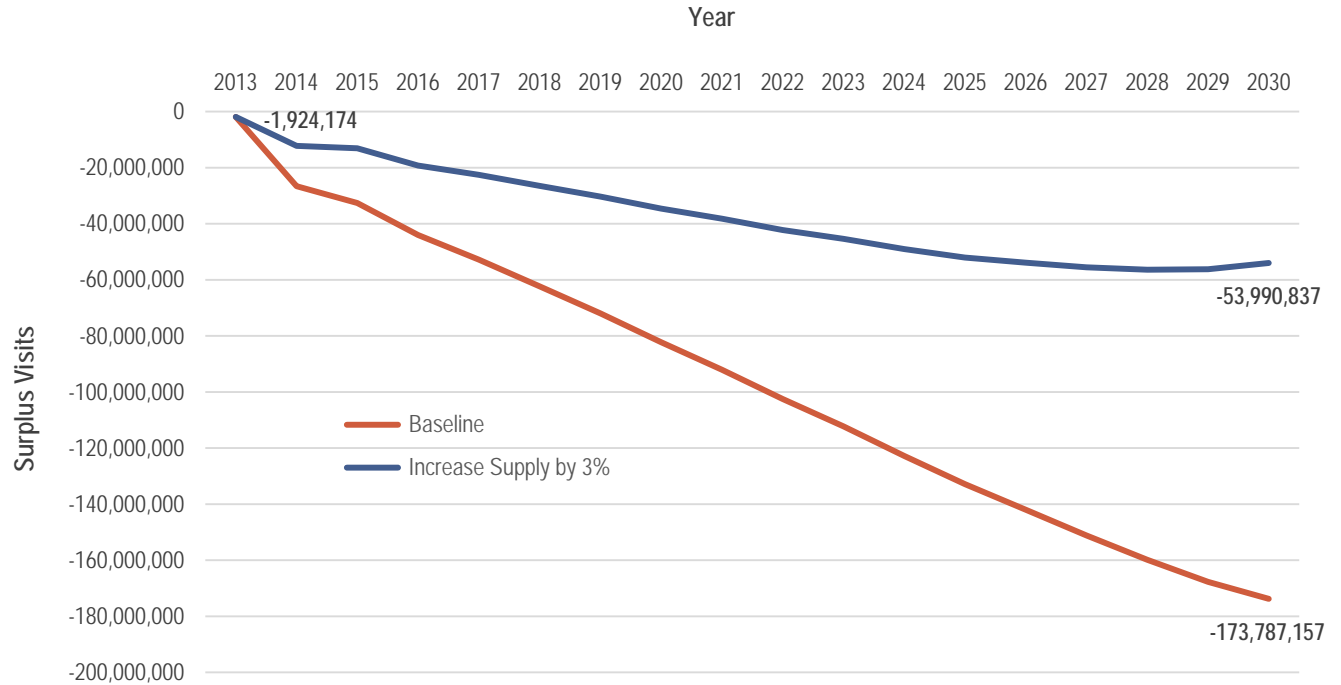
# Modeling increase NP/PA supply to reduce physician demand

- Modeled a 3% and 6% increase in NP & PA supply per year.
- For each FTE they undertake the same number of visits as currently recorded in MEPS. Therefore not modeling either:
  - Increase in productivity
  - Changes in scope of practice



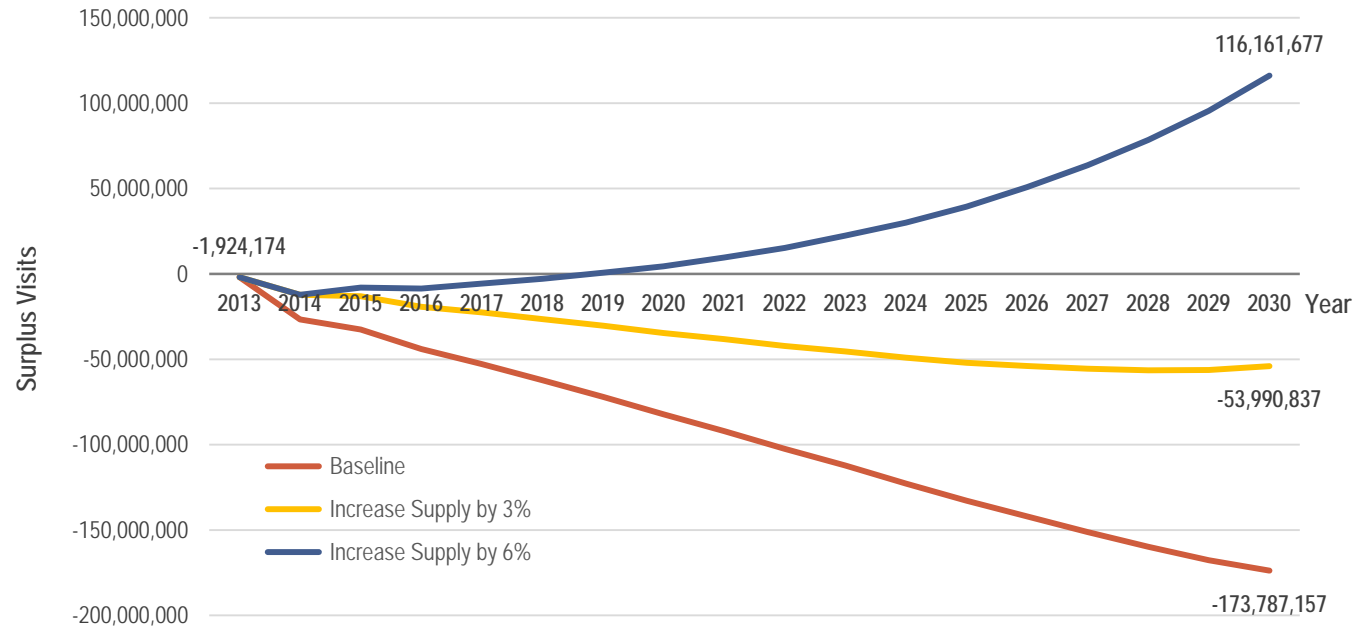
# 3% increase in supply

Forecasting by  
2030 a **shortage**  
of 53 million visits  
or 22.2K/FTE



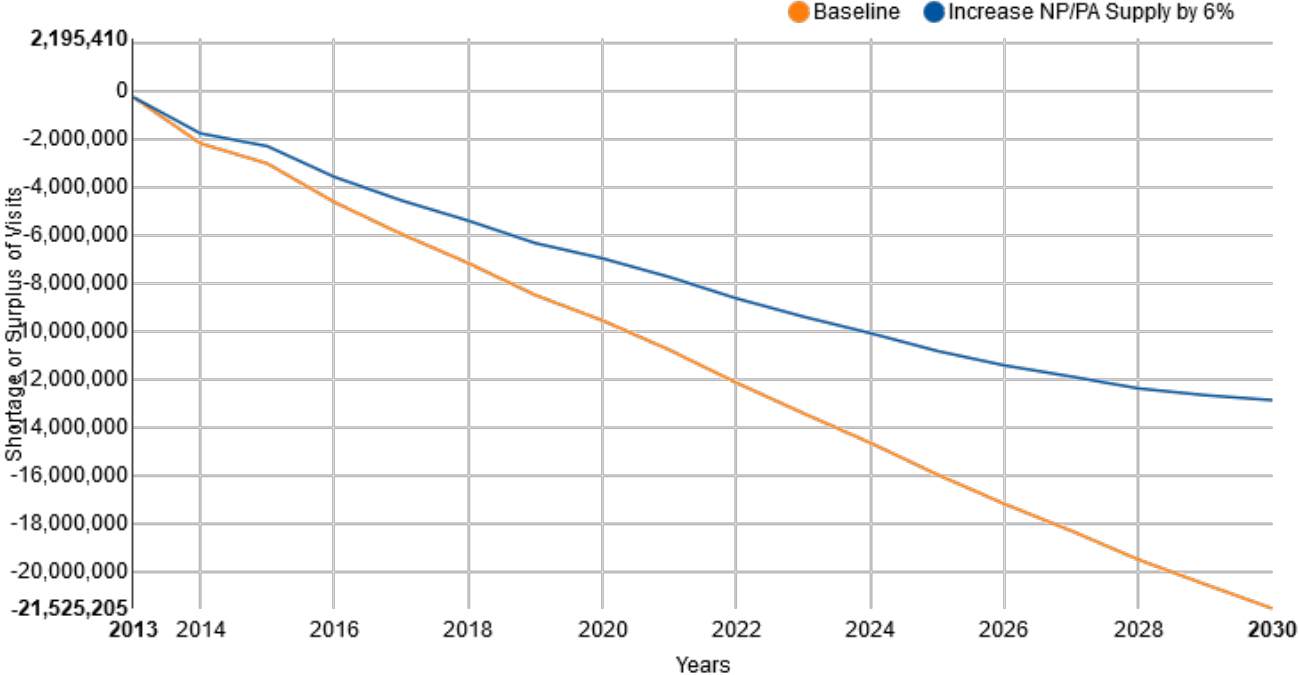
# 6% increase in supply

Forecasting by 2030 a surplus of 116 million visits or 15K/FTE



# But even with 6% growth...

Some clinical service areas even at national level – for example, Nervous Systems – remain in shortage



<https://www2.shepscenter.unc.edu/workforce/model.php>: Increase NP/PA Supply by 6% - View: Line Chart; Geography: State; Model: Shortage or Surplus; Provider Setting: All; State: All States; Unit of Measure: Shortage or Surplus of Visits; Clinical Service Area: Nervous System

# Implications

- By making use of the growth in supply of NPs & PAs the forecast undersupply of physicians can be resolved.
- But they are not a magic bullet
- Geographic and Physician Specialty Supply issues remain



# Qualitative research

- Mid-life crisis cyclist
  - Breaks Collar Bone
  - Fractures Thumb
- Treated in ED by an NHS Nurse Physician with no direct Medical contact
- Matches the similar finding of Virani<sup>1</sup> that Diabetes and CVD care quality was comparable between physicians and APPs



1. Virani S. et al. Comparative effectiveness of outpatient cardiovascular disease and diabetes care delivery between advanced practice providers and physician providers in primary care: Implications for care under the Affordable Care Act. *Am Heart J.* 2016;181:74-82



# Contact info

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