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Forecasting the Nursing Workforce in California

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Goals of this project

- **Forecast the supply of nurses**
- **Forecast the demand for nurses**
- **Compare the supply to projected demand**

- **Based on the projected shortage/surplus, we can…**
  - Understand the short-term and long-term needs for nurses in California
  - Identify strategies to address future shortages

Changes to the model

- **New data**
  - Numbers of RNs
  - Employment patterns (2012 survey)
  - Graduations (2011-2012 Annual Schools Report)
  - Endorsement, inactive transitions, lapsed license data 2011-2012
- **More reliance on BRN data**
  - State-to-state migration data from 2008 NSSRN is too old
- **Adding "high" and "low" estimates for employment rates**
  - High = highest rate for each age group in 2008, 2010, or 2012
  - Low = lowest rate for each age group in 2008, 2010, or 2012

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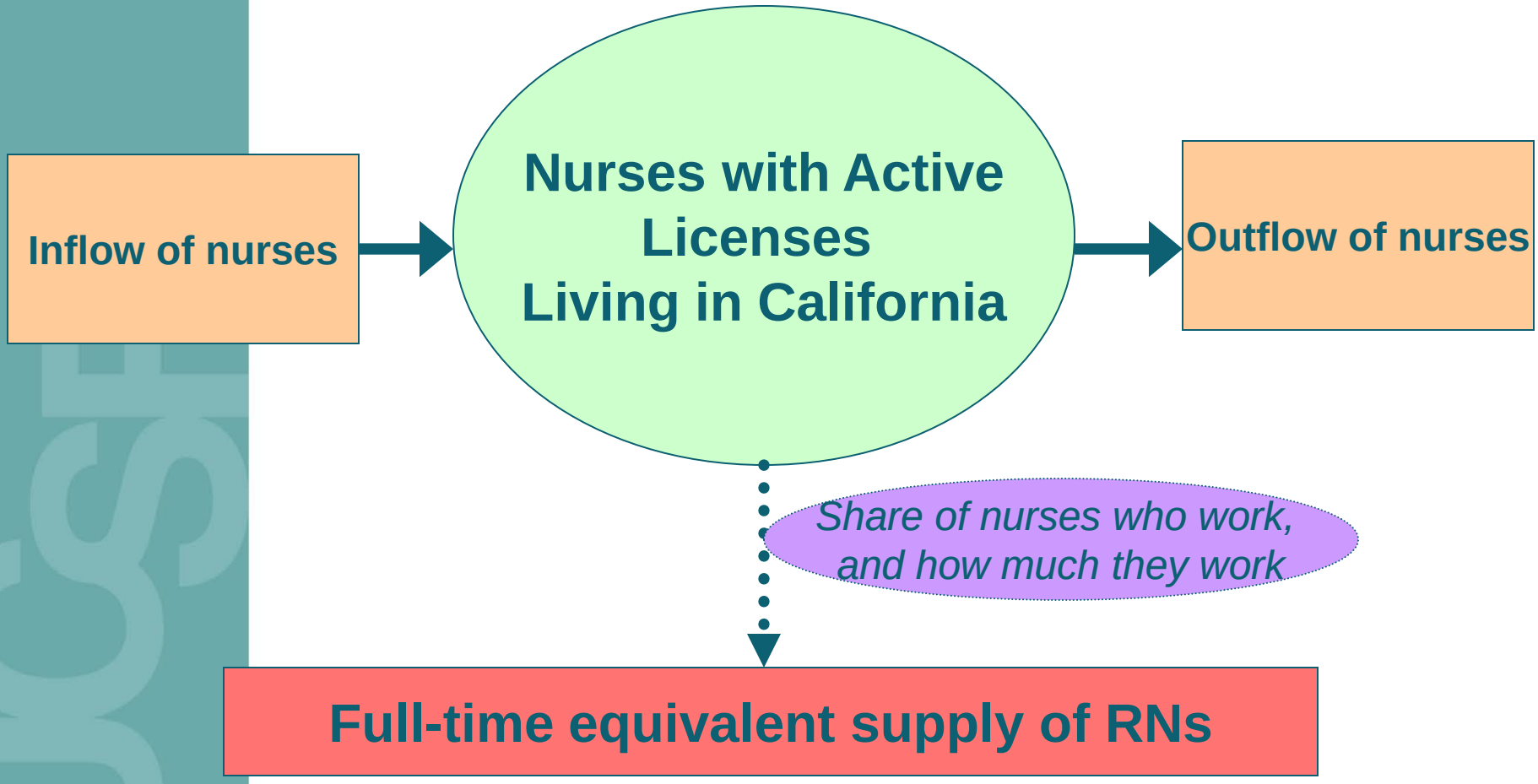
Basic structure of the model

- **Supply: Stock-and-flow model**
- **Demand: Focus on RNs per capita, compared with national benchmarks**

A model of the supply of RNs



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Nurses with active licenses

- Number of nurses with active licenses and California addresses in 2013 provided by BRN
- 5-year age groups provided by BRN

Inflows of RNs

- Graduations from California nursing programs
- Immigration from other countries
- Migration from other states
- Transition from inactive license
- Transition from lapsed license

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Outflows of nurses

- Migration to other states
- Transition to inactive or lapsed license

How do the numbers compare with the 2011 forecasts?

- **Graduations are expected to drop in 2015-2016**
- **Fewer graduates projected than in the 2011 forecast**

	New enrollment	Projected enrollment from 1 yr	Projected enrollment from 2 yrs	Graduations
2010-2011	**14,228**	13,141	14,835	**10,666**
2011-2012	**13,691**	13,895	13,340	**10,814**
2012-2013		**12,948**	13,867	**11,009**
2013-2014			**12,601**	**11,176**
2014-2015				**11,617**
2015-2016				**10,557**

How do the numbers compare with the 2011 forecasts?

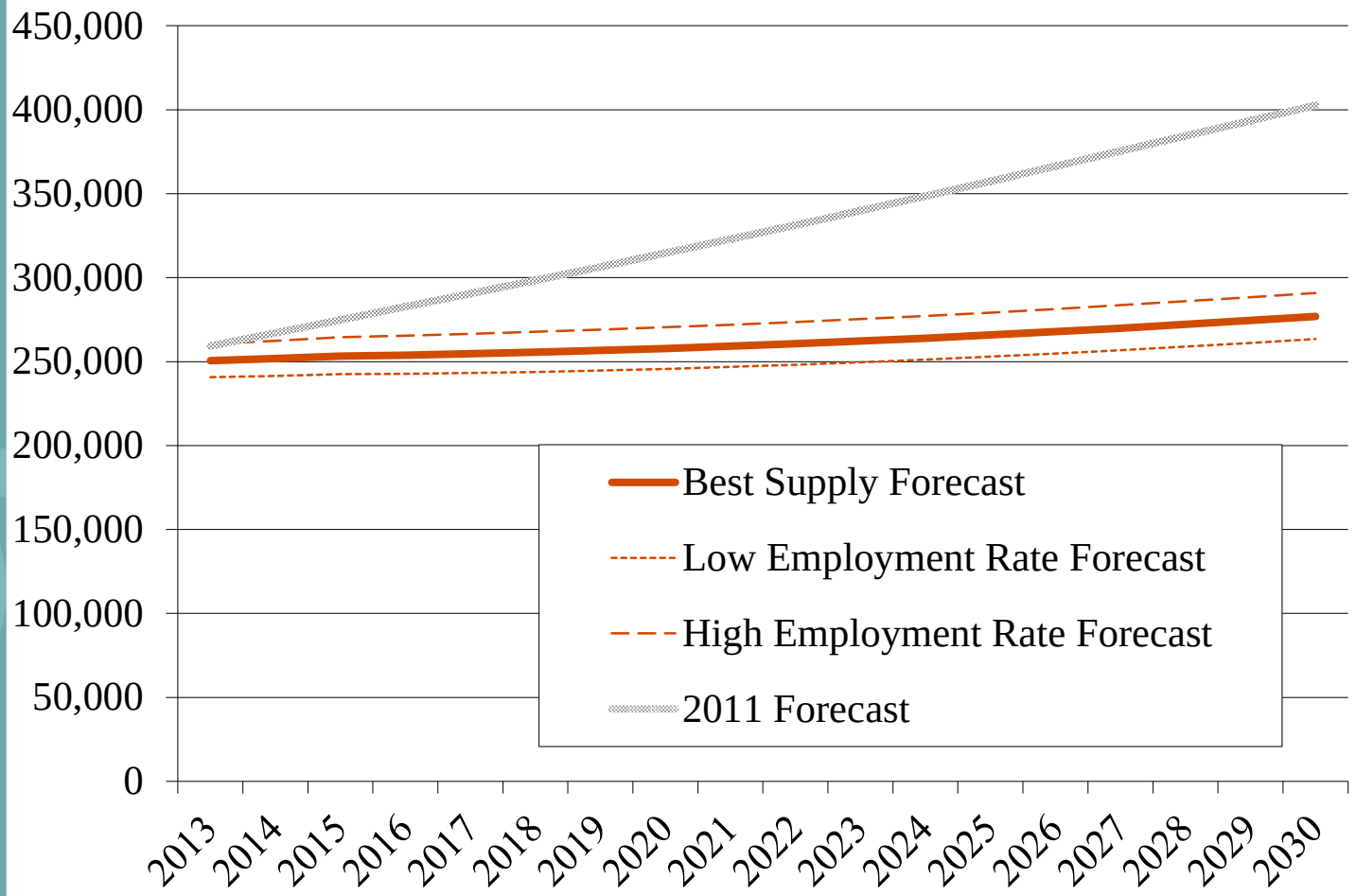
- **Declines in licenses to new grads from other states & foreign-educated RNs**
  - 25% drop for out-of-state
  - 46% drop for foreign-educated
- **Fewer RNs moving to California from other states**
  - Big revision downward in estimates has significant effect on forecasts
- **Lowered forecast of RNs moving out of California as compared with 2011**
  - Weighting the 2008 NSSRN less
- **Employment rates are lower among younger RNs, higher among older RNs**

How does the supply forecast work?

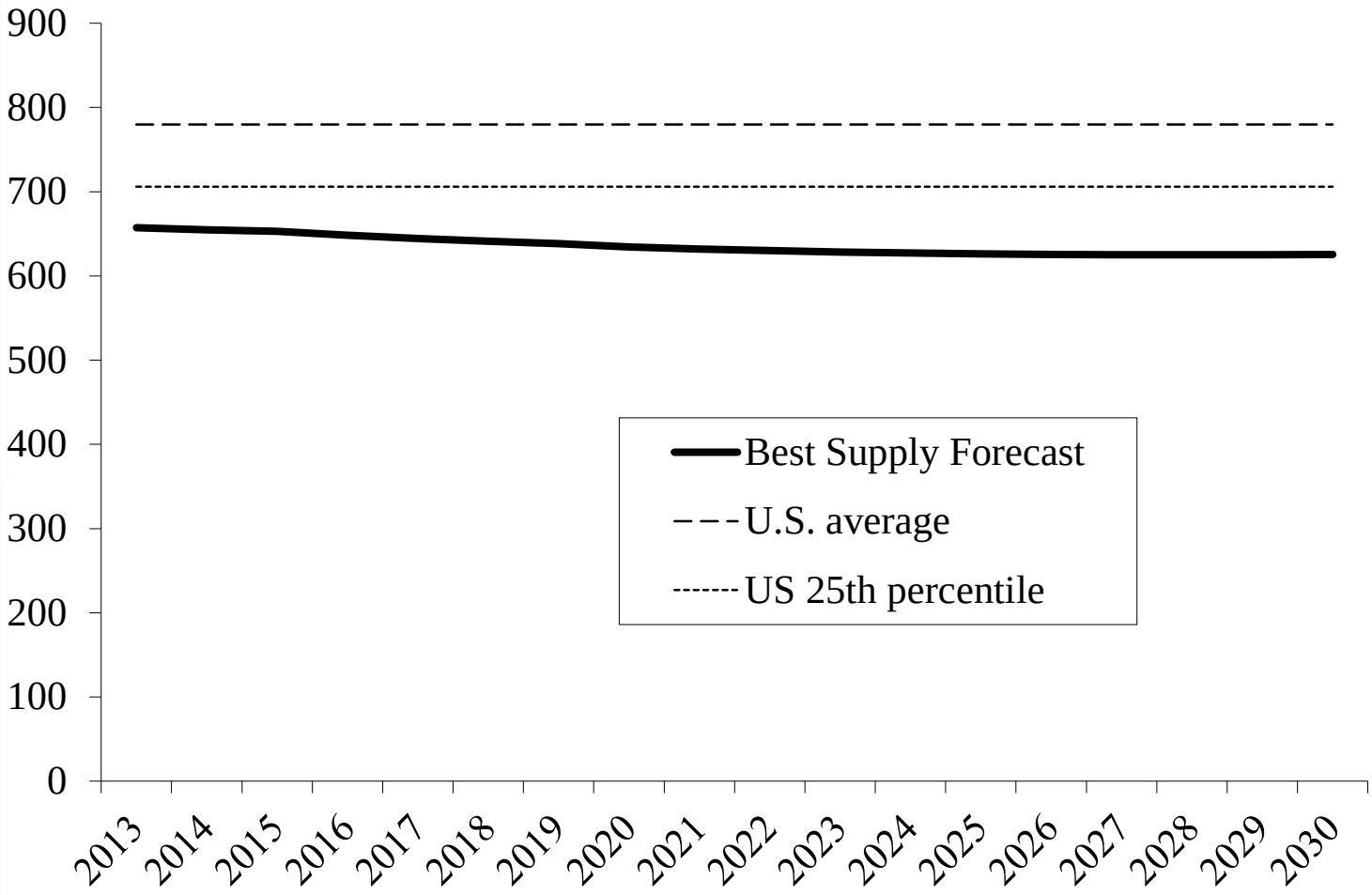
- **The supply of actively licensed RNs next year for an age group will equal….**
  - 4/5 of the nurses in the age group (1/5 will “age up” to the next group)
  - 1/5 of the nurses from the younger age group
  - Inflow of nurses in the age group
  - Outflow of nurses in the age group
- **Multiply the number of actively licensed RNs by the labor-force participation data to get**

  Full-Time Equivalent Supply

The range of supply forecasts (RN FTEs)



Forecast of Full-time Equivalent RNs per 100,000 population



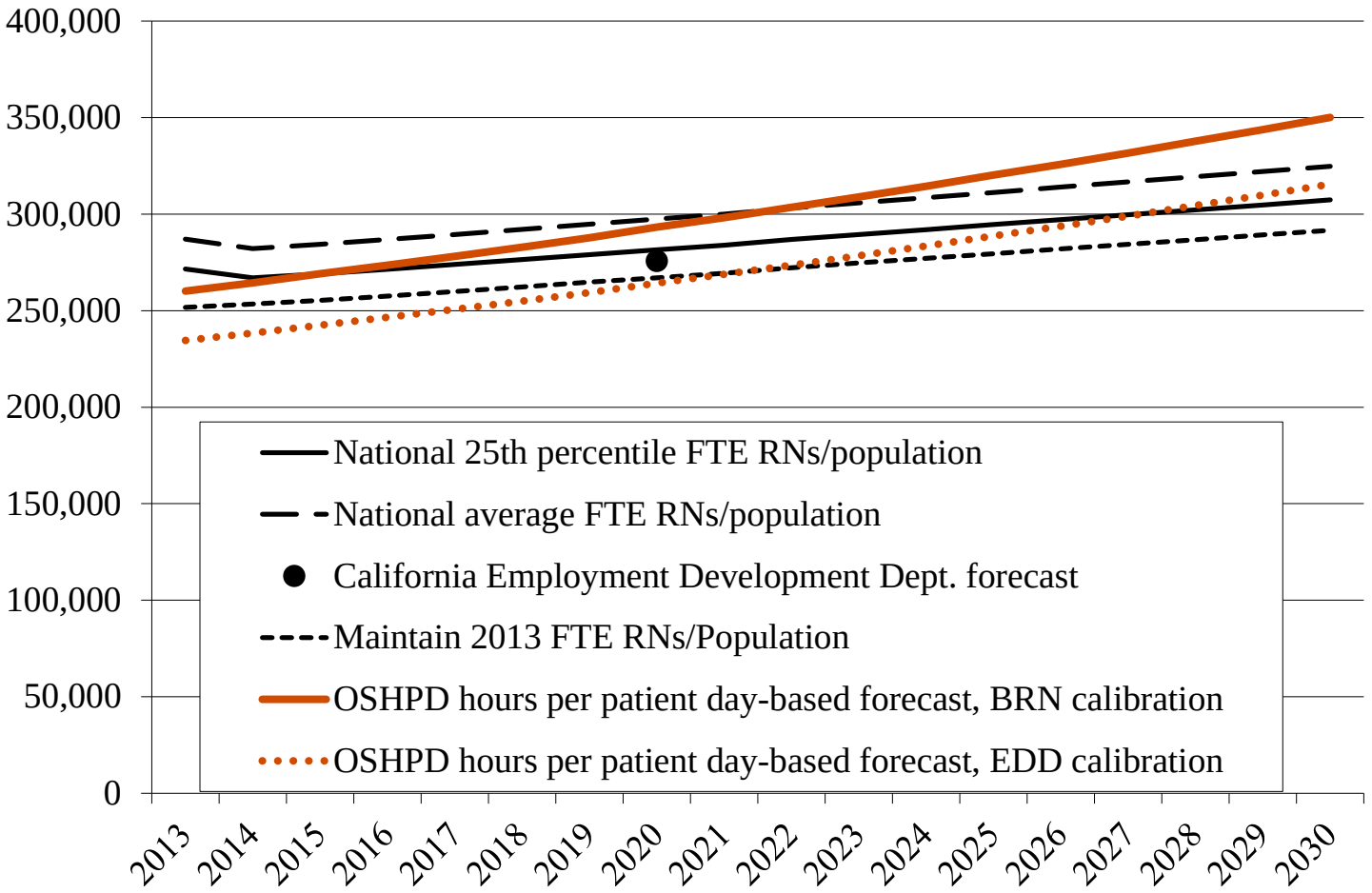
How do we compare to other states?

Working RNs per 100,000 (2013 estimate for CA; 2008 for other states)	
Utah	598
Nevada	618
California	*657*
Texas	671
Georgia	705
Virginia	708

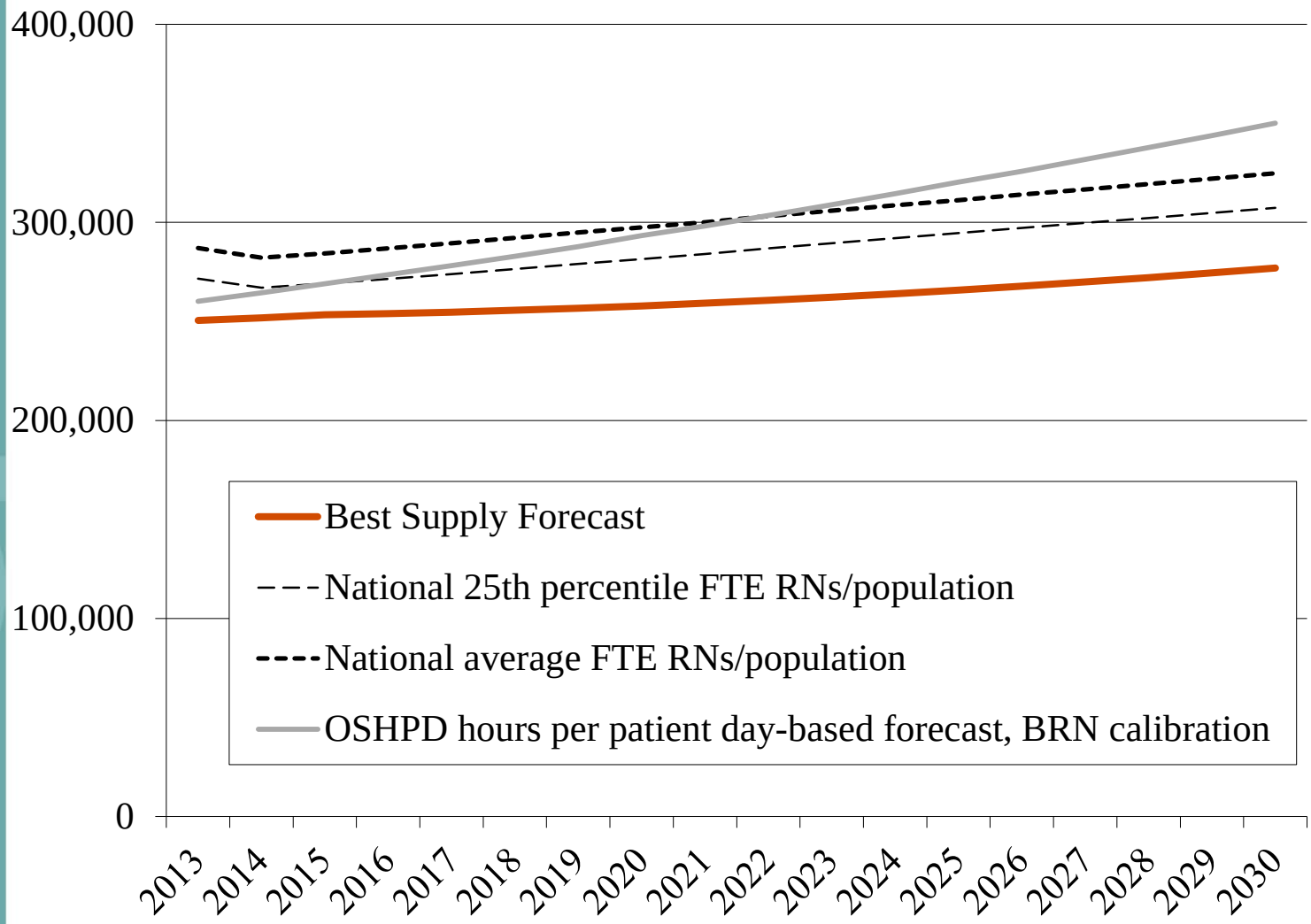
What is demand?

- **National benchmarks: Employed RNs per 100,000**
  - California was ranked 48th in 2008, 589 per 100,000
  - 25th percentile: 799.5 per 100,000
  - National average: 854 per 100,000
  - 50th percentile: 890 per 100,000
  - **These were adjusted to FTEs for the supply-demand comparison**
- **Bureau of Labor Statistics, forecast of 2020 demand**
  - 275,782 FTEs (was 236,400 FTEs for 2018)
- **RNs per patient day, 2011-2012 fiscal year**
  - Estimate growth in patient days based on population growth
  - Predict hospital RN demand from patient days forecast
  - Estimate overall demand as function of hospital demand

Forecasts of RN demand



Best supply and demand forecasts for RNs, 2013-2030



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Implications for policy

- **How do we define shortage?**
  - Are current employment levels adequate?
  - Should California be at the national average? 25th percentile? Bottom?
  - Economic demand vs. need-based demand
- **In this economy…**
  - Demand is starting to ramp up again
- **What do we need to do?**
  - Stop the expected declines in RN school sizes
  - Consider growing our RN programs a bit more