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
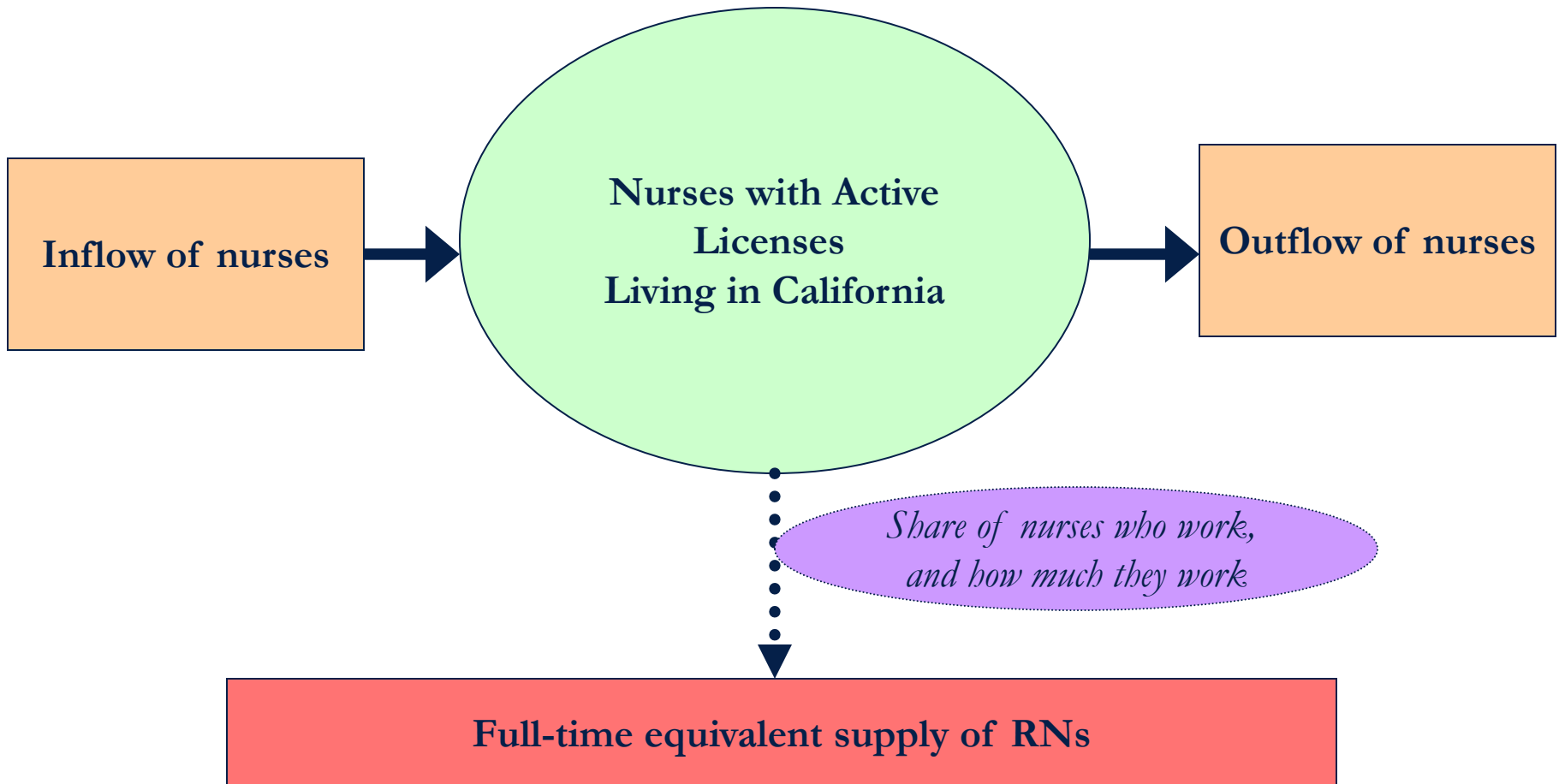
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Changes to the model

- New data

  - Numbers of RNs

  - Employment patterns (2016 survey)

  - Graduations (2015-2016 Annual Schools Report)

  - Endorsement, inactive transitions, lapsed license data 2016

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Basic structure of the model

- Supply: Stock-and-flow model

- Demand: Focus on RNs per capita
  - Compared with national benchmarks
  - Compared with projections from EDD, HRSA

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A model of the supply of RNs

Inflow of nurses → Nurses with Active Licenses Living in California → Outflow of nurses

Share of nurses who work, and how much they work

Full-time equivalent supply of RNs

Nurses with active licenses

- Number of nurses with active licenses and California addresses in April 2017 provided by BRN

- 5-year age groups provided by BRN

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Inflows of RNs

- Graduations from California nursing programs

- Immigration from other countries

- Migration from other states

- Transition from inactive license

- Transition from lapsed license

Outflows of nurses

- Migration to other states

- Transition to inactive or lapsed license

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Graduation data

- Actual data (red) from 2014-15 & 2015-16

- Projected enrollments provided by RN schools in the Annual Schools Survey

- Projected graduations (light blue) are 80.8% of enrollments from 2 years prior

	New enrollment	Projected enrollment from 1 yr	Projected enrollment from 2 yrs	Graduations
2014-2015	**13,318**	12,162	13,347	**11,119**
2015-2016	**13,152**	13,110	12,177	**11,191**
2016-2017		13,862	13,236	**10,761**
2017-2018			14,219	**10,627**
2018-2019				**11,200**
2019-2020				**11,489**

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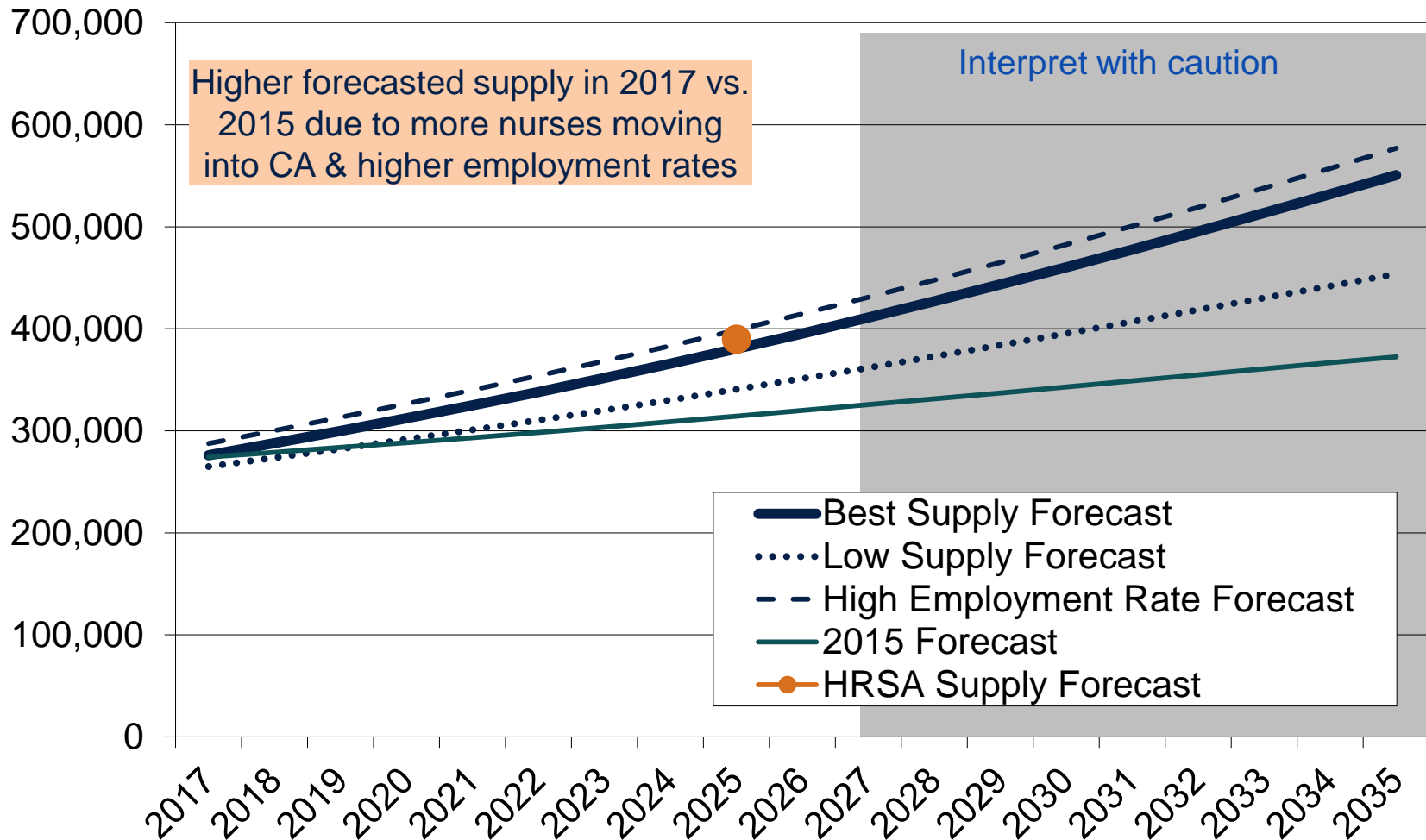# How do the numbers compare with the 2015 forecasts?

- More out-of-state graduates getting first licenses in California

- Higher rate of nurses <30 years moving into the state

- More nurses re-activating licenses

- Fewer young nurses moving out of California

- Stable rates of licenses lapsing

- Higher employment rate of younger RNs

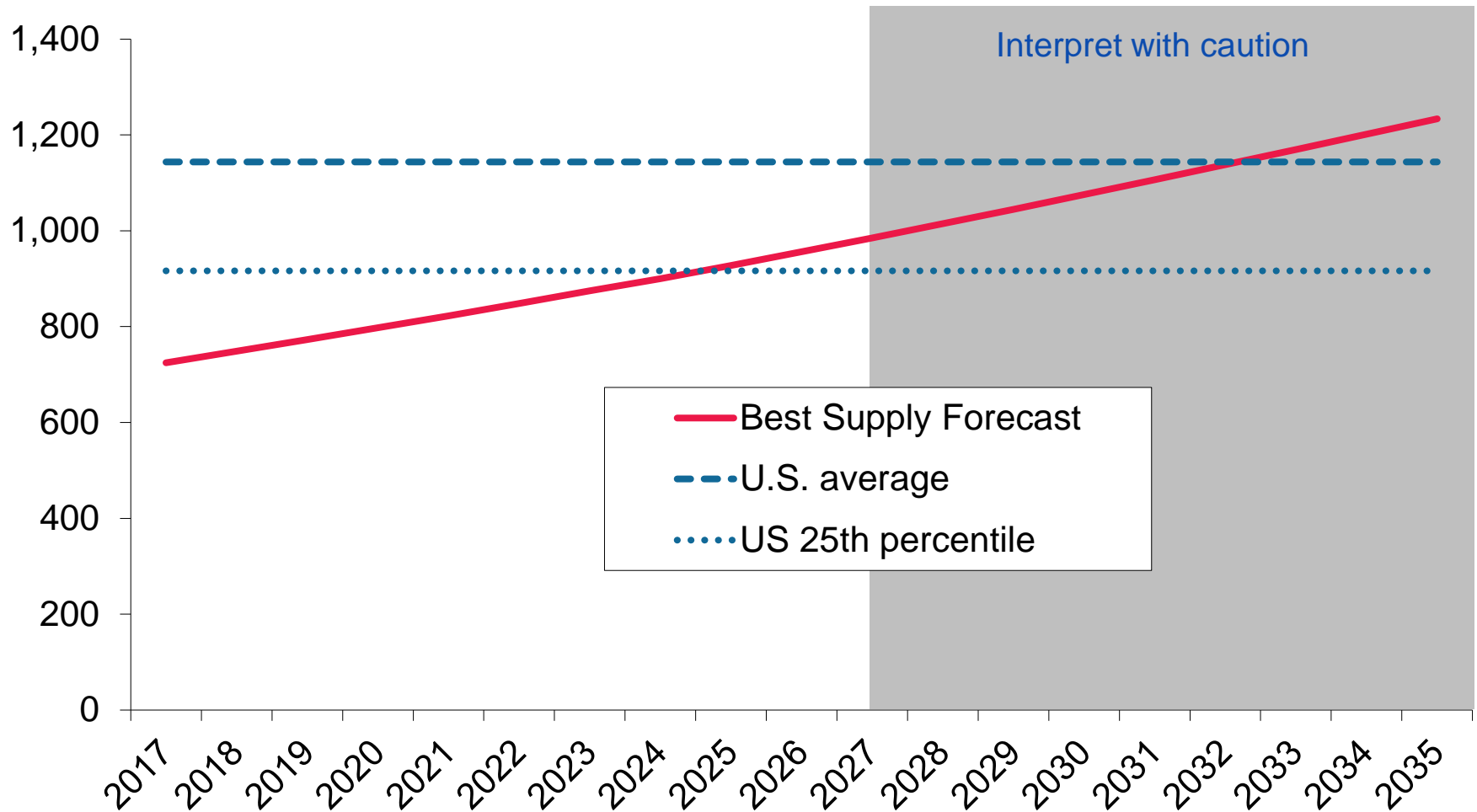**UCSF**

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)

Higher forecasted supply in 2017 vs. 2015 due to more nurses moving into CA & higher employment rates

Interpret with caution

Legend:
- Best Supply Forecast
- Low Supply Forecast
- High Employment Rate Forecast
- 2015 Forecast
- HRSA Supply Forecast

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Forecast of Employed RNs per 100,000 population

How do we compare to other states?

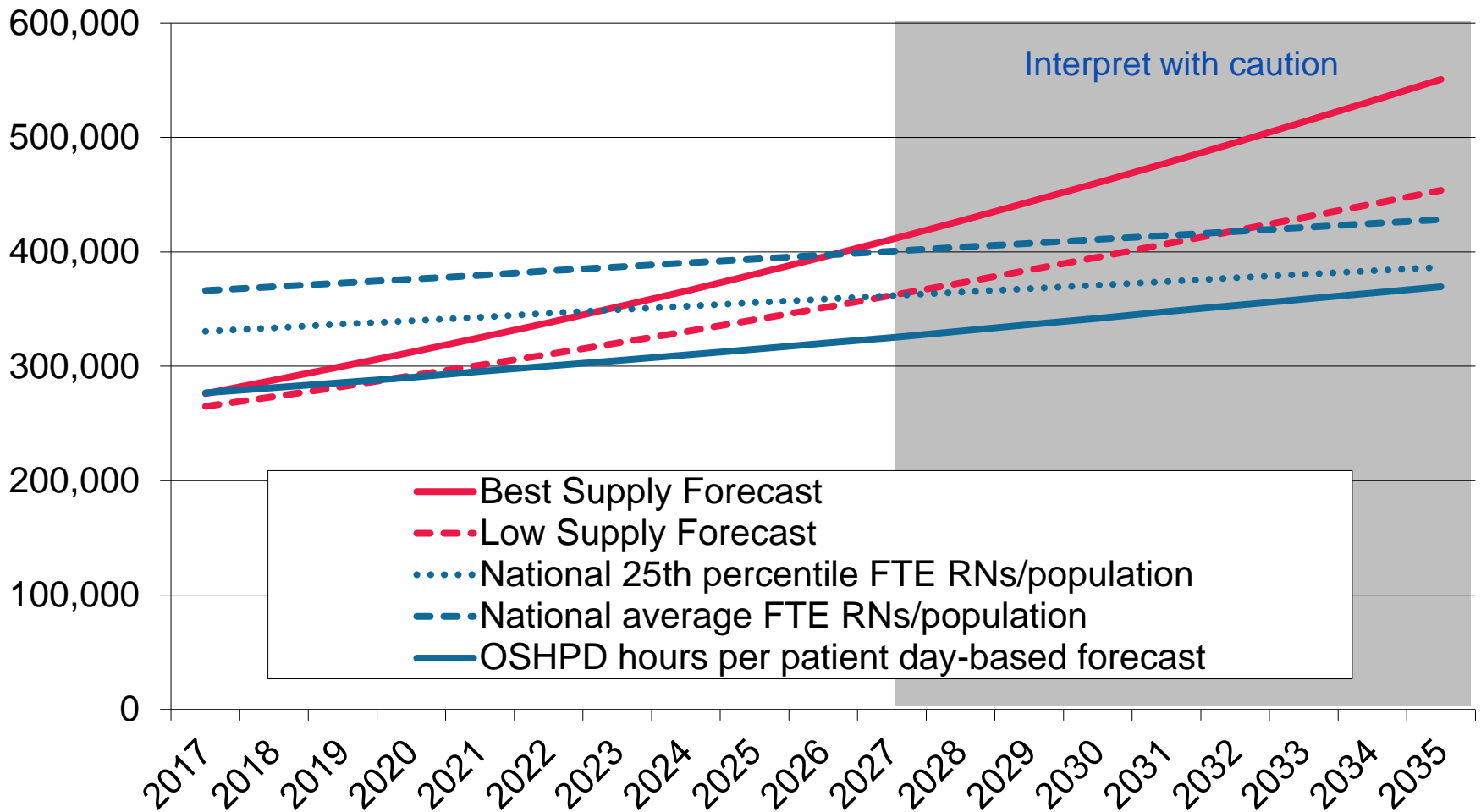| Working RNs per 100,000 2015 American Community Survey	
Wyoming	584
Nevada	678
Utah	771
New Mexico	774
California	809
Alaska	836

What is demand?

- National benchmarks: Employed RNs per 100,000
  - California had 809 in 2015
  - National 25th percentile: 916 per 100,000 (was 857)
  - National average: 1,038 per 100,000 (was 936)
  - These were adjusted to FTEs
- Employment Development Department, forecast of 2024 demand
  - 300,300 jobs (17.3% growth from 2014)
- Health Resources and Services Administration, forecast of 2025
  - 393,600 jobs
- RNs per patient day, 2015
  - 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

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Forecasts of RN demand

Interpret with caution

Legend:
- National 25th percentile FTE RNs/population
- National average FTE RNs/population
- California Employment Development Dept. forecast
- Maintain 2017 FTE RNs/Population
- OSHPD hours per patient day-based forecast
- HRSA Demand Forecast

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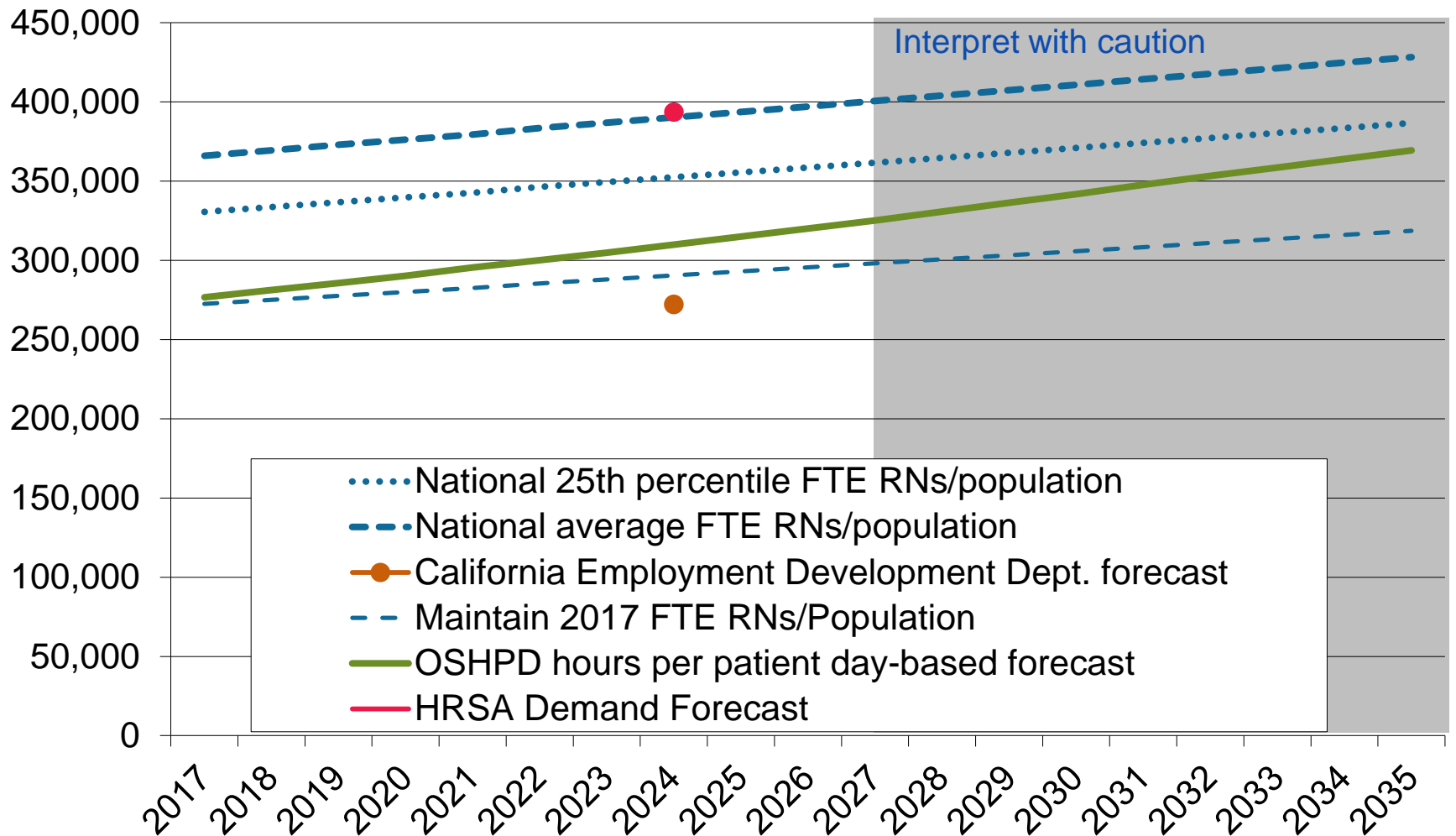
Best supply and demand forecasts for RNs, 2017-2035

Implications for policy

- Supply is projected to be higher than the 2015 forecasts
  - Depends on inflow of RNs from other states, and outflow
  - Depends on employment rates – need to ensure new graduates are employed
- Demand is very hard to predict?
  - Are current employment levels adequate?
  - Should California be at the national average? 25th percentile?
  - HRSA forecast is viewed as "better" than EDD forecast
- Risks
  - Retirements of RNs & ensuring new graduates have skills for vacant positions
  - Reductions in enrollments and graduations in RN education

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