# 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 (2014 survey)
  - Graduations (2013-2014 Annual Schools Report)
  - Endorsement, inactive transitions, lapsed license data 2014
- More reliance on BRN data
  - State-to-state migration data from 2008 NSSRN is too old
  - BRN data now from BreEZe extract reports
- Extended forecasts to 2035

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# Basic structure of the model

- Supply:  Stock-and-flow model

- Demand:  Focus on RNs per capita, compared with national benchmarks

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# A model of the supply of RNs
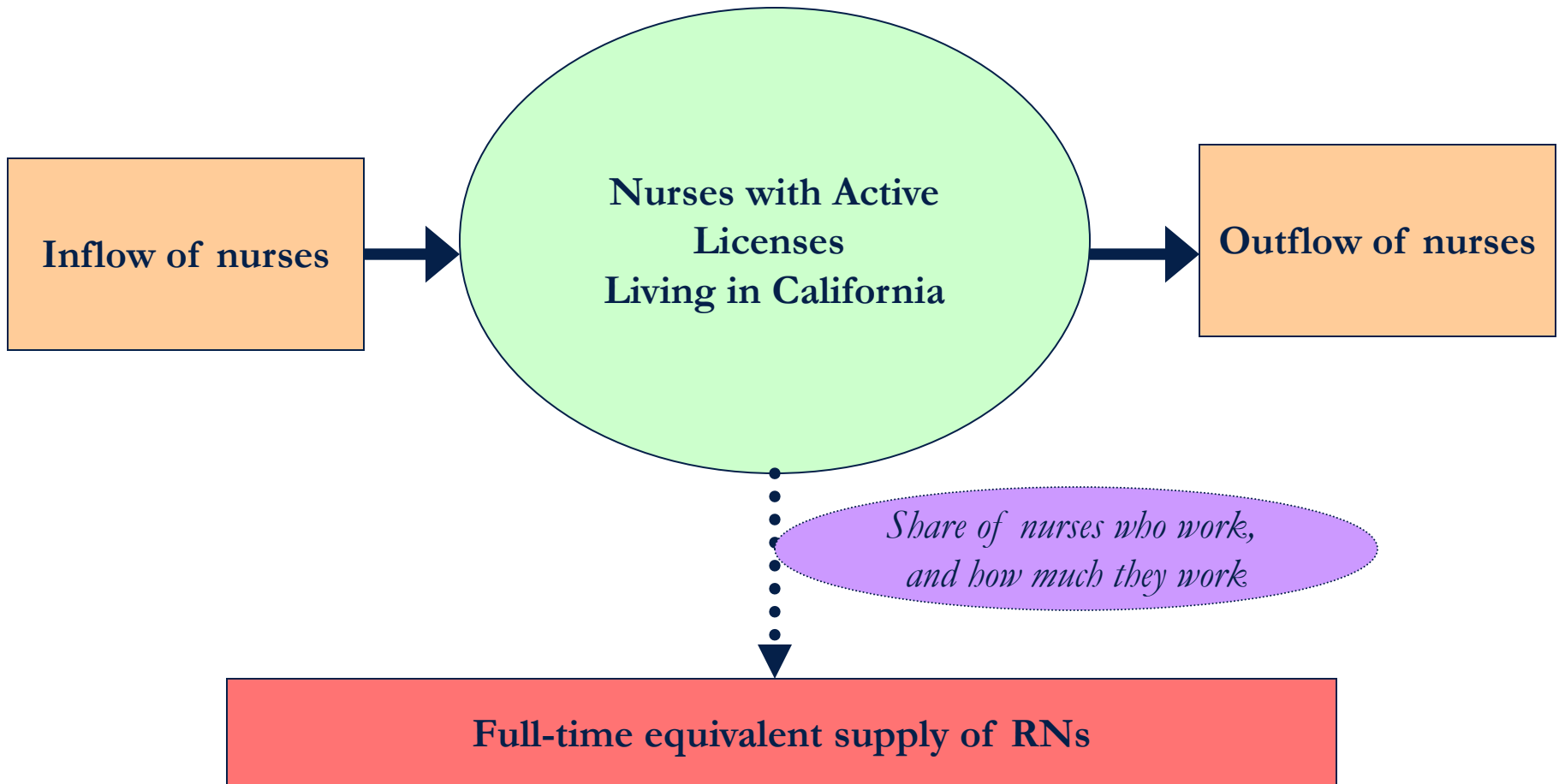
# Nurses with active licenses

- Number of nurses with active licenses and California addresses in April 2015 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

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# Outflows of nurses

- Migration to other states

- Transition to inactive or lapsed license

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# How do the numbers compare with the 2013 forecasts?

- Graduations are expected to drop in 2014-2015

- Fewer graduates projected than in the 2013 forecast

|  | New enrollment | Projected enrollment from 1 yr | Projected enrollment from 2 yrs | Graduations |
|---|---|---|---|---|
| 2012-2013 | **13,181** | 12,948 | 13,867 | **11,292** |
| 2013-2014 | **13,226** | 13,342 | 12,601 | **11,291** |
| 2014-2015 |  | **12,162** | 13,347 | **10,795** |
| 2015-2016 |  |  | **12,177** | **10,832** |
| 2016-2017 |  |  |  | **9,960** |
| 2017-2018 |  |  |  | **9,972** |

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# How do the numbers compare with the 2013 forecasts?

- Declines in licenses to new grads from other states & foreign-educated RNs

    - 54% drop for out-of-state

    - 62% drop for foreign-educated

    - BreEZe extract reports may not be complete (yet)

- Small changes in movements into and out of California

- Employment rates expected to rise a bit among younger RNs, drop a bit among older RNs

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# 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 for 2015 (RN FTEs)
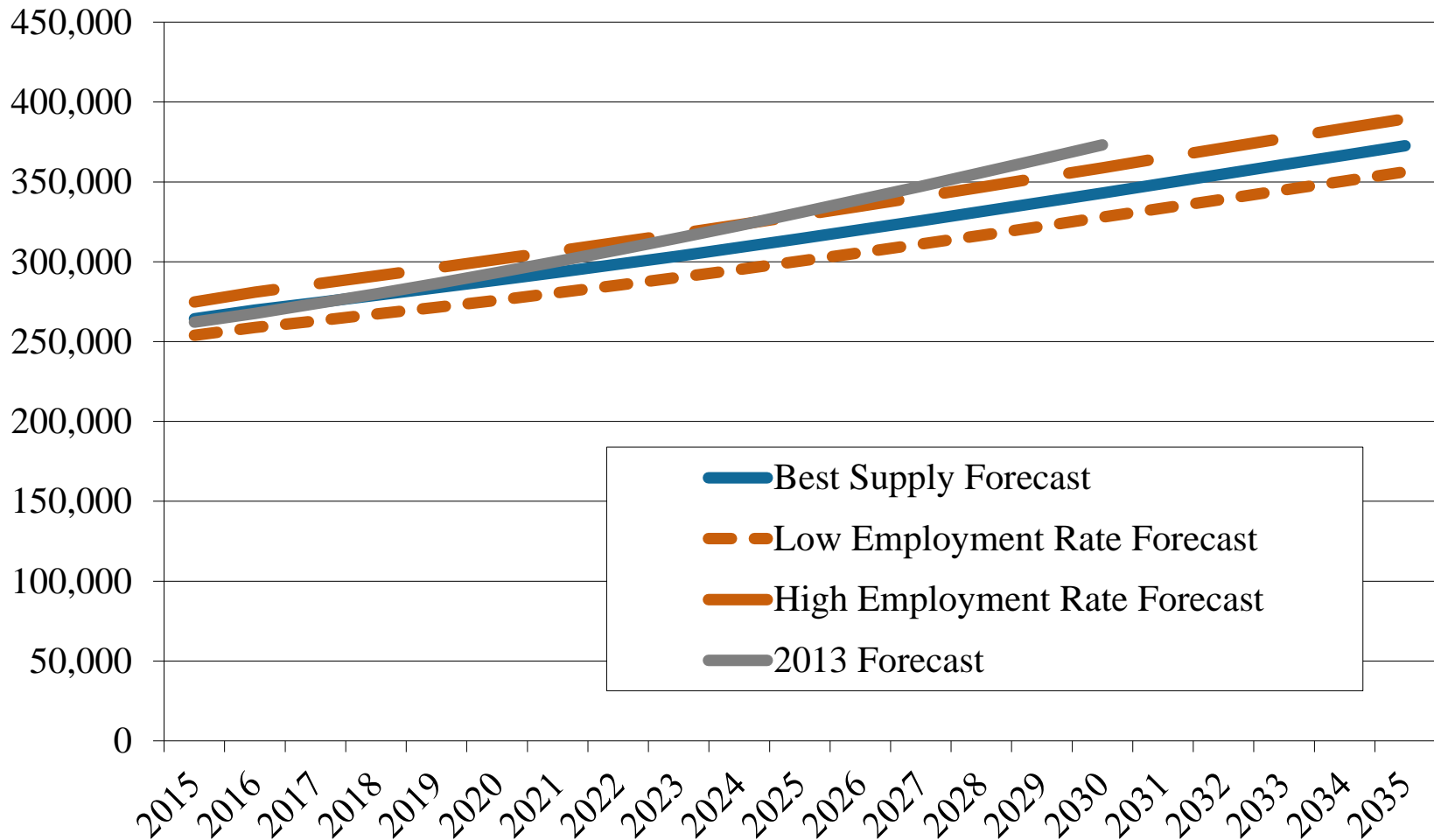
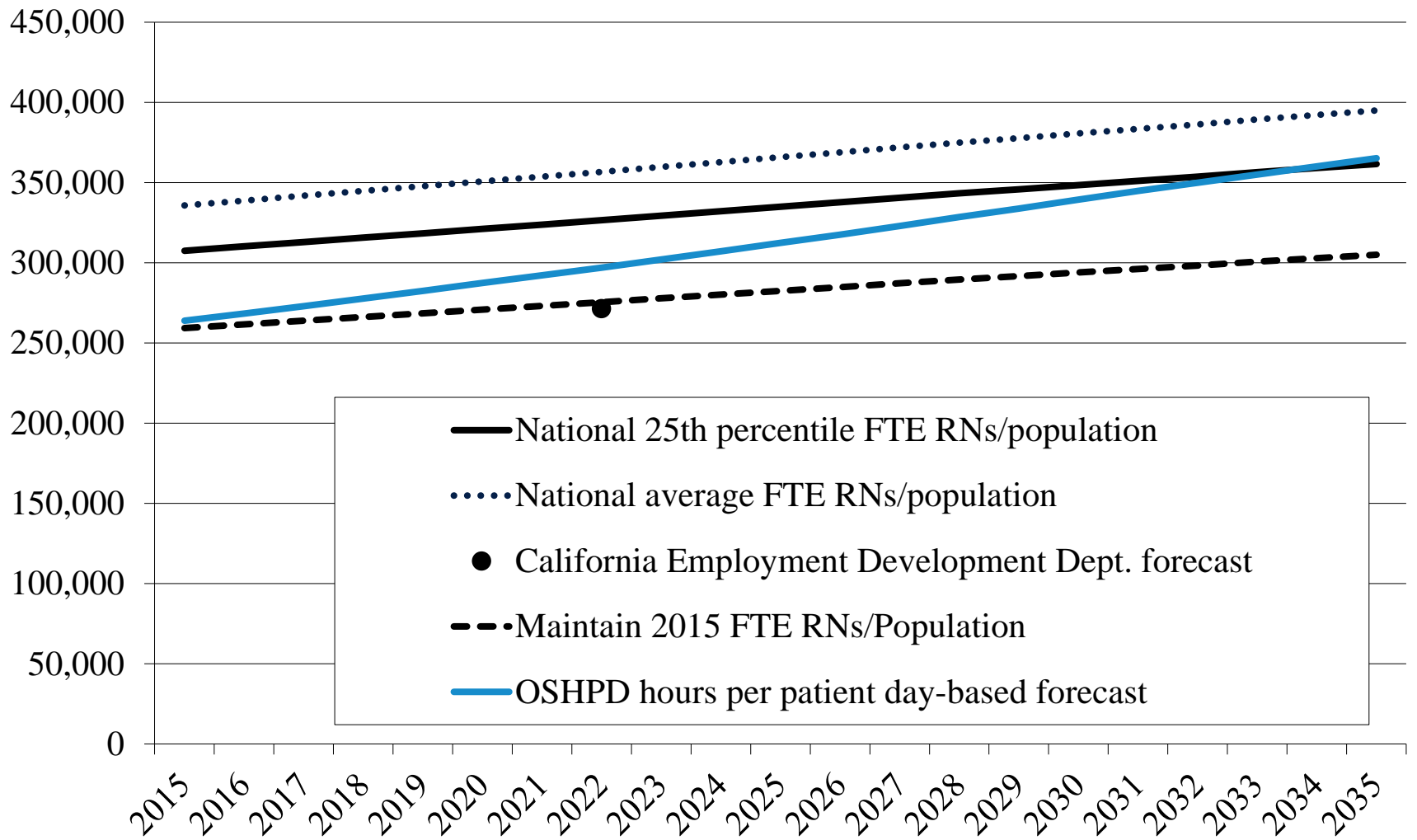# Forecast of Full-time Equivalent RNs per 100,000 population



Legend:
- Best Supply Forecast
- U.S. average
- US 25th percentile

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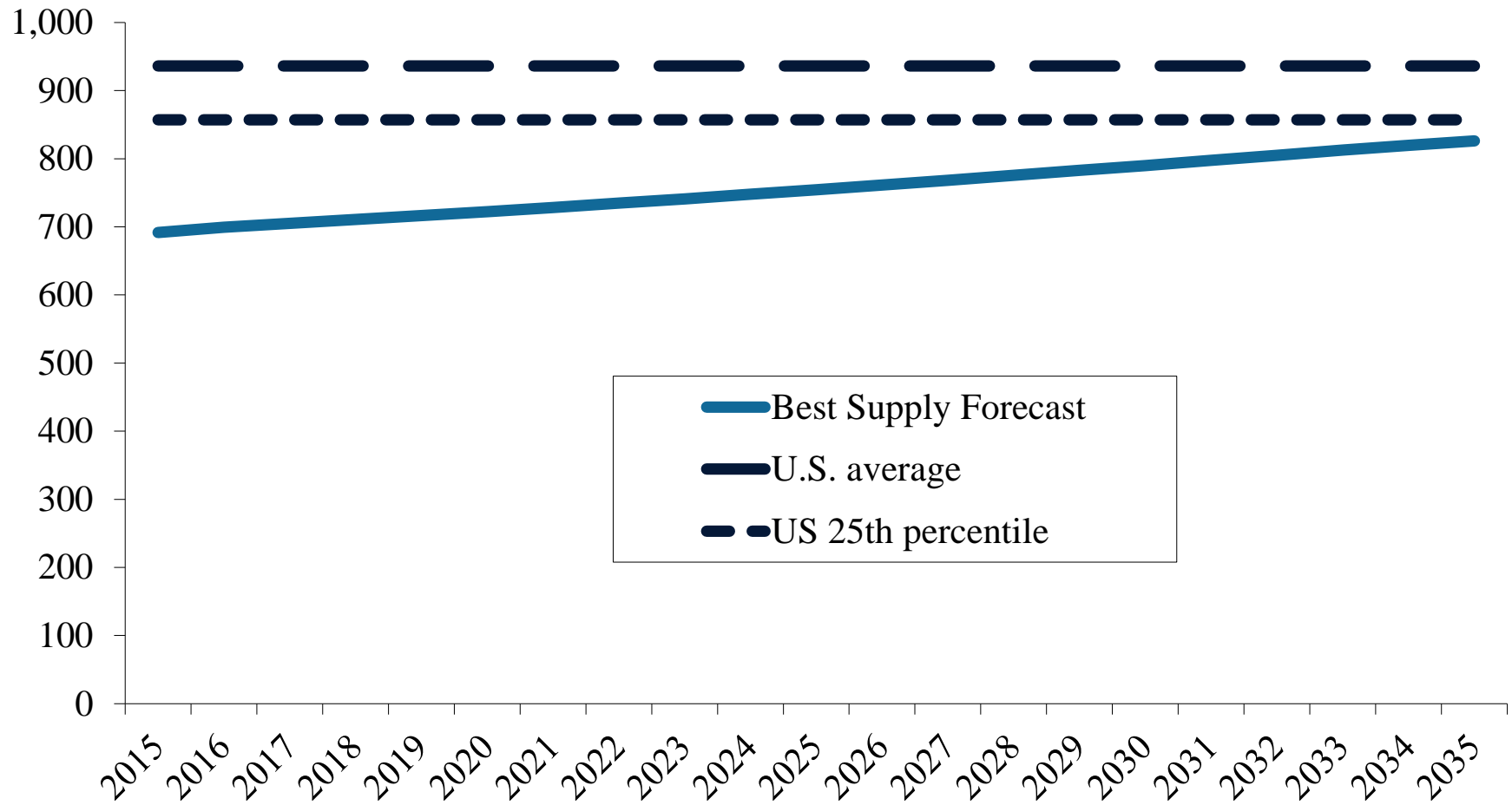
# How do we compare to other states?

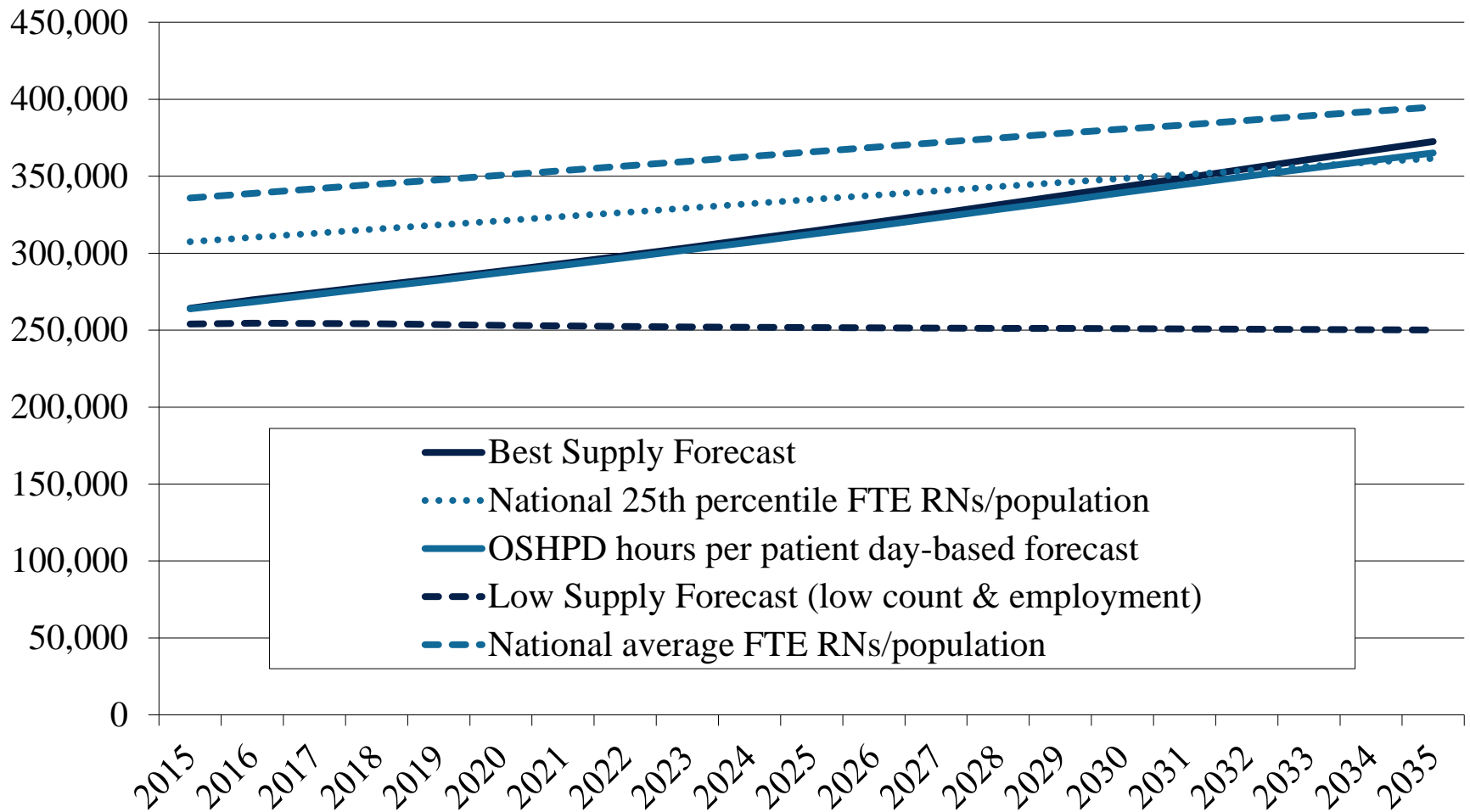| Working RNs per 100,000 2013 American Community Survey | |
|---|---|
| Idaho | 638 |
| Nevada | 648 |
| New Mexico | 678 |
| Utah | 706 |
| California | 752 |
| Vermont | 765 |

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# What is demand?

- National benchmarks: Employed RNs per 100,000

  - California had 752 in 2013

  - National 25th percentile: 857 per 100,000

  - National average: 936 per 100,000

  - These were adjusted to FTEs

- Employment Development Department, forecast of 2022 demand

  - 297,400 jobs (16.9% growth from 2012)

- RNs per patient day, 2014

  - 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

# Best supply and demand forecasts for RNs, 2015-2035



Legend:
- Best Supply Forecast
- National 25th percentile FTE RNs/population
- OSHPD hours per patient day-based forecast
- Low Supply Forecast (low count & employment)
- National average FTE RNs/population

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# Implications for policy

- Supply & demand are in close alignment

  - Are current employment levels adequate?

  - Should California be at the national average? 25th percentile?

  - Economic demand vs. need-based demand

- Risks

  - Reductions in enrollments and graduations in RN education

  - Loss of nurses to other states

- What do we need to do?

  - Stop declines in RN enrollments/graduations

  - Ensure new graduates get jobs in California

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