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Forecasts of the Registered Nurse Workforce in California

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Overview
This study uses data from two surveys conducted in California, along with other data sources, to assess the current and future supply and demand of RNs. We find that, although RN employment rates have remained steady over the past four years, many older RNs have left nursing. In addition, there has been an increase in the proportion of RNs who intend to retire or quit nursing within the next two years. RNs report high rates of burnout and many are considering leaving their current position. Supply and demand projections estimate that a shortage of RNs now exists but will diminish over the next four years as RN graduations continue to rise. However, there are scenarios in which RN supply does not increase as much as projected, creating a risk of longer-term shortages.

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Background

This study uses data from two surveys conducted in California, along with other data sources, to assess the current and future supply and demand of RNs and to learn how the coronavirus pandemic is affecting this essential workforce.

Methods

Data from the 2022 Survey of California Registered Nurses and final data from the California Board of Registered Nursing (BRN) 2022-2023 Annual School Survey were analyzed to produce an update to RN supply and demand forecasts for California. Additional data from the BRN's licensing records, the California Department of Finance, the California Department of Health Care Access and Information, and the Agency for Healthcare Research and Quality were used in the projection models. Supply projections were based on a stock-and-flow model and demand projections were based on historic RN employment and rates of health care utilization by population age group. Results were compared with projections published by the BRN in 2019, the US Health Resources and Services Administration, and the California Employment Development Department.

Results

Data from the 2022 Survey of California Registered Nurses indicate that overall RN employment has remained stable over the past four years but that many older RNs have left nursing. In addition, there has been an increase in the proportion of RNs who intend to retire or quit nursing within the next two years. Projected increases in new enrollments and graduations from RN education programs and a stable rate of migration of RNs into California from other states are anticipated to drive growth in the RN workforce, even as there is projected growth in rates of RNs moving to other states and allowing their licenses to lapse. The analysis indicates there is currently a shortage of RNs, but the gap is projected to close by 2028.

Discussion

The current shortage of RNs is projected to end by 2028 primarily due to rising numbers of nursing enrollments and graduations. However, the shortage could persist if newly graduated RNs and experienced nurses are not retained in the workforce. High rates of burnout may lead to greater turnover and departures from nursing, which could make the shortage continue or worsen. Employers need to redouble their efforts to retain experienced RNs and develop career paths for newly graduated RNs to ensure their successful transition into the workforce. They also need to rapidly develop and implement strategies to mitigate the potential harm caused by the current shortage.

Background

Reports of nursing shortages in California go back nearly a decade, particularly in rural communities and for registered nurses (RNs) with experience in specialized clinical fields such as perioperative care, labor and delivery, intensive care, and emergency care. Concerns about shortages intensified during the COVID-19 pandemic, as anecdotal reports and survey research indicate that some RNs decided to stop working in healthcare positions to recover emotionally from the high stress of working during the pandemic. In addition, nursing education programs were disrupted, with some skipping admission cohorts and others struggling to adapt their curriculum to online and simulation training. Nationwide, it has been reported that the supply of RNs decreased by more than 100,000 between 2020 and 2021, and in 2023 the U.S. Health Services and Resources Administration (HRSA) estimated that there is a shortage of 320,000 RNs, leaving nearly 10% of the current demand unfilled.

However, more recent analyses suggest that the supply of nurses is recovering, even as some employers face difficulty filling vacant positions. A national analysis of RN supply found that the total number of full-time equivalent (FTE) RNs was 6% higher in 2023 than in 2019. This study projected that the size of the RN workforce would increase by nearly 1.2 million FTEs by 2035, reaching 4.56 million FTEs, which is close to pre-pandemic forecasts by the same team and more than 1 million greater than the HRSA projection of 3.39 million FTEs. Differences in projections of California's future RN supply also have been published, with HRSA projecting that supply would grow only 4.2% between 2023 and 2028 while the California Department of Health Care Access and Information estimates that supply will increase 45.2%.

This study updates prior analyses of RN supply and demand, using data from the 2022 Survey of California Registered Nurses and the 2022-2023 California Board of Registered Nursing Annual School Survey, along with other data sources, to assess the current and future supply and demand of RNs and to explore how the coronavirus pandemic is affecting this essential workforce in the nation's most populous state.

Methods

Data from the two statewide surveys and additional administrative records were analyzed to generate updated projections of future supply and demand for RNs in California. The analysis is inclusive of advanced practice registered nurses (APRNs) – nurse practitioners, nurse midwives, nurse anesthetists, and clinical nurse specialists – who are also RNs and thus are counted in the RN data.

The Survey of California Registered Nurses has been conducted every two years since 2014. In 2022, the survey was sent to a sample of 8,000 RNs who have active California licenses, including APRNs. The survey questionnaire included items about employment, education, intention to retire or quit, and demographics. The analysis presented in this report is based on the 3,090 RNs who responded to the survey, of whom 2,912 lived in California. All analyses presented in this report are weighted to represent the total population of RNs licensed by California.

The California Annual School Survey is a comprehensive survey of all RN education programs in California. Data from the 2022-2023 survey were used in this analysis. All nursing education programs in California responded to the 2022-2023 survey.

These two surveys were combined with administrative data provided in February 2024 by the California Board of Registered Nursing (BRN). Administrative data were from calendar year 2023 and included the number of RNs changing their license status between active, inactive, and delinquent, the number of RNs having licenses from other states endorsed in California, and the number of RNs educated outside California receiving their first licenses from California.

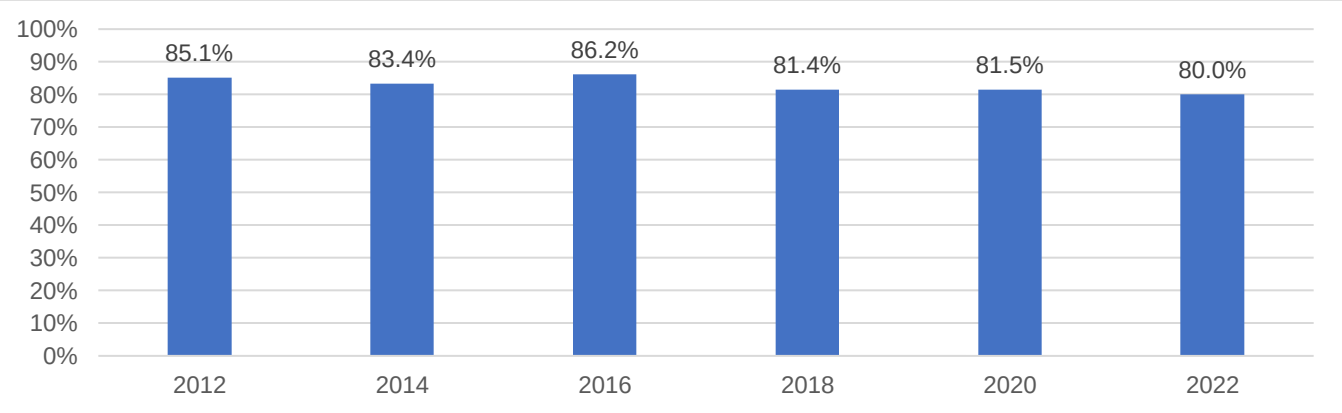
Supply projections are based on a stock-and-flow model and demand projections are based on historic RN employment and rates of health care utilization by population age group. More information about the model is provided in the technical appendix.

Results

Registered Nurse Employment

Based on the BRN 2022 survey, we estimate that 80% of California-resident RNs were employed in nursing in spring 2022 (Figure 1). There was a small decrease in the overall employment rate between 2018 and 2022, but the difference between these estimates is within the margin of error of the RN survey. In 2022, 12.7% of working RNs reported that they held more than one job, which was higher than in 2020 (11.9%) and 2018 (10.8%).

Figure 1. Percentage of California-resident RNs employed in nursing, 2012-2022



There have been notable changes in employment rates for some age groups (Figure 2). The employment rates for nurses younger than 35 years, as well as those 60 years and older, were higher in 2022 than in 2018. Employment rates were lower in 2022 than in 2018 for nurses aged 45-59 years.

Figure 2. Percentage of California-resident RNs employed in nursing, by age group, 2012-2022

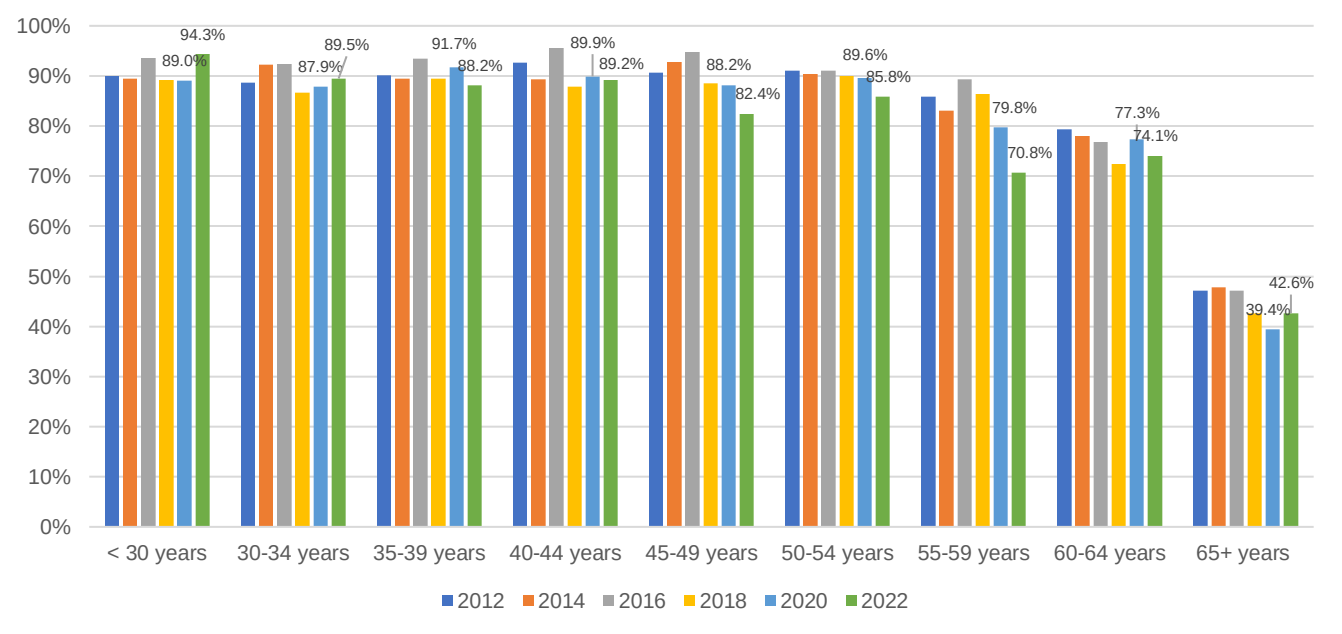


Figure 3 shows the average number of hours worked per week by all employed RNs between 2012 and 2022, which has not changed much over the past decade. This number was 36.3 hours per week in 2022, compared to 36.8 hours per week in 2018 and 36.0 hours per week in 2012.

Figure 3. Average hours worked per week for California-resident RNs, 2012-2022

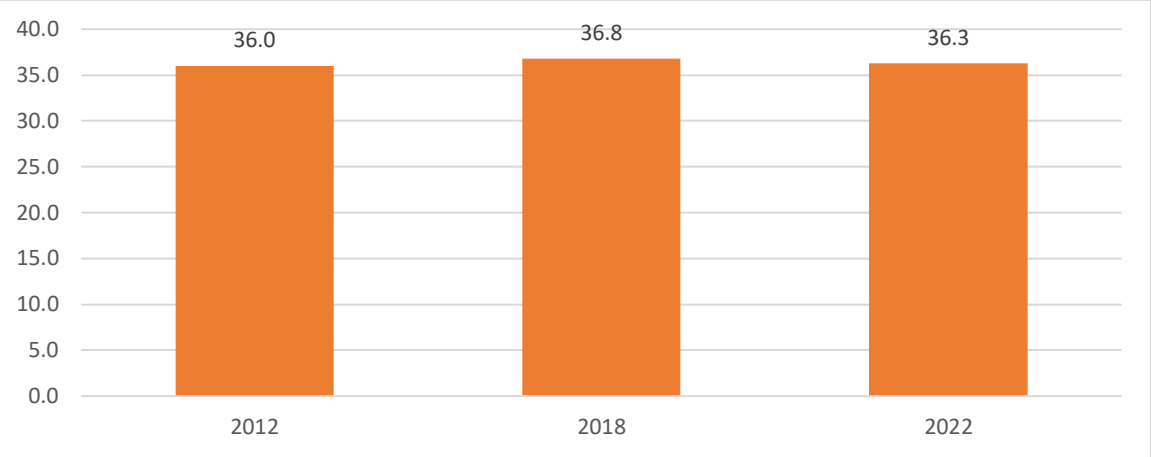
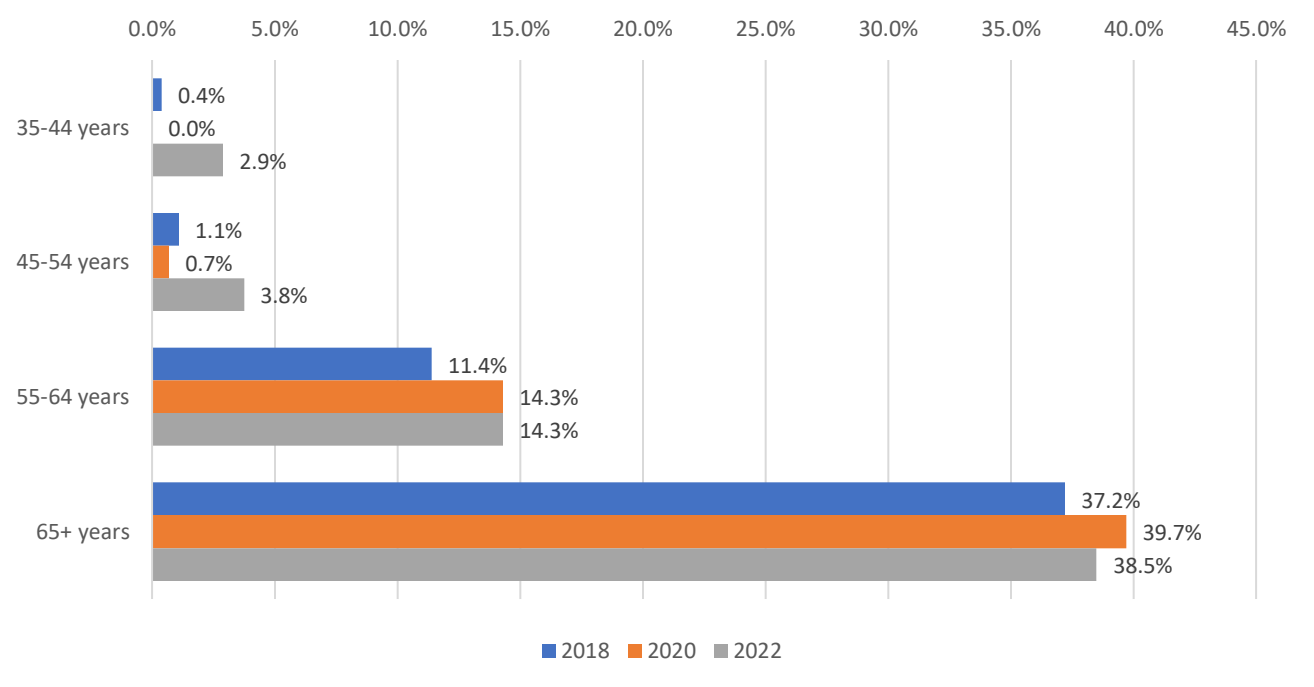


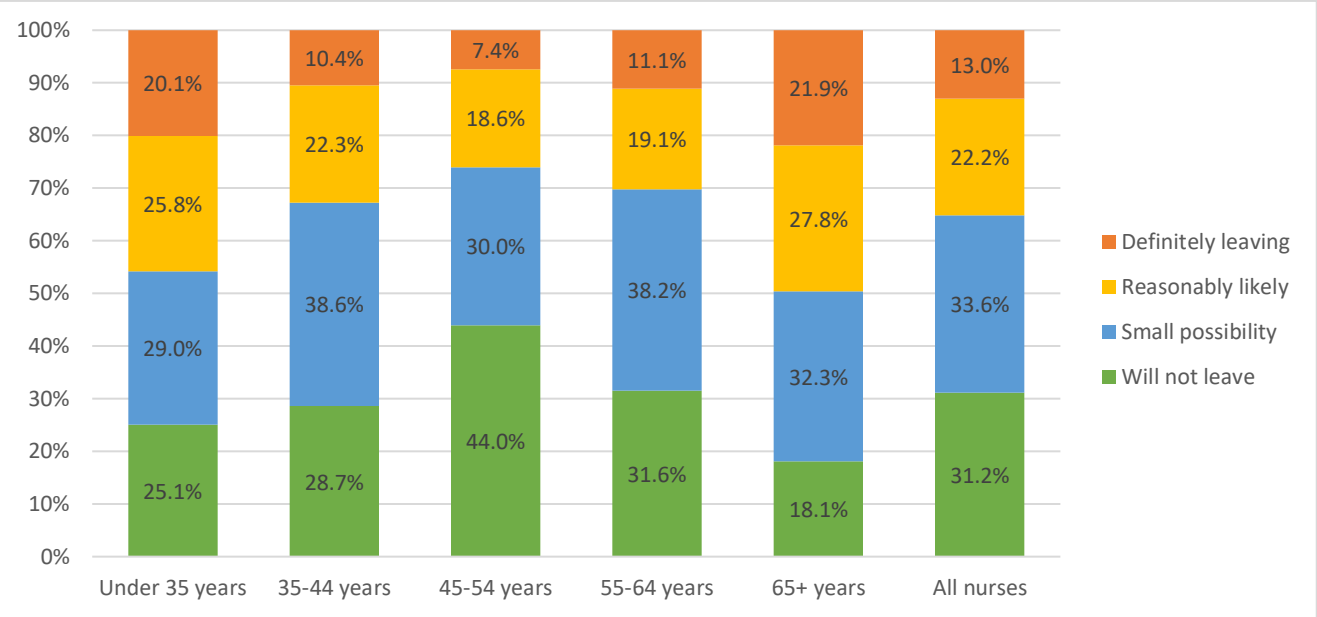
Figure 4 reports the percentage of employed RNs who plan to retire or leave nursing in the next two years, by age group. It shows there has been a notable increase in the percentage of RNs aged 55 to 64 years who reported plans to retire or quit in the next two years, from 11.4% in 2018 to 14.3% in 2020 and 2022. The percentage of RNs aged 65 years and older who reported plans to quit or retire in the next two years has remained stable. In 2022, 2.9% of RNs 35 to 44 years old and 3.8% of RNs 44 to 54 years old indicated they plan to retire or leave nursing in the next two years, which is higher than in any past survey. However, the differences between 2022 and prior years are within the survey's margin of error and should be interpreted with caution.

Figure 4. Percentage of employed California-resident RNs who plan to retire or leave nursing in the next 2 years, 2018-2022



Although most RNs plan to remain in the nursing profession for at least the next two years, many intend to change jobs. Figure 5 presents the intentions of RNs regarding their current principal nursing positions. As seen in the figure, 22.2% of all employed RNs residing in California said it is "reasonably likely" they will leave their principal nursing position in the next two years, and 13% said they are "definitely leaving." RNs who were 65 years and older were the most likely to indicate plans to leave their current position, which reflects the large percentage that plans to retire in the next two years. The large percentage of RNs under 35 years old that is at least reasonably likely to leave their current position (45.9%) should be noted by employers.

Figure 5. Intentions of RNs to remain in or leave their principal nursing position within two years, 2022



The 2022 survey included a question about burnout, asking nurses: "Overall, based on your definition of burnout, how would you rate your level of burnout?" Figure 6 presents their responses. A worrisome percentage of RNs reported that they feel completely burned out (5.7%) or are at the next-highest burnout level (8.5%).

Figure 6. Nurse ratings of their level of burnout

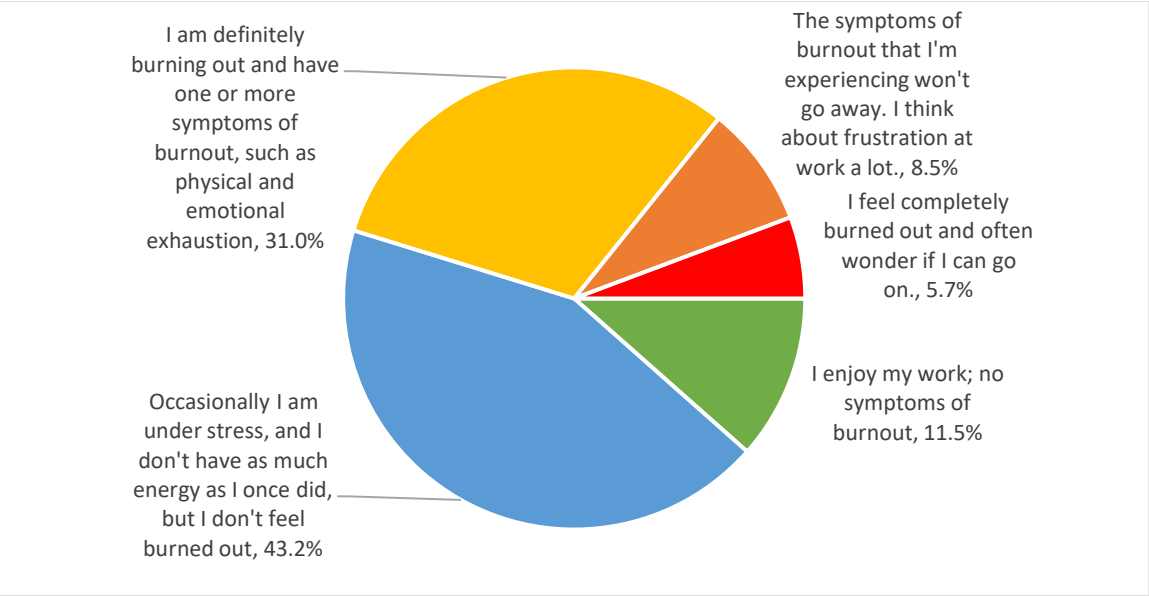
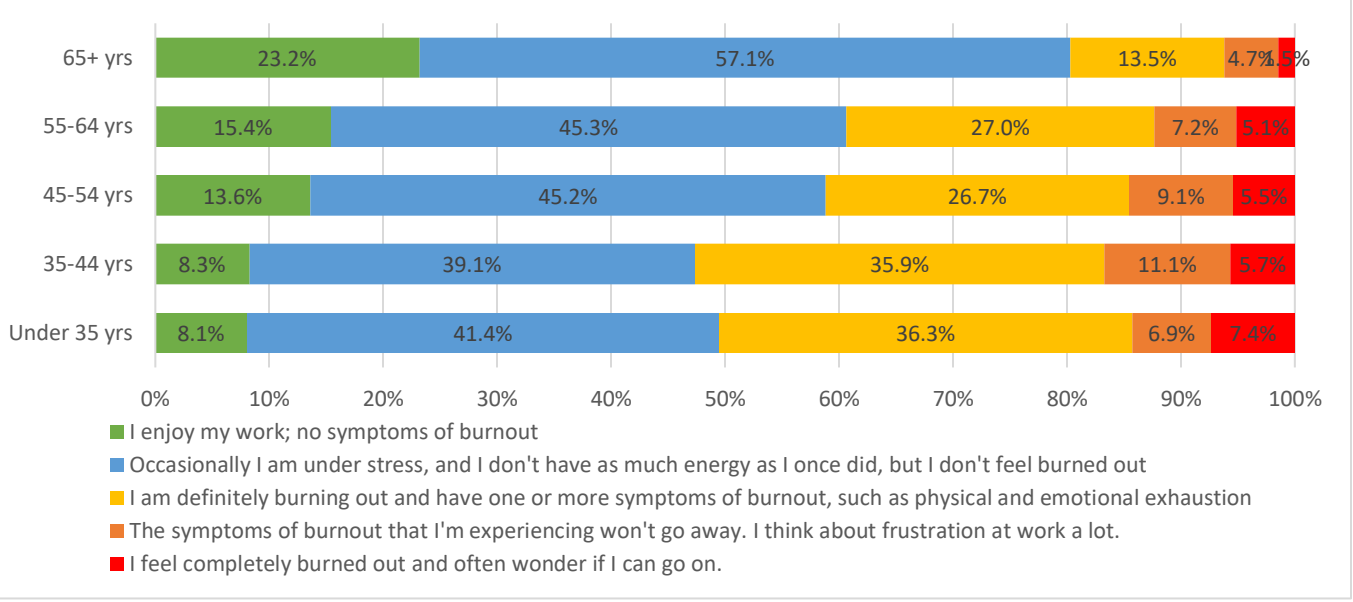


Figure 7 presents RNs' ratings of their burnout by age group. The highest level of burnout is reported by 7.4% of RNs under 35 years old and 5.7 of RNs 35 to 44 years old. Overall, high burnout scores (indicated by yellow, orange, and red in the figure) are most prominent among RNs under 45 years old.

Figure 7. Perceptions about support and respect from the organizations in which RNs work, 2022



Registered Nurse Education

In a survey fielded in fall 2023, California's nursing schools provided information about their enrollments and graduations for the 2022-2023 academic year. Note that one large program did not report some data in 2019-2020 and 2020-2021, resulting in what appears to be a very large increase in enrollments between 2020-21 and 2021-2022; this jump is due to the missing data.

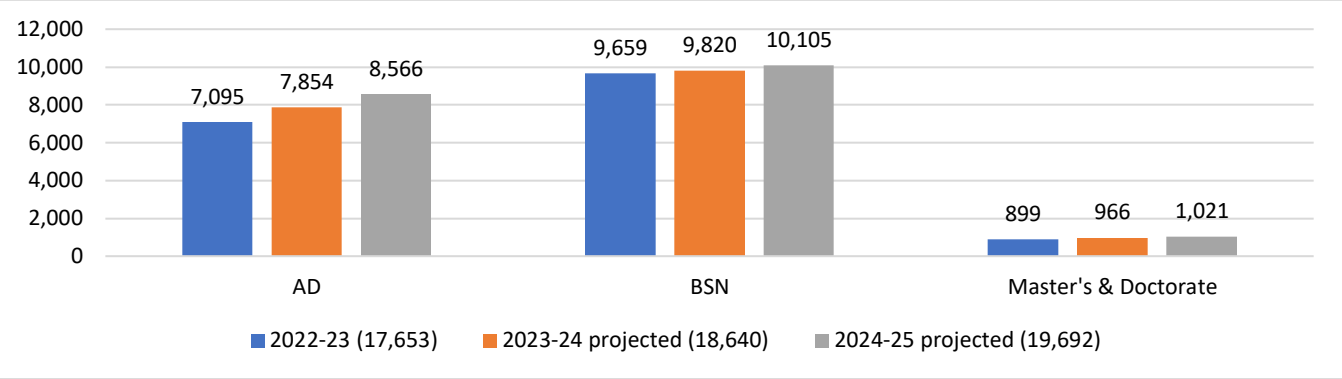
As seen in Table 1, the number of enrollment spaces increased 20.2% between 2018-19 and 2022-23 and enrollment grew 16.5% during this period. This growth has primarily come from increases in bachelor's degree programs (32.9% growth) and private colleges/universities (37.5% growth). Since the 2019-20 academic year, there have been some spaces that were not filled.

Table 1. Change in new enrollments in California RN education programs between 2018-19 and 2022-23 academic years

	2018-19 new enrollment	2019-20 new enrollment	2020-21 new enrollment	2021-22 new enrollment	2022-23 new enrollment	Percentage change 2018-19 to 2022-23
Spaces available	**14,897**	**15,204**	**14,368**	**20,388**	**17,912**	**20.2%**
Total enrollments	**15,150**	**15,007**	**14,004**	**16,612**	**17,653**	**16.5%**
Associate degree enrollments	7,014	6,852	5,941	6,730	7,095	1.2%
Bachelor's degree enrollments	7,266	7,237	7,133	8.982	9,659	32.9%
Master's degree enrollments	870	913	930	900	899	3.3%
Public program enrollments	8,103	7,944	6,866	7,511	7,963	-1.7%
Private program enrollments	7,047	7,058	7,138	9,101	9,690	37.5%

Figure 8 presents new enrollments in RN education programs in the 2022-23 academic year and schools' projections of their enrollments for the 2023-24 and 2024-25 academic years. All program types anticipate growth over the next two years.

Figure 8. New and projected enrollments in RN education programs, 2022-23 through 2024-25



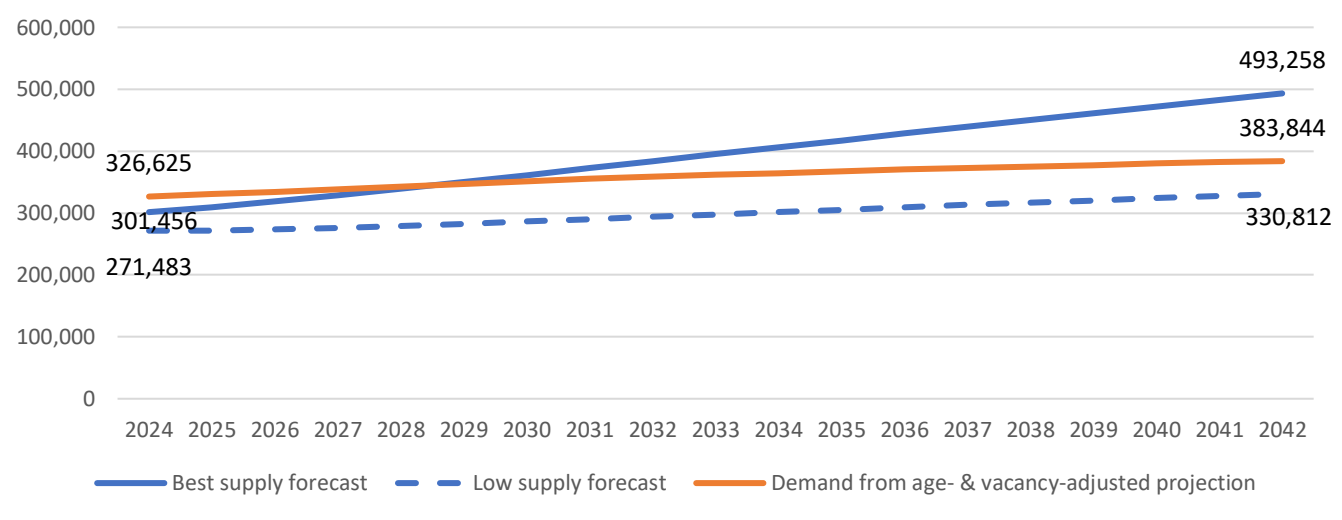
Projections of Future Supply and Demand for RNs

The future supply and demand for RNs were projected using the RN Survey and School Survey data described above, as well as other data sources detailed in Appendix A. As seen in Figure 9, the best projection indicates that there was a shortage of 25,168 full-time equivalent (FTE) RNs in 2024, but that the gap between supply and demand will close by 2028. By 2042, RN supply is projected to reach 493,258 FTEs, while demand is projected to be 383,844 FTE RNs. Note, however, that there are scenarios in which California's RN supply shrinks – this could occur if more nurses move out of California to work or more choose to stop working in nursing than projected based on historical data. The "low" projection represents the potential outcome of these changes.

Some of the gap between supply and demand is now filled by traveling RNs who live in other states and work in California for short periods of time. The 2022 RN survey indicates that approximately 13,101 RNs traveled to California in the prior year. They worked an average of 42.1 hours per week for 5.5 months. If there is the same rate of travelers in 2024, there would be 9,077 FTE supply, filling more than one-third of the estimated gap.

Note that some RNs who are not working in nursing are seeking employment. Data from the 2022 RN survey indicate that approximately 5,203 RNs were seeking employment, which would fill about 25% of the current shortfall.

Figure 9. Projected supply and demand of RN full-time equivalent employment, 2024-2042



Discussion

Our analysis indicates that there is currently a shortage of RNs in California. Between 2020 and 2022, many RNs – particularly those with more experience – left the nursing workforce. Overall RN employment rates decreased from 81.4% in 2018 to 80% in 2022, driven by a decline in employment rates among RNs 45 years and older. In addition, in 2022 a larger proportion of RNs reported they intend to retire or quit within the next two years compared with 2018, including among younger nurses. Burnout rates among nurses, particularly those younger than 45 years old, are high and many RNs report they are likely to leave their current nursing position.

The current shortage of RNs is projected to close by 2028 due to rising numbers of nursing enrollments. After decreases in new RN education enrollments and graduations during the pandemic, RN schools have returned to growth. This growth has been concentrated in private and bachelor's degree programs.

Several limitations need to be considered. First, the projections include assumptions about retirement patterns and other departures from RN work that may not hold true in the long term. The RN shortage could persist beyond 2028 if newly graduated RNs and experienced nurses are not retained in the workforce. High rates of burnout may lead to greater turnover and departures from nursing, which could make the shortage continue or worsen.

Second, these are statewide analyses and projections, and do not reveal important regional differences that have been previously reported. Regional projections will be developed and published in a future report.

Third, the projections assume that most newly graduated RNs will obtain licenses and become available to work in California. However, if newly enrolled RNs have difficulty completing their programs on time and newly graduated RNs have difficulty passing the national licensing examination, supply will be attenuated. In addition, first-time board exam pass rates declined during the pandemic and have not recovered. In the 2022-23 academic year, BSN programs and private programs had the lowest average pass rates. Given that the growth in RN education in California has primarily come from BSN and private programs, the declines in on-time completion and first-time board exam pass rates are worrisome.

Fourth, the current shortfall of RNs may be unevenly distributed between care settings and between RN and APRN roles. The estimate of a current shortfall of 8.8% is based on reported hospital vacancies, which may be higher than shortages among other RN employers. If this is true, this report's estimated shortage in 2024 is too high and the gap will be filled even more rapidly than projected. Some reports suggest that poor working conditions in hospitals are driving RNs to pursue employment in ambulatory care, home health, and other settings that offer more supportive work environments, regular hours, and other positive attributes. As RN supply increases, employers – and hospitals in particular – will need to ensure they retain nurses and support their professional development.

Shortages of RNs – even if short-lived – have significant consequences for patients and for our healthcare system, creating greater risk of adverse outcomes for patients and contributing to higher health care costs as employers raise wages to compete for staff. Healthcare organizations should implement evidence-based approaches to mitigate burnout among their workforce, including improving communication, establishing wellness initiatives, offering individual and group counseling, providing services such as childcare and transportation assistance, offering workplace flexibility, ensuring adequate protective equipment and supplies, and developing peer support programs.

California's RN education programs should be supported to maintain current enrollments and ensure equitable access to education across the state. Employers need to redouble their efforts to retain experienced RNs and develop career paths for newly-graduated RNs to ensure their successful transition into the workforce. They also need to rapidly develop and implement strategies to mitigate the potential harm caused by current RN shortfalls.

A. Technical Appendix

The forecasts of RN supply and demand are based on models that were initially developed in 2005 and have been refined as new data and methods have become available.

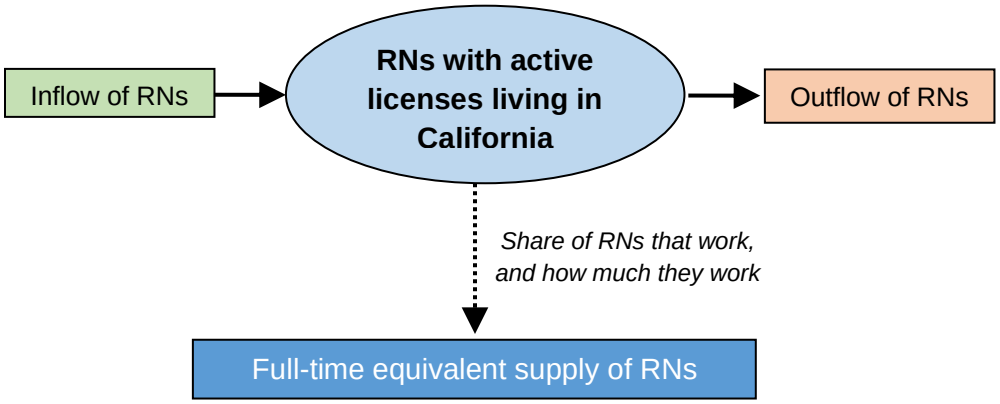
The Supply of RNs

The RN workforce constantly changes with the entrance of newly-graduated nurses, the migration of nurses to and from other states and countries, retirements, temporary departures from nursing work, and fluctuations in the number of hours that nurses choose to work. These factors can be grouped into three categories:

- Inflows of nurses: Additions to the number of RNs in California
  - Graduates from California nursing programs
  - Graduates of nursing programs in other states who obtain their first RN license in California
  - Internationally-educated nurses who immigrate to California and obtain their RN license
  - Interstate migration of RNs to California
  - Changes from inactive to active license status
  - Changes from delinquent to active license status
- Outflows of nurses: The departure of RNs from the California RN population
  - Migration out of California (to another state or country)
  - Movements from active to inactive or lapsed license status
- Labor force participation factors: Decisions to work, and how much to work
  - Proportion of RNs that works in nursing
  - Average number of hours worked per week by RNs working in nursing

Figure A1 illustrates the supply model, commonly called a “stock-and-flow model.” The number of RNs with active licenses (light blue oval) is the “stock” of nurses available to work. This number grows with inflows (green rectangle) and decreases with outflows (orange rectangle). Estimates of the labor supply of RNs (dark blue rectangle) are derived from the stock of RNs potentially available to work in nursing and how much they choose to do so. This final supply number is expressed as full-time equivalent (FTE) employment in order to account for differences in the work commitments of those employed full-time and part-time.

Figure A1. A model of the supply of RNs



Method of Calculating RN Supply

Changes in the inflows, outflows, and employment decisions of nurses will lead to changes in the overall supply of RNs. The age distribution of the workforce also affects supply; younger RNs are more likely to be employed in nursing and older RNs are more likely to work part-time or not at all. Thus, the model examines the employment patterns of 13 distinct age groups: under 25, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-

74, 75-79, and 80 and older. Each year, one-fifth of RNs in each age category move into the next (older) age category, until they reach the oldest age category.[1] For each year, the estimated numbers of RNs flowing into the workforce are added to each age group and the estimated outflows are subtracted, resulting in a forecast of the new stock of RNs for each age group for the following year. Finally, employment rates and average hours worked per week in nursing are applied to the estimated stock of RNs in each age group to obtain estimated FTE supply. This calculation is iterated through 2035 to obtain yearly forecasts of RN supply.

For some factors in the supply model, differing estimates are available, with no indication of which estimate is most reliable. For other factors, there is uncertainty as to whether current data are applicable to what might happen in the future. For variables with such uncertainty, a range of estimates is offered representing the highest and lowest plausible values. In the final models, a "best estimate" for each parameter is used, usually the average of the low and high estimates.

Estimates of Supply Model Factors

Stock of RNs

Data on the stock of RNs was obtained from the California Board of Registered Nursing (BRN). In February 2024, California licenses were held by 526,698 RNs, of whom 413,694 had California addresses. On June 19, 2019, there were 439,670 RNs with active California licenses, of whom 358,865 had California addresses. For the purposes of these forecasts, the California-resident population is defined as the supply of nurses; the role of nurses who travel from other states to work in California is discussed in the report narrative.

Table A1 compares 2024 and 2019 data. The total number of licensed nurses grew 15.3% between 2019 and 2024. For the projection model, the number of RNs with active licenses and California addresses was divided into 13 age groups. The number of RNs with California addresses increased for some age groups and decreased for others. The largest rates of increase were for ages under 25 years (65.9%) and 70 years and older (42.6%). There was a notable decline for RNs aged 60-64 years (-19%). The largest numerical increases were among RNs aged 35-39 years (15,664), 40-44 years old (11,890), and 50-54 years old (11,220).

Table A1. Counts of actively-licensed RNs living in California, by age group, June 2019 and February 2024

Age Group	June 2019		February 2024		Change 2019-2023	% Change 2019-2023
	Count	% of Total	Count	% of Total		
Under 25	3,554	0.99%	5,897	0.37%	2,343	65.9%
25-29	25,834	7.20%	32,277	5.28%	6,443	24.9%
30-34	44,800	12.48%	52,468	11.48%	7,668	17.1%
35-39	45,341	12.63%	61,005	14.39%	15,664	34.5%
40-44	41,313	11.51%	53,203	12.78%	11,890	28.8%
45-49	45,330	12.63%	44,812	11.93%	-518	-1.1%
50-54	35,392	9.86%	46,612	12.21%	11,220	31.7%
55-59	36,150	10.07%	34,959	9.21%	-1,191	-3.3%
60-64	39,718	11.07%	32,168	9.12%	-7,550	-19.0%
65-69	26,103	7.27%	28,429	7.89%	2,326	8.9%
70-74	10,316	2.87%	14,877	3.67%	4,561	44.2%
75-79	3,729	1.04%	5,186	1.24%	1,457	39.1%
80+	1,285	0.36%	1,801	0.44%	516	40.2%
Total	**358,865**	**100.00%**	**413,694**	**100.00%**	**54,829**	**15.3%**

Source: California Board of Registered Nursing license records.

[1] All but the youngest and oldest age groups span 5 years, and if nurses are evenly distributed across those five years, 20% - or 1 in 5 – would move to the next age group each year. The youngest age group spans 7 years, but there are few RNs under 20 years old; thus, the 20% assumption seems reasonable for this group as well.

Graduates from California pre-licensure nursing programs

According to the BRN Annual School Report, there were 13,989 new graduates from California RN programs in the 2022-2023 academic year. Table A2 presents the numbers of new enrollments and graduates from the past 10 Annual Schools Reports. The large increase in enrollments between 2020-21 and 2021-22 is in part due to one program not reporting data in 2019-20 and 2020-21; that school's enrollment was estimated at its 2018-19 level for those years but their 2021-22 data suggest that they were expanding in the intervening years.

Table A2. Numbers of new pre-licensure RN student enrollments and graduates from California nursing programs, 2012-2013 through 2022-2023

Survey year	Number of new student enrollments	Growth in new student enrollments	Number of graduates	Growth in graduates
2013-2014	13,237	0.4%	11,291	-0.01%
2014-2015	13,318	0.7%	11,119	-1.5%
2015-2016	13,190	-1.0%	11,191	0.7%
2016-2017	13,599	3.1%	11,302	1.0%
2017-2018	14,139	4.0%	11,831	5.2%
2018-2019	15,150	7.2%	11,857	-0.3%
2019-2020	15,002	-1.0%	12,714	7.2%
2020-2021	14,004	-6.7%	12,304	-3.2%
2021-2022	16,612	18.6%	13,372	8.7%
2022-2023	17,653	6.3%	13,989	4.6%

Source: Blash, L, Spetz, J. 2022-2023 Annual School Report: Data Summary and Historical Trend Analysis, A Presentation for Pre-Licensure Nursing Programs in California. Sacramento, CA: California Board of Registered Nursing.

We used the enrollment data to project future numbers of RN graduates. We assumed that new student enrollments in each year are associated with graduations two years later. Associate degree (AD) programs are designed so that students can complete the nursing component of the degree in two years, and in most non-accelerated Baccalaureate of Science Nursing Degree (BSN) programs, students are formally enrolled in nursing major courses during their last 2.5 to 3 years.

From the 2016-2017 through 2022-2023 school years (but excluding the year during which one program did not report their new enrollments) graduates averaged 87.2% of the number of student enrollments two years prior. We used this rate to estimate the number of future graduates. As actual enrollments after 2023-2024 were not yet known, we used estimates from the BRN Annual School Survey, for which schools are asked to estimate future enrollment for the next two academic years (through 2024-2025). These estimates were multiplied by 87.2% to obtain the forecasted number of graduates for 2025-2026 and 2026-2027. Our low estimate of growth in RN education after 2026-2027 is 0%, the high estimate is 1%, and the best estimate is 0% to provide a conservative estimate of future growth in education capacity. Actual and projected numbers of graduates from 2019-2020 through 2026-2027 are presented in Table A3.

Graduates from other states who obtain their first license in California

Each year, some graduates of nursing programs in other states obtain their first RN license in California. According to the BRN, 1,757 out-of-state graduates obtained their first license from California in 2023; this is the high estimate of out-of-state graduates who move to California. BRN records indicate that 1,525 of these nurses had California addresses; this is the low estimate. The best estimate for the inflow of new graduates from other states is the average of the high and low estimates: 1,641 nurses. This estimate is more than triple that used for the 2019 forecasts, which was 544.

Table A3. Numbers and predicted numbers of pre-licensure RN enrollments and graduates from California nursing programs

Academic year	Actual/forecasted new student enrollments	Actual/forecasted number of graduates
2019-2020	15,002*	12,714*
2020-2021	14,004*	12,304*
2021-2022	16,612*	13,372*
2022-2023	17,653*	13,989*
2023-2024	18,640	14,498
2024-2025	19,692	15,046
2025-2026		16,160
2026-2027		17,186

* Actual number of student enrollments and graduates based on Annual Schools Report.

Immigration of internationally-educated nurses

BRN records report that 2,037 internationally-educated nurses passed the National Council Licensure Examination for RNs (NCLEX-RN) in 2023 and received initial licensure as RNs in California. Of these, 1,606 had a California residence; the remainder lived in other states or countries. In our supply model, the total number of 2023 international graduates that received initial licensure in California was used as the high estimate of the number of immigrants; the number that lived in California was used as the low estimate. The best estimate was the average of the high and low estimates: 1,822 internationally-educated RNs immigrate to California each year. This number is higher than the 2017 and 2019 estimates of 603 and 851. However, these figures are much lower than the peak of 4,107 during the first decade of the 2000s.

Age distributions of new graduates

Inflows of new graduates are added to the stock of RNs by age group. The BRN Annual School Report uses an uneven set of age groups for new California graduates: 18-25, 26-30, and then 10-year age groups for graduates over age 30. To create consistent groups of graduates for the forecasting model, graduates were allocated into five-year groups. Table A4 presents estimates of the age distribution of new graduates from California RN education programs. RN graduates from nursing programs in other states seeking initial licensure as RNs in California were assumed to have the same age distribution as California graduates.

BRN records of internationally-educated nurses who receive their initial US licensure in California include the birth years of these nurses. The age distribution of internationally-educated RNs who lived in California and obtained licenses in 2023 is presented in the last column of Table A4; these data were used to forecast the age distribution for all internationally-educated RNs receiving first licenses in California.

Table A4. Age distributions of new graduates from California and international RN programs

Age group	Graduates of US RN programs	Internationally-educated graduates
18-24	26.1%	2.8%
25-29	30.4%	12.3%
30-34	17.4%	24.2%
35-39	14.2%	30.9%
40-44	5.8%	12.5%
45-49	3.7%	8.6%
50-54	1.3%	5.4%
55-59	0.7%	2.2%
60-64	0.3%	0.7%
65+	0.0%	0.2%

Interstate migration of RNs to California

Estimates of interstate migration to California were developed in two ways. First, BRN licensing records from 2022 were compared with those from 2024. There are two components of interstate migration to California: (1) RNs who already have a California license and move to the state, and (2) RNs who obtain a new California license and move to the state. To measure this first component, 2022 and 2024 licensing files were compared to identify nurses who had California licenses in both years, but who lived outside California in 2022 and resided in California in 2024. Over the two-year period, the difference was 8,293, which is higher than the change between 2018 and 2020 (5,604). This figure was divided by two to get an estimate of one-year change. The second component was determined by counting the number of RNs who were newly licensed and had California addresses between 2022 and 2024 (46,552 RNs) and dividing by two to get the one-year average number. The number of new graduates in the 2022-2023 academic year (13,989) was then subtracted from this number to estimate the number of experienced RNs moving to California from other states in 2024 (13,434).

To obtain an estimate of in-migration as a percentage of the current workforce, the number of RNs migrating from other states was divided by the total number of RNs in each age group. In the model, multiplying this percentage by the total projected number of RNs allows the estimates of in-migration to increase as the workforce of California (and, presumably, the United States) grows. Table A5 provides the estimates for each age group. Note that the estimated number and rate of in-migration is negative for the youngest age group (-14.1%; 829 RNs); this is likely because some newly-graduated nurses have not yet completed the licensing process or may have moved to another state to obtain their first license. This negative value is not used in the model, as explained below.

Table A5. Estimates of the number of nurses moving to California based on comparison of 2022 and 2024 licensing records

Age Category	A. Number licensed both years who moved to California (2022-2024)	B. Number licensed in 2024 but not 2022	C. Total of RNs new to California 2022-2024 (A+B) divided by 2	D. Number of RN graduates 2022-2023	Estimated annual in-migration (C-D)	In-migration rate
Under 25	204	5,454	2829	3658	-829	-14.1%
25-29	1,213	13,311	7262	4255	3007	9.3%
30-34	1,558	10,374	5966	2428	3538	6.7%
35-39	1,209	7,319	4264	1991	2273	3.7%
40-44	714	3,981	2347.5	812	1535	2.9%
45-49	620	2,337	1478.5	518	961	2.1%
50-54	600	1,473	1036.5	186	850	1.8%
55-59	711	791	751	104	647	1.9%
60-64	736	508	622	36	586	1.8%
65 and older	728	1,004	866	0	866	3.1%
TOTAL	8,293	46,552	27,423	13,989	13,434	

Sources: California Board of Registered Nursing license records, 2020 & 2022

Alternate estimates of interstate migration were computed from BRN records of nurses requesting license endorsement from another state into California. Table A6 presents the number of RNs requesting endorsement to California in 2023 who had permanent addresses in California and the number requesting endorsement with permanent addresses anywhere.

Table A6. Requests for license endorsement into California, 2023

Age Category	Residing in California		Residing anywhere	
	# requesting endorsement	Endorsements as % of total RNs	# requesting endorsement	Endorsements as % of total RNs
Under 25	386	6.5%	2150	36.5%
25-29	979	3.0%	13662	42.3%
30-34	1038	2.0%	12602	24.0%
35-39	840	1.4%	9737	16.0%
40-44	418	0.8%	5633	10.6%
45-49	296	0.7%	4391	9.8%
50-54	187	0.4%	3389	7.3%
55-59	114	0.3%	2115	6.0%
60-64	56	0.2%	1132	3.5%
Over 64	43	0.1%	514	1.8%

Sources: California Board of Registered Nursing license records, 2023

Table A7 summarizes the three different estimated rates of in-migration. The low estimate was the rate of endorsement requests for only those with California addresses. The high estimate was the average of all three rates. The best estimate averaged the estimates from the 2022 vs. 2024 license frame comparison and the California address endorsement rates, except for the youngest age group for which, due to the negative estimate, the endorsement rate for RNs with California addresses was used.

Table A7. Projected rates of in-migration to California

Age Category	California address endorsement rate (Table A6)	Overall endorsement rate (Table A6)	In-migration (Table A5)	Low estimate	High estimate	Best estimate
Under 25	6.5%	36.5%	-14.1%	6.5%	9.6%	6.5%
25-29	3.0%	42.3%	9.3%	3.0%	18.2%	6.2%
30-34	2.0%	24.0%	6.7%	2.0%	10.9%	4.4%
35-39	1.4%	16.0%	3.7%	1.4%	7.0%	2.6%
40-44	0.8%	10.6%	2.9%	0.8%	4.8%	1.8%
45-49	0.7%	9.8%	2.1%	0.7%	4.2%	1.4%
50-54	0.4%	7.3%	1.8%	0.4%	3.2%	1.1%
55-59	0.3%	6.0%	1.9%	0.3%	2.7%	1.1%
60-64	0.2%	3.5%	1.8%	0.2%	1.8%	1.0%
Over 64	0.1%	1.8%	3.1%	0.1%	3.0%	1.6%

Movements from inactive and lapsed to active license status

Data were obtained from the BRN on the number of RNs with California addresses, by age category, changing from lapsed or inactive status to active license status in 2023. This total has ranged from a low of 189 nurses in fiscal year 2002-03 to a high of 971 nurses in calendar year 2018; it was 504 in 2023. These data were used to estimate the number and age distribution of RNs changing from inactive to active license status (Table A8).

The BRN provided data on the number and age distribution of RNs whose licenses were lapsed and later were reactivated. In 2023, 3,670 RNs living in California reactivated their licenses, which is lower than in 2016, 2018, and 2020 (5,489, 5,829, and 3,890). The rate of reactivation was computed by dividing the number of RNs reactivating their licenses in each age group by the total number of actively licensed RNs in the age group (Table A9). The average rate of license reactivation was 0.9% of the total number of licensed RNs living in California.

Table A8. Number and age distribution of RNs changing status from inactive to active license status, 2023

Age Category	Number	Percent	Age Category	Number	Percent
<30	6	1.4%	55-59	41	6.8%
30-34	25	6.5%	60-64	42	8.6%
35-39	41	10.1%	65-69	85	18.1%
40-44	37	8.8%	70-74	82	14.9%
45-49	52	8.9%	75+	38	7.3%
50-54	45	8.6%	**Total**	**504**	**100.0%**

Source: California Board of Registered Nursing license records, 2023.

Table A9. Number and rate of RNs reactivating lapsed licenses, 2023

Age Category	Number	Rate	Age Category	Number	Rate
<30	143	0.8%	55-59	348	0.9%
30-34	273	0.8%	60-64	419	1.1%
35-39	369	1.0%	65-69	503	1.7%
40-44	356	0.9%	70-74	375	2.5%
45-49	290	0.8%	75+	240	3.7%
50-54	345	0.9%	**Total**	**3,670**	**1.1%**

Source: California Board of Registered Nursing license records, 2023.

Migration out of California (to another state or country)

Estimates of migration out of California were developed in two ways. First, BRN licensing records from 2022 were compared with those from 2024. Nurses who had California licenses in both years but who lived in California in 2022 and resided outside California in 2024 were counted by age group and divided by two to get an estimate of one-year out-migration (4,285 RNs). The number of RNs moving to other states in 2024 was divided by the total number of RNs in each age group to obtain estimates of out-migration as a percentage of the current workforce. In the model, multiplying this percentage by projected numbers of RNs allows the estimated numbers of nurses moving out of California to grow with the size of the workforce.

Alternative estimates of migration out of California were developed from BRN records of nurses requesting license endorsements to other states in 2023. Some nurses who requested outgoing endorsements had in-state addresses at the time of their requests and others had out-of-state addresses. Both numbers were divided by the numbers of RNs in each age group to estimate the rates of out-migration. The best estimate is the average of the three estimated out-migration rates (Table A10). The low estimate is the out-migration rate based on endorsement requests for all addresses, which estimates the highest numbers moving out of California and thus leads to smaller projected numbers of RNs. The high estimate is based on comparing 2022 and 2024 licensing files, which produces the lowest estimate of out-migration and thus higher projections of the number of RNs.

Movements from active to inactive or lapsed license status

Estimates of the rate at which actively-licensed RNs allow their licenses to lapse were computed from California BRN license records. These estimates are very important to the model because they measure the loss of nurses due to relocation, change in employment plans, retirement, and death. The model does not distinguish among these reasons for allowing a license to lapse.

Two approaches were used to estimate the rates at which RNs allow their licenses to lapse. First, the BRN provided data on the number of RNs with California addresses who changed their license status to inactive or allowed their license to lapse in 2023; this number was much lower in 2023 than in 2022 and 2018 (10,701 vs. 13,318 and 16,317). Second, BRN licensing records from 2022 were compared with those from 2024. Nurses who had California licenses and residences in 2022 but were not in the license file in 2024 were counted as an estimate of the number of lapsed licenses over a two-year period for each age group. These numbers were

divided by 2 to estimate annual counts and rates. As seen in Table A11, these rates were lower than the rates calculated from the records provided by the BRN for nurses 25 years and older. In the model, the data provided by the BRN was used as the best estimate because it produces a more conservative estimate of supply and is from the most recent single year of license records.

Table A10. Estimates of the annual number of nurses moving out of California

Age Category	Licensed both years, had California address in 2022 but not 2024 (one-year rate)		Endorsement requests with California address, 2023		Endorsement requests for all addresses, 2023		Best estimate (average of all rates)
	Number	Rate	Number	Rate	Number	Rate	
Under 25	56	0.9%	10	0.1%	13	0.2%	0.4%
25-29	333	1.0%	68	0.9%	367	1.1%	1.0%
30-34	565	1.1%	680	1.1%	1,260	2.4%	1.5%
35-39	571	0.9%	2,304	2.7%	3,923	6.4%	3.3%
40-44	427	0.8%	921	1.7%	1,830	3.4%	2.0%
45-49	380	0.8%	436	1.7%	1,209	2.7%	1.8%
50-54	404	0.9%	369	1.0%	842	1.8%	1.2%
55-59	456	1.3%	196	1.1%	571	1.6%	1.3%
60-64	495	1.5%	201	0.6%	409	1.3%	1.2%
65-69	384	1.3%	75	0.3%	148	0.5%	0.7%
70-74	160	1.1%	7	0.2%	38	0.3%	0.5%
75-79	47	0.7%	3	0.1%	9	0.1%	0.3%
80 and older	10	1.0%	3	2.1%	3	2.6%	1.9%
TOTAL	**4,285**		**5,273**		**10,622**		

Sources: California Board of Registered Nursing license records, 2022, 2023, and 2024.

Table A11. Estimated annual rates of RNs allowing licenses to lapse or become inactive

	Changes to inactive or delinquent status, 2023		RNs active in 2022 but not in license file in 2024, divided by 2	
Age Category	Number	Rate	Number	Rate
Under 25	41	0.8%	80	1.3%
25-29	410	1.5%	378	1.2%
30-34	683	2.0%	600	1.1%
35-39	782	2.1%	585	1.0%
40-44	629	1.9%	409	0.8%
45-49	443	1.8%	369	0.8%
50-54	520	1.9%	438	0.9%
55-59	641	2.8%	709	2.0%
60-64	1,147	6.0%	1724	5.4%
65-69	2,517	12.9%	2887	10.2%
70-74	1,784	15.2%	1480	9.9%
75-79	802	19.7%	601	11.6%
80+	302	26.3%	265	14.7%
TOTAL	**10,701**		**10,522**	

Source: California Board of Registered Nursing license records, 2020, 2021, and 2022.

Supply forecasts of California's RN workforce

To create a forecast of the total number of RNs with active licenses in California, the model assumes that one-fifth of RNs in each age category move into the next age category every year after 2024. The number of new

graduates and RN migration from other states and countries were added for each age group. Projected future graduations were based on RN education program projections, as described above. For the low forecast and best forecast, however, we subtracted 829 graduates based on the gap between the number graduating and growth in the under-25 category between 2022 and 2024. For all age groups, nurses were subtracted based on the estimated outflows described above. The basic formula is:

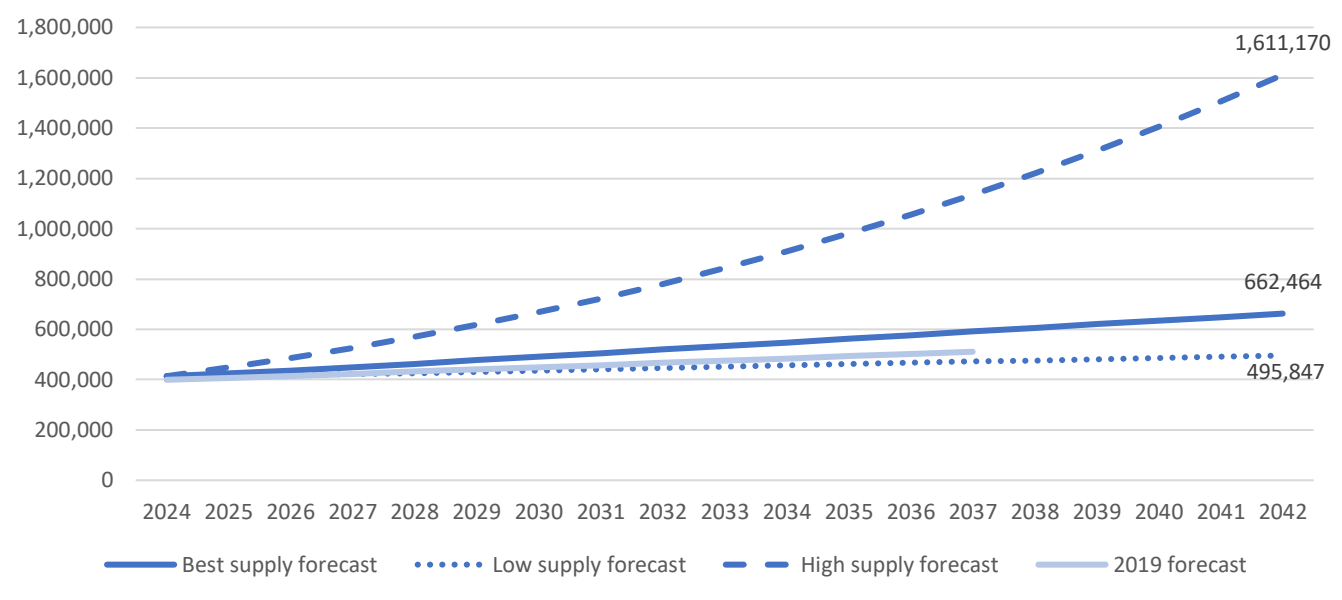
Forecasted Supply of CA RNs next year =

Current supply of RNs in current year + Estimated inflows – Estimated outflows

This calculation was used to produce a forecast of the total active RN population residing in California through 2042. The model projects that California will have 662,464 active resident RNs by 2042, as shown in Figure A2. The new projection of supply is higher than the 2019 forecast, largely due to higher projected numbers of new graduates and a higher rate of migration of nurses from other states, offsetting increases in the projected rates of migration out of California and younger nurses allowing their licenses to lapse.

As noted above, there was a range of plausible estimates for several of the inflow and outflow parameters in the model. Figure A2 presents the range of supply estimates that result when the highest and lowest plausible supply forecasts are calculated. The rapid growth of the RN workforce in the high forecast is largely driven by higher rates of graduation growth and migration from other states, coupled with lower rates of lapsed licenses. The declining supply in the low forecast results from stalled growth in program enrollments, low rates of migration to California from other states, and high migration of nurses out of California. These alternate forecasts provide a sense of how changes in the variables impact the range of possible supply outcomes.

Figure A2. Projected numbers of RNs with active licenses residing in California, 2024-2042



The forecasted number of RNs with active licenses does not account for the variation in hours worked by RNs and the fact that some RNs with active licenses do not work in nursing. Data from the BRN Surveys of California Registered Nurses were used to estimate the proportion of RNs living in California with active licenses that are employed in nursing, by age category. In the 2022 survey data, the estimated employment rates range from a high of 94.7% for RNs 25-29 years to a low of 30.9% for RNs aged 75-79 years. Employment rates by age groups have varied over time, and thus we consider a range of potential employment rates in the projections. The low estimate of the employment rate for each age group are the lowest employment rates measured in biennial BRN Surveys between 2016 and 2022. The high estimates are the highest of these six rates. The best estimates are the average of employment rates between 2016 and 2022 (see Table A12).

Table A12. Employment rates for RNs residing in California

Age Category	Share Employed, 2022	Low Estimate	High Estimate	Best Estimate
Under 25	92.8%	92.6%	95.5%	93.9%
25-29	94.7%	87.3%	95.4%	91.5%
30-34	89.5%	86.7%	93.8%	89.3%
35-39	88.2%	88.2%	93.8%	90.0%
40-44	89.2%	86.7%	92.6%	89.1%
45-49	82.4%	82.4%	93.4%	88.1%
50-54	85.8%	85.8%	90.4%	89.1%
55-59	70.8%	70.8%	87.3%	81.5%
60-64	74.1%	72.4%	77.0%	75.0%
65-69	46.7%	46.7%	59.2%	51.6%
70-74	36.9%	30.9%	43.3%	36.8%
75-79	30.9%	26.6%	31.0%	29.2%
80+	53.3%	17.1%	53.3%	32.4%

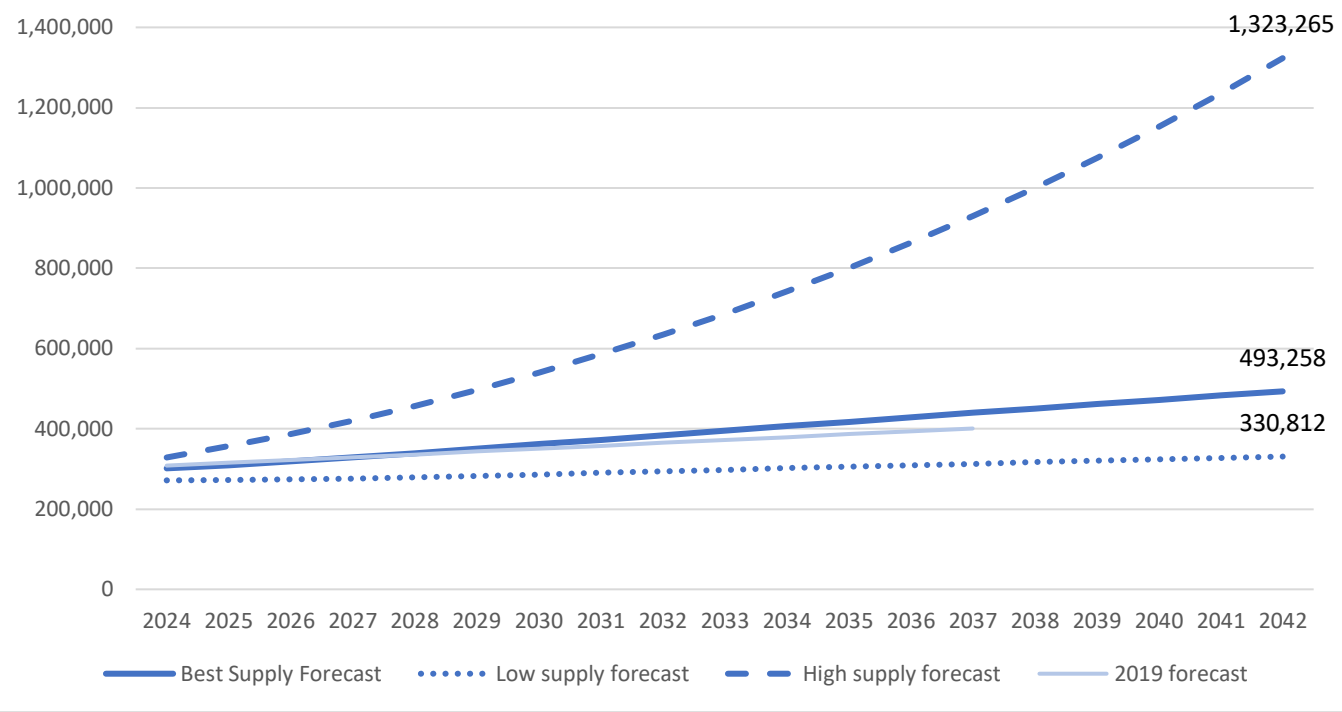
In the supply model, data from the Surveys of Registered Nurses were used to estimate the average usual hours worked per week by RNs who resided in California and were employed in nursing for each age category. Estimated hours per week were divided by 40 to obtain the average FTE for each age category. The data used for this calculation are presented in Table A13. As with the estimates of the employment rate, the high estimate is the highest of the number of hours worked from 2016 through 2022 and the low estimate is the lowest of these years. The best estimate is the average across these years.

Table A13. Average hours worked per week by RNs residing in California

Age Category	Hours Worked per Week, 2022	Low Estimate	High Estimate	Best Estimate
Under 25	38.9	36.6	42.4	39.5
25-29	37.3	35.0	37.3	36.4
30-34	34.5	34.5	37.0	35.7
35-39	35.7	33.4	35.8	35.2
40-44	35.4	34.2	37.0	35.8
45-49	34.7	33.6	38.0	35.9
50-54	36.7	35.4	37.5	36.6
55-59	35.9	32.6	37.5	35.8
60-64	35.8	32.1	37.5	35.2
65-69	29.1	29.1	34.4	31.8
70-74	26.7	25.0	28.3	26.5
75-79	15.0	15.0	22.8	20.3
80+	17.2	7.5	26.9	17.7

Figure A3 presents projected high, low, and best estimates of FTE supply based on the estimates of the future count of RNs. The forecast projects there will be 493,258 FTE RNs in 2042, which is slightly higher than projected in 2019.

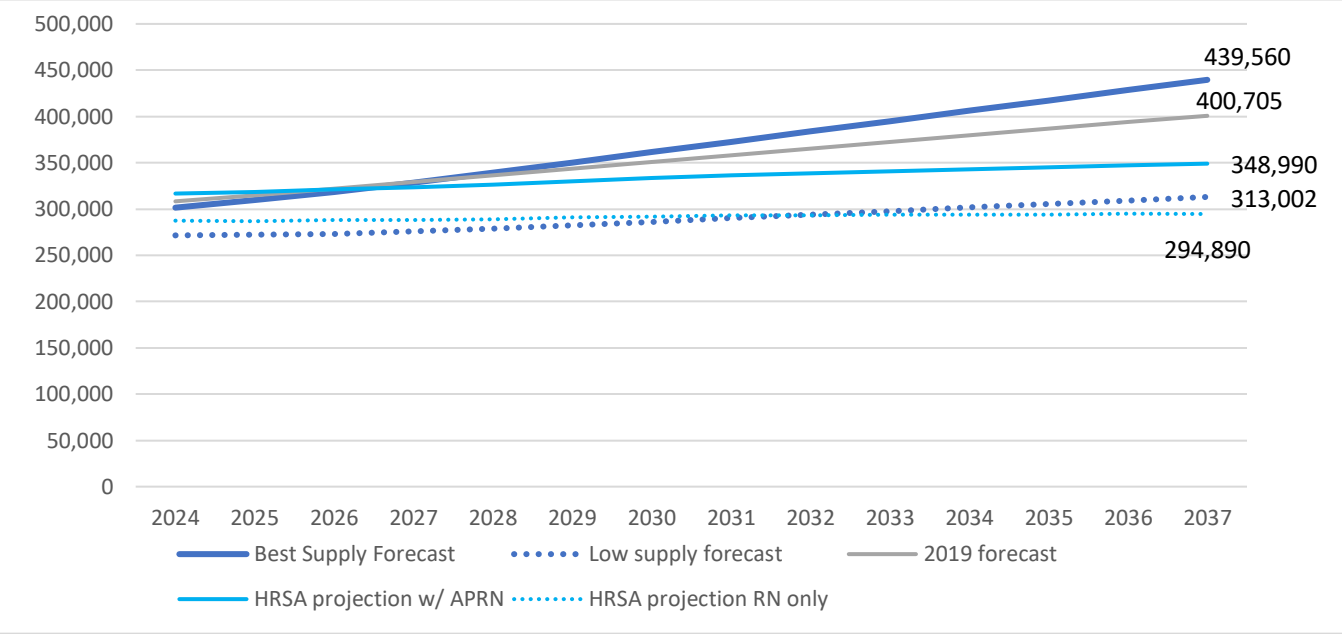
Figure A3. Projected full-time equivalent supply of RNs, 2024-2042



Comparing the supply projection to federal projections

The U.S. Health Resources and Services Administration published a projection of California RN supply and demand through 2037. Their projection is based on a microsimulation model developed to estimate supply and demand for all health professions. The results provide separate estimates for RNs, nurse practitioners, nurse midwives, and nurse anesthetists. Figure A4 compares the HRSA projections with those obtained from the model developed for the BRN. The HRSA model projects that the supply of RNs will grow more slowly than the BRN model, even if all APRNs are added to the estimated HRSA supply.

Figure A4. Comparison of HRSA projections with BRN projections



The Demand for RNs

The demand for RNs can be conceptualized and measured in many ways, reflecting disparate notions of what demand is or should be. Many policymakers and health planners consider population needs as the primary factor that should dictate the need for health care workers. For example, the World Health Organization has established a goal of countries having a minimum of 2.28 skilled health care workers per 1,000 population. Similarly, health care leaders can target a stable number of nurses per capita, a level developed by an expert panel, or a goal based on comparisons with other US states.

It is important to recognize, however, that population need is not the same thing as economic demand. Nurses and other health professionals are not free, and the cost of employing them must be weighed against other uses of resources. A nurse employer might want to hire more nurses but may not have sufficient income from patient care services to afford more nurses. An employer might have resources that could be used to hire more nurses but might think that upgrading electronic health records or in hiring patient navigators will produce more value to patients. The demand for nurses is ultimately derived from economic forces, which may not align with population needs.

For this report, several different measures of demand (or need) are considered in order to develop a range of plausible estimates of future demand for RNs. The approaches used are:

- Fixed benchmarks based on current RN-to-population ratios in California
- Fixed benchmarks based on US RN-to-population ratios
- Demand forecasts based on projected growth of hospital patient days, employment in hospitals, and future population growth and aging
- An employment forecast for 2030 published by the California Employment Development Department

Demand projections based on RNs per capita

One frequently used benchmark of the need for RNs is the number of employed RNs per 100,000 population. For decades, California has had one of the lowest ratios of employed RNs per 100,000 population in the United States. Table A14 presents the ratios of FTEs RNs as estimated by the 2022 National Sample Survey of Registered Nurses (NSSRN) divided by the Census Bureau population estimates for the states with the 10 highest and 10 lowest ratios. Note that the NSSRN data combine Delaware and the District of Columbia due to small sample sizes, and the data also combine Montana and Wyoming. California had the 8th lowest ratio (868 RNs per 100,000). Some nursing advocates have argued that California's ratio should be closer to the 25th percentile (935 RNs per 100,000) or even the national average (1,073 RNs per 100,000). Using population projections from the California Department of Finance, we calculated the numbers of RNs that would be required to reach these benchmarks, as well as to maintain the current ratio.

Note that, until this year, California has been the only state with minimum nurse staffing ratios in acute care hospitals and has better health outcomes for most indicators than national averages. Thus, there is no empirical reason to think that California's nursing workforce should be at a higher (or lower) RN-to-population ratio than it is today.

The main shortcomings of targeting a fixed number of RNs per population are that (1) the target is arbitrarily defined and (2) the ratio does not account for changes in the demographics and health of the population. The current number of nurses per capita may be too high or too low, and a target number based on a national average or other source might not reflect the unique population and health care system of California. In addition, fixed nurse-to-population ratios do not account for increases in the demand for health care services associated with population aging.

Table A14. RN full-time equivalent employment per 100,000, 2022

States with the lowest ratios	FTE RNs per 100,000	States with the highest ratios	FTE RNs per 100,000
Idaho	642	Vermont	1,840
Virginia	697	Alaska	1,634
New Mexico	728	North Dakota	1,585
Colorado	772	Massachusetts	1,505
Arizona	797	Connecticut	1,481
Utah	800	Alabama	1,450
Montana & Wyoming	826	Rhode Island	1,386
California	868	South Dakota	1,375
Georgia	896	Ohio	1,342
Texas	901	Minnesota	1,309

Source: National Sample Survey of Registered Nurses, 2022, divided by Census Bureau estimates of state population in 2022.

Demand projections that account for population aging and current vacancy rates

The second approach to forecasting demand for RNs used in this study was designed to account for changes in the demand for health care services associated with the aging of the population. Hospital utilization patterns were used as a proxy of overall health care utilization. First, the 2022 total number of patient discharges per 10-year age group at short-term acute-care hospitals was obtained from the California Department for Healthcare Access and Information.[2] To estimate the total number of patient days per age group in California, these data were multiplied by the average length of stay per age group in California, as reported for 2021 in the Hospital National Inpatient Statistics. We then divided the number of patient days by the age-specific population estimates to obtain utilization rates for each age group. These utilization rates were then applied to population projections to forecast future total patient days per age category and rates of projected growth in hospital patient days. We calculated the number of RNs that would be required to maintain a stable ratio of RNs-to-patient days in the future.

This estimate of future demand for RNs is based on the premise that current RN employment levels are optimal and that there is not a shortage. However, the Hospital Association of Southern California has reported that the hospital vacancy rate for RNs was 8.4% in the fourth quarter of 2023. We increased our projected demand for RNs by this percentage to account for what may be a current shortage of RNs. Note that vacancy rates may overestimate the actual degree of shortage because some amount of “churn” in labor markets is normal. In addition, the 8.4% vacancy rate is for hospitals and may not represent vacancy rates in other health care sectors such as ambulatory care.

California Employment Development Department forecasts

The most recent projection by the California Employment Development Department (EDD) indicates that there will be 358,900 RN jobs, 2,400 nurse anesthetist jobs, 1,200 nurse midwife jobs, and 17,300 nurse practitioner jobs in California by 2030, totaling 389,600 jobs. The EDD projection does not distinguish between full-time and part-time jobs. To estimate FTE employment from the EDD projection, the adjustment of 0.907 is used, which is the average number of hours worked per week by California RNs in 2022 (36.26) divided by 40. The FTE projection for 2030 is thus 353,212.

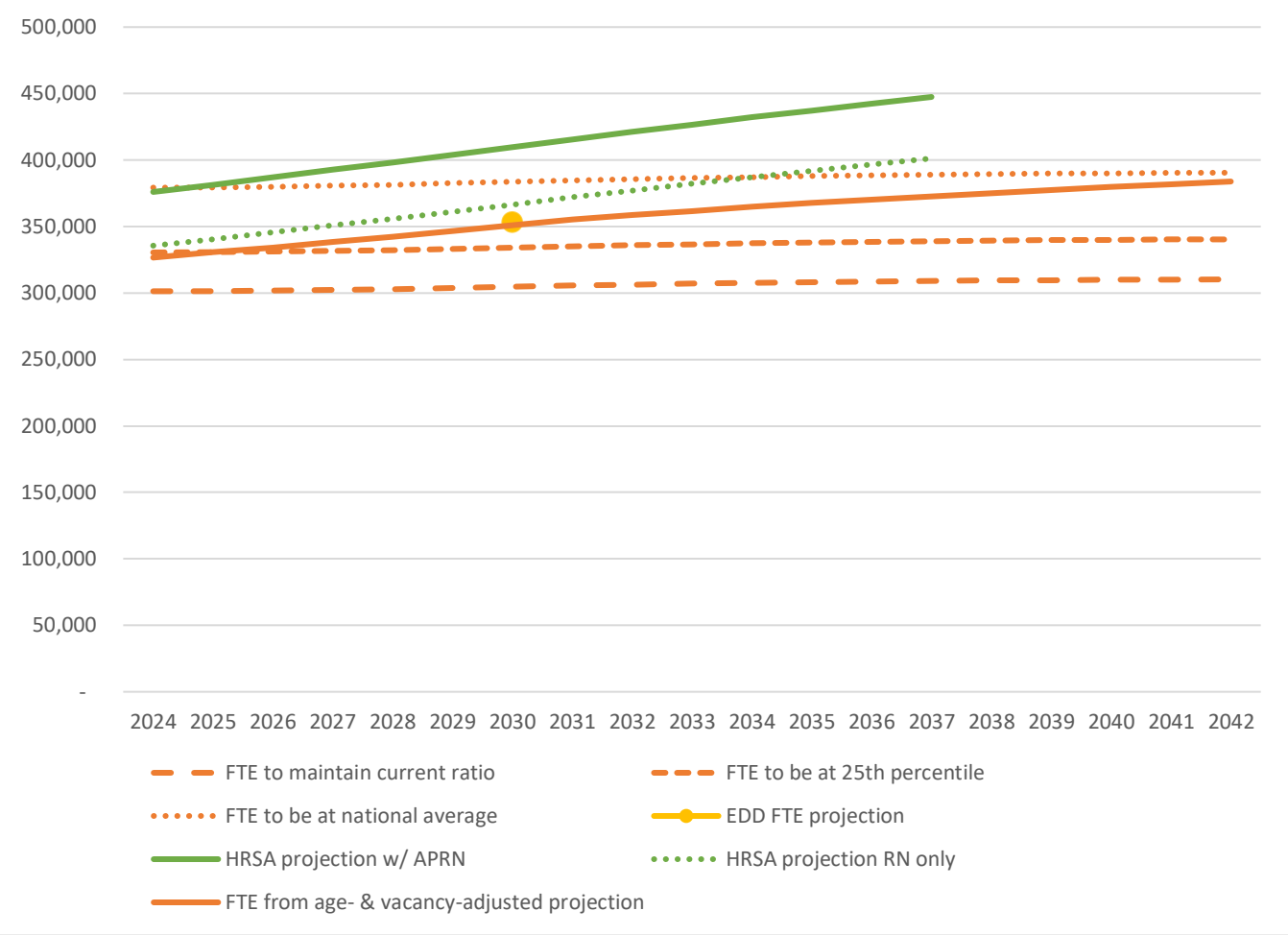
Comparing the demand forecasts

Figure A5 compares alternative demand forecasts of full-time equivalent RNs, including those described above and the HRSA projections for all nurses and for RNs only. These forecasts range between 301,314, based on

[2] The age groups are under 1, 1-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, and 80 and older.

current employment and assuming there is no shortage, to 379,253 based on a target of the national average of RN FTEs per 100,000 population. Demand in 2038 is forecasted to be between 272,091 (to maintain the current FTE RN-to-population ratio) and 350,488. The lower figures are not likely to accurately represent total future demand because they do not account for widely reported shortages and the additional demand caused by the aging of the population. The projection that accounts for population aging and current vacancies estimates that demand is currently 326,625 and will reach 383,844 by 2042. The EDD projection for 2030 is nearly identical to the age- and vacancy-adjusted projection.

Figure A5. Forecasted full-time equivalent demand for RNs, 2024-2042



Comparison of California and Federal Projections

Figure A6 presents the projections developed for the BRN with those published by HRSA and the California Employment Development Department. These models use different approaches and thus it is not surprising that their results differ.

The HRSA supply model estimates that the current RN supply is slightly higher than the best and low BRN estimates. The difference between the BRN best and low projections in 2024 is the estimated employment rate and number of hours worked per week. These estimates are within 10% of each other and the best estimate reflects current employment rates so is more likely to be accurate. The HRSA estimate for 2024 is only 5% greater than the BRN estimate, suggesting there is general agreement about supply at the present time.

The HRSA model projects much slower supply growth than the BRN model. The technical documentation for the HRSA model indicates that the model assumes that 3,944 RNs migrate to California each year. However, the

California RN license files from 2022 and 2024 indicate that 13,434 RNs moved to California between 2023 and 2024, as described above, there were 4,357 endorsement requests from RNs living in California at the time of request, and 55,325 requests from RNs living in any location at the time of request. HRSA's estimated rate of fewer than 4,000 RNs moving to California each year is likely too low. Moreover, it doesn't account for the likelihood that more RNs will migrate to California as the national population of RNs increases.

The HRSA demand model estimates that demand is significantly greater than the BRN projection, and close to the 2024 national average of RNs per 100,000 population. As discussed above, California has never been at the national average of RNs per 100,000 population, despite having robust nurse staffing regulations. California has much lower hospital admission rates than other states, with only 81 admissions per 1,000 population in 2022 compared with a national average of 95 and ranking the 14th lowest nationally. In addition, California has high rates of insurance coverage and enrollment in integrated managed care systems. Together, these factors make it likely that California's demand for health care services – particularly inpatient hospital care where most RNs are employed – is lower than the national average and thus the HRSA projections far exceed the state's needs.

The demand projection that adjusts for population aging and current vacancy rates is nearly identical to the EDD projection for 2030 (noted above) and is 7% greater than the demand required to maintain the current RN FTE-to-population ratio. The similarity of these projections provides confidence in the demand projection developed for the BRN.

Figure A6. California BRN projections compared with HRSA and Employment Development Department projections