

Forecasts of the Registered Nurse Workforce in California

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Executive Summary

This report presents supply and demand forecasts for the Registered Nurse (RN) workforce in California from 2013 through 2030. These new forecasts are based on data from the 2012 California Board of Registered Nursing (BRN) Survey of Registered Nurses, the U.S. Bureau of Health Professions (BHP) 2008 National Sample Survey of RNs, and data extracted from the BRN license records. The 2013 forecasts indicate that supply of and demand for RNs are fairly well-balanced, and the market will continue to be balanced in the future if current enrollment and state-to-state migration patterns are stable. The forecasts of RN supply take into account the aging of the RN workforce, new graduates (including those from out-of-state and international nursing programs), interstate flows of RNs, and changes in license status. The 2013 forecasts of supply incorporate new data for these factors. One important change relative to the 2011 forecasts is that expectations for future migration of nurses into California from other states were computed using a new method.

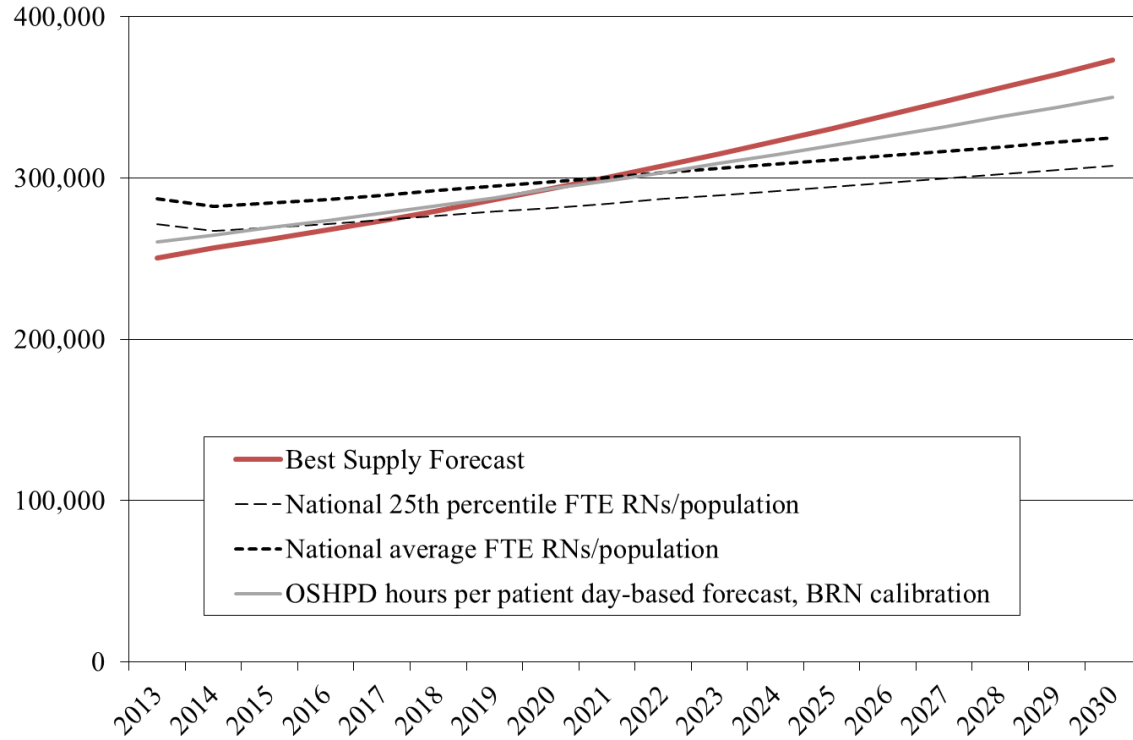
The demand forecasts are based on national numbers of RNs per 100,000 population. The demand for RNs can be measured and forecasted in many ways, reflecting disparate notions of what demand is or should be. Demand can be measured through benchmarks, such as the number of nurses per capita. Other demand forecasts may examine rates of population growth and population aging. Direct survey of employers can illuminate current demand for nursing positions. We developed several alternate forecasts of demand, using national RN-to-population data and estimating future hospital utilization in California. We also examined forecasts from EDD. The demand estimates produced from these different strategies provide a range of possible scenarios for the future.

A comparison of the supply and demand forecasts, presented in the Executive Summary Exhibit, indicates that the magnitude of California's shortage depends on the measure of demand and the assumptions made about future supply. The forecasting model produces a range of supply forecasts; the "Best Supply Forecast" is based on the midpoints of most of the parameters of the model and is between the highest and lowest forecasts. In the figure, the supply forecast is compared with three different estimates of demand: (1) the 2008 national 25th percentile of full-time equivalent RNs per population; (2) the 2008 national average of full-time equivalent RNs per population; and (3) a forecasting of supply based on current hospital utilization of RNs and project future hospital patient days. In 2013, the statewide RN labor market appears to be slightly lower than demand, which is consistent with employer surveys that indicate some hospitals are having difficulty recruiting experienced nurses. Overall, California's RN supply is forecasted to match demand reasonably well over the next two decades if RN graduations remain stable and state-to-state migration patterns do not change significantly.

Policymakers should be cautioned that the 2013 BRN forecasts represent long-term forecasts and are not intended to reflect rapidly changing economic and labor market conditions. They also do not measure variations across regions of California; it is possible that some regions of the state will experience shortages even while others have a surplus of RNs. The forecasts are based on the most currently available data; the factors that affect RN supply and demand are unlikely to remain static. The most important possible changes include: (1) the number of graduations from RN education programs; (2) inter-state migration; and (3) employment rates of older RNs. California leaders should observe closely the employment paths of recent nursing graduates who are entering a difficult job market and may choose to leave the nursing profession or leave California. Moreover, they should watch new enrollments in nursing programs, which

could drop as state colleges and universities face tight budgets and as potential students hear there might not be enough nursing jobs. California will likely need to maintain the present number of nursing graduates in order to meet long-term health care needs.

Executive Summary Exhibit: Projected full-time equivalent supply of and demand for RNs, 2013-2030.



Introduction

The labor market for registered nurses (RNs) has been characterized by cycles of shortage and surplus since World War Two. The most recent period of shortage began in the late 1990s (Buerhaus 1998; Buerhaus & Staiger 1999), and persisted through the late 2000s. Periods of nursing shortage generate significant challenges because they drive higher health care costs as wages rise (Spetz and Given, 2003), and because patient outcomes are impacted by the level of nurse staffing in hospitals and other care facilities (Needleman et al., 2002; Aiken et al., 2002).

Since 2010, however, data have indicated that California's long-standing RN shortage ended, at least temporarily. Surveys of California hospital Chief Nursing Officers have reported that they perceive that there is slightly greater RN supply than demand. This change in the labor market has been attributed to several trends. First, nursing school enrollments expanded substantially in California, more than doubling between 2001 and 2010 (Bates, Keane, & Spetz, 2011). This expansion of RN supply would have alleviated the shortage in many regions on its own. In addition, the national economic recession further mitigated the shortage by leading to an increase in the workforce participation of RNs who would otherwise retire or reduce their hours for work. It has been estimated that nearly all the hospital employment increase in the past decade can be attributed to growth in RN supply during economic recessions (Buerhaus and Auerbach, 2011). The economic recession also has reportedly dampened demand for newly-graduated nurses. In late 2010, a survey of Chief Nursing Officers found that there were fewer than 6,500 full-time equivalent vacant positions for RNs statewide (Bates, Keane, & Spetz 2011), while the 2010 BRN Survey of Registered Nurses indicates that nearly 7,700 RNs are seeking employment (Spetz, Keane, & Herrera, 2011).

More recent data suggest the labor market may be shifting again. The Fall 2012 Survey of Nurse Employers found that a greater share of Chief Nursing Officers are experiencing some difficulty recruiting RNs for specialized positions, and that on average they believe the labor market is in balance. Hospital vacancy rates in fall 2012 were slightly higher than in fall 2010, rising to 3.8 percent from 3.4 percent. These data are consistent with the widespread expectation that the economic recovery would lead nurses who delayed retirement, re-entered the labor force, or increased their hours of work due to the economic recession to retire or reduce their employment as the economy recovers (Buerhaus, Auerbach, & Staiger 2009; Buerhaus & Auerbach 2011). In fact, the 2012 BRN Survey of RNs found that there were increases in the shares of RNs who plan to retire and plan to reduce their hours of nursing work within the next five years, relative to 2010.

At the same time, the impending implementation of the most significant components of the Affordable Care Act (ACA) – an expansion of Medi-Cal and the implementation of a Health Insurance Exchange to facilitate insurance enrollment – is expected to lead to an increase of more than 30 million additional Americans with health care insurance coverage in the near future, which will likely increase demand for RNs and other health professionals (Coffman & Ojeda 2010; Staiger, Auerbach, & Buerhaus 2011). These and other changes have introduced uncertainty regarding the future supply and demand for RNs.

This report updates forecasts of RN supply and demand in California, which were first developed for the California Board of Registered Nursing (BRN) in 2005 and subsequently updated in 2007, 2009, and 2011 (Spetz and Dyer, 2005; Spetz, 2007; Spetz 2009; Spetz 2011). These new forecasts take into account changes in supply that developed as a result of the

economic recession and updated estimates of inter-state migration. New data from the 2012 BRN Survey of Registered Nurses (Spetz, Keane, Chu, and Blash, 2013), the 2008 National Sample Survey of RNs (U.S. Department of Health and Human Services, 2010), the 2011-2012 BRN Annual Schools Report (Waneka, Bates, and Spetz, 2012), and BRN license records are used to update the model of RN supply. The demand estimates are informed by surveys of employers conducted in fall 2010, 2011, and 2012 with support from the Gordon and Betty Moore Foundation (Bates, Chu, Keane, & Spetz 2013). Recent changes in demand for health care services, as well as the published literature on the likely impact of PPACA on demand for health care services, inform the revised demand forecasts.

The Supply of RNs

California's RN workforce consists of nurses with active California licenses, who are allowed to work as RNs within the state. There were 384,707 RNs with current and active licenses on February 28, 2013, of whom 328,282 resided in California. For the purposes of these forecasts, we consider the California-resident population as the supply of available nurses; the role of nurses who travel to work in California from other states is discussed later in the report.

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

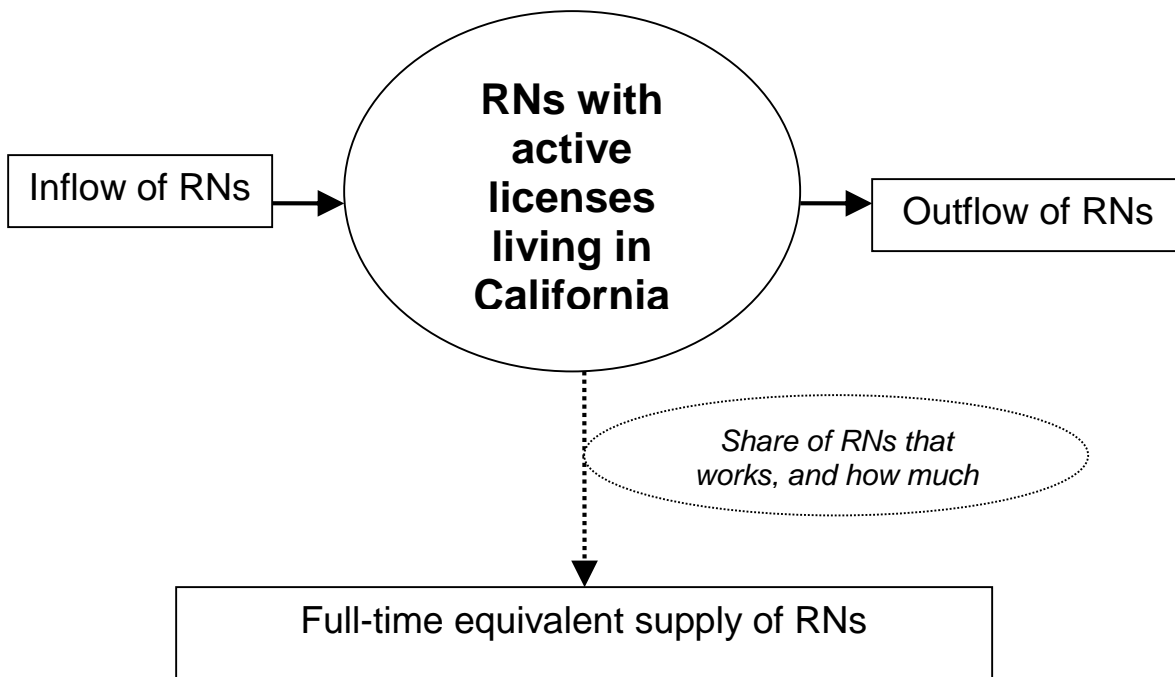
- Inflows of nurses: Additions to the number of RNs in California.
 - Graduates from California nursing programs;
 - Graduates of nursing programs in other states who obtain their first RN license in California;
 - Internationally-educated nurses who immigrate to California and obtain their RN license;
 - Interstate migration of RNs to California;
 - Changes from inactive to active license status; and
 - Changes from delinquent to active license status.
- Outflows of nurses: The departure of RNs from the California population.
 - Migration out of California (to another state or country); and
 - Movements from active to inactive or lapsed license status, which includes nurses who do not move out of California but who retire or otherwise permanently leave nursing.
- Labor force participation factors: Decisions to work, and how much to work.
 - Share of RNs with active licenses and California residence that works in nursing; and
 - Average number of hours worked per week by RNs working in nursing.

The inflows are added to the number of RNs with active licenses and California residences, which is called the "stock" of nurses available to work, and the outflows are subtracted from the stock. Estimates of the labor supply of RNs are derived from the stock of RNs potentially available to work and how much they choose to work in nursing. This number is expressed as full-time equivalent employment (FTEE) in order to account for differences in the work commitments of those employed full-time and part-time. Figure 1 illustrates this model of the supply of RNs in California, commonly called a "stock-and-flow model."

Method of Calculating RN Supply

As inflows, outflows, and employment decisions change over time, so does the RN workforce. At first glance, it seems clear that as long as the inflow of RNs is greater than the outflow, the RN workforce will grow over time. However, such a comparison between total inflow and outflow does not take into account the aging of the RN workforce. The age distributions of the stock of RNs and each inflow and outflow component affect supply. Thus, the model “ages” each age cohort to capture the impact of age on the supply forecast.

Exhibit 1: A model of the supply of RNs.



In the supply model, the number of RNs with active licenses who reside in California is divided into 13 age categories: under 25, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 70-79, and 80 and older. We assume that one-fifth of RNs in each age category moves into the next (older) age category in the subsequent year, until they reach the oldest age category.¹ We add the inflow estimates to and subtract the outflow estimates from each age group of RNs to obtain a forecast of the new stock of RNs for the next year. Finally, we apply rates of employment and hours worked per week in nursing to the estimated stock of RNs to obtain estimated FTEE supply. This calculation is iterated through 2030 to obtain our yearly forecasts of California’s RN supply.

¹ All but one age group spans 5 years, so 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 were few RNs under 20 years old in 2013; thus, the 20% assumption seems reasonable for this group as well.

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 example, in 2010 and 2012 a greater share of nurses over age 60 was employed as compared with prior years. This increase is likely because older nurses are delaying their retirement due to declines in the value of their retirement savings. If interest rates and the stock market rise, these nurses may decide to stop working and employment rates might return to pre-recession levels. However, it also is possible that “baby boomer” nurses have different intentions regarding retirement than did previous generations, and the higher rate of employment in this age group will persist regardless of economic circumstances. For variables with such uncertainty, a range of estimates is offered representing the highest and lowest values. In the final models, the “best estimate” for each parameter is the average of the low and high estimates, unless otherwise noted.

Estimates of Supply Model Factors

Stock of RNs in 2013

Data on the number of RNs with active licenses were obtained from the BRN for February 28, 2013. At that time, 328,282 RNs had active licenses and a California address. The 56,425 RNs with addresses outside California were not included in the stock of RNs because California’s border regions are generally rural and thus few nurses commute regularly from out of state. Some nurses might intermittently come to California as traveling nurses, thus supplanting the state’s supply, but these are not part of the regular stock of RNs. Traveling nurses are discussed in more detail below.

The number of RNs with active licenses and California addresses was divided into 13 age groups, as seen in Exhibit 2. Three RNs did not have age data recorded in the licensing file provided by the BRN and are excluded from the table and subsequent analyses. The same age groups are used throughout the model. Exhibit 2 compares the 2013 data to that from 2011. The total number of licensed RNs living in California grew by 17,540 (5.6%), representing a slightly lower growth rate than between 2009 and 2011 (6.2%). The number of licensed California-resident RNs increased in all age groups except 20 to 24 years (-8.4%), and 50-54 years (-6.2%). The largest growth rates between 2011 and 2013 were seen among the older age group, with greater than 17 percent growth among nurses 65 to 69 years (17.7%), 70 to 74 years (18.8%), 75 to 79 years (19.2%), and 80 years and older (19.1%). This contrasts notably to the growth between 2009 and 2011, when the fastest growth was among nurses 25 to 29 years (21.9%), 40 to 44 years (18.2%), and 65 to 69 years (15.5%).

Graduates from California nursing programs

Data on new graduates from California nursing programs who receive their first RN license in California were obtained from the BRN. According to the 2011-2012 BRN Annual Schools Report, there were 10,814 new graduates from California nursing programs in the 2011-2012 school year (Waneka, Bates, & Spetz 2013). This is a slight decrease from two years prior; in the 2009-2010 academic year, there were 11,512 graduates. However, over the past decade, there was substantial growth in new enrollments in RN education programs. Exhibit 3 presents the numbers of enrollments and graduates from the past nine Annual Schools Reports.

Growth in RN program enrollments will lead to growth in graduations in future years. Associate Degree Nursing (ADN) programs are designed so students can complete the nursing

component of the degree in two years. In most Baccalaureate of Science Nursing Degree (BSN) programs, students are formally enrolled in nursing major courses during the last 2.5 to 3 years of the pre-licensure BSN degree program, unless the program is an accelerated BSN degree program. Thus, enrollment changes will translate to graduation changes two to three years into the future.

To predict future graduations, actual enrollments for each year of the Annual Schools Report were compared with graduations two years later. From 2006-2007 through 2011-2012, graduations averaged 83.8 percent of the number of enrollments two years prior, which represents a notable decrease from the 89.3 percent “productivity rate” used in the 2011 forecasts. This rate was used to estimate future graduations. The forecasted number of graduations in 2013-2014 is thus 83.8 percent of the known enrollments from 2011-2012.

Exhibit 2: Counts of actively-licensed RNs living in California, by age group, February 28, 2013, and March 30, 2011

Age Group	February 28, 2013		March 30, 2011	
	Count	% of Total	Count	% of Total
Under 25	2,531	0.77%	2,763	0.89%
25-29	23,335	7.11%	21,681	6.98%
30-34	33,206	10.12%	28,910	9.30%
35-39	34,878	10.62%	35,189	11.32%
40-44	41,097	12.52%	37,045	11.92%
45-49	33,718	10.27%	33,136	10.66%
50-54	37,099	11.30%	39,547	12.73%
55-59	45,083	13.73%	45,956	14.79%
60-64	38,876	11.84%	33,980	10.94%
65-69	22,521	6.86%	19,135	6.16%
70-74	10,181	3.10%	8,568	2.76%
75-79	4,056	1.24%	3,403	1.10%
80+	1,698	0.52%	1,426	0.46%
Total	328,279	100.00%	310,739	100.00%

Source: California Board of Registered Nursing license records. Notes that 3 RNs with unknown ages are excluded from this table.

Exhibit 3: Enrollments and graduations from RN education programs, 2001-2002 through 2011-2012

Survey year	Number of new enrollments	Growth in enrollments	Number of graduations	Growth in graduations
2001-2002	6,422	4.8%	5,346	3.2%
2002-2003	7,457	16.1%	5,623	5.2%
2003-2004	7,825	4.9%	6,158	9.5%
2004-2005	8,926	14.1%	6,677	8.4%
2005-2006	11,131	24.7%	7,528	12.8%
2006-2007	12,709	14.2%	8,317	10.5%
2007-2008	12,961	2.0%	9,580	15.2%
2008-2009	13,988	7.9%	10,570	10.3%
2009-2010	14,228	1.7%	11,512	8.9%
2010-2011	13,939	-2.0%	10,666	-7.4%
2011-2012	13,677	-1.9%	10,814	1.4%

Source: Waneka, Bates, & Spetz, 2013. 2011-2012 Annual School Report Data Summary and Historical Trend Analysis.

Graduations after the 2013-2014 academic year are more difficult to estimate, because enrollments for 2012-2013 are not yet known. To estimate graduations beyond the 2013-2014 academic year, we used estimates reported by schools of their new enrollments for future years. They estimated their 2012-2013 new enrollments to be 12,948, which is a 5.3 percent decline relative to the previous year. Their forecasted new enrollment for 2013-2014 is 12,601, which is a 7.9 percent decline relative to 2011-2012. These estimates were multiplied by 83.8 percent to obtain forecasted graduations for 2014-2015 and 2015-2016. Based on current funding for higher education, the forecasts assume that nursing program enrollments will be relatively stable after the 2013-2014 academic year. In the forecasting model, the “low” estimate of growth in RN education after 2015-2016 is 0%, the high estimate is 2%, and the “best” estimate is 1%. Predicted graduations from 2008-2009 through 2015-2016 are presented in Exhibit 4.

Exhibit 4: Predicted growth in graduations based on known growth in new enrollments

Academic year	Actual/forecasted new enrollments	Forecasted graduations
2008-2009	13,988*	10,526*
2009-2010	14,228*	11,512*
2010-2011	13,939*	10,666*
2011-2012	13,677*	10,814*
2012-2013	12,948	11,678
2013-2014	12,601	11,458
2014-2015		10,847
2015-2016		10,557

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

Note: Forecasts of enrollments are provided by RN programs in the Annual Schools Survey. Forecasted graduations are 83.8 percent of enrollments two years prior. Source: Waneka, Bates, and Spetz, 2013. 2011-2012 Annual School Report Data Summary and Historical Trend Analysis.

Graduates from nursing programs in 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, in the 2011-2012 fiscal year, 693 out-of-state graduates obtained their first license from California; this is the high estimate of out-of-state graduates who move to California. BRN records also indicate that 564 of these nurses are living in California; this is the low estimate. The “best estimate” for the inflow of new licensees from other states is the average of the high and low estimates: 629 nurses. This estimate is lower than that from the 2011 forecasts, which was 840.

Immigration of internationally-educated nurses

In the 2011-2012 fiscal year, the BRN reports that 2,021 internationally-educated nurses passed the National Council Licensure Examination for RNs (NCLEX-RN) and received initial licensure as an RN in California; in the 2009-2010 fiscal year, the figure was slightly higher, with 3,900 internationally-educated RNs receiving initial licensure in California. In 2013, 1,200 of these nurses lived in California; the remainder lived in other states or countries. Since the 1997-1998 fiscal year, the number of first licenses issued to internationally-educated nurses has ranged between 1,145 and 4,107 annually. In the supply model, we use total number of 2011-

2012 international graduates as the high estimate of the number of immigrants. We use the number that lives in California as the low estimate. The best estimate is the average of the high and low estimates: 1,611 internationally-educated RNs immigrate to California each year.

Age distributions of new graduates

Inflows of new graduates are added to the stock of RNs by age group. The BRN Annual Schools Report uses an uneven set of age groups for new California graduates: 18-25, 26-30, and then ten-year age groups for graduates over age 30. To create consistent groups of graduates in the forecasting model, we allocated the graduates into five-year groups. Exhibit 5 shows the redistributed age breakdown of new graduates from California nursing programs. RN graduates from nursing programs in other states seeking initial licensure as an RN in California are assumed to have the same age distribution as California graduates.

BRN records of internationally-educated nurses who receive initial U.S. licensure in California include the birthdates of these nurses. The age distribution of internationally-educated RNs who lived in California and obtained licenses in 2011-2012 is presented in the last column of Exhibit 5; these data are used as the forecast of the age distribution for all internationally-educated RNs receiving first licenses in California.

Exhibit 5. Estimated age distribution of new graduates from California RN programs

Age group	Graduates of US RN programs	Internationally-educated graduates
18-25*	25.0%	8.1%
26-29*	29.5%	27.7%
30-34	22.9%	19.0%
35-39	9.3%	14.2%
40-44	7.4%	16.3%
45-49	3.5%	7.0%
50-54	1.8%	4.1%
55-59	0.6%	3.0%
60-64	0.1%	0.7%
65+	0.0%	0.0%

* The age groups for internationally-educated RNs are “Under 25” and 25-29.

Sources: Waneka, Bates, and Spetz, 2013, 2011-2012 Annual School Report Data Summary and Historical Trend Analysis; 2011-2012 California BRN licensing records.

Interstate migration of RNs to California

Estimates of interstate migration to California were developed in two ways; these methods are different from those used in prior years. The low estimate of interstate migration was computed from BRN records of nurses requesting license endorsement from another state into California. Exhibit 6 presents the number of RNs requesting endorsement to California who have permanent addresses in California. The rate of movement into California is based on the ratio of the number who requested endorsement into California divided by the number licensed and residing in California in 2013 (from BRN licensing records).

Exhibit 6. Requests for license endorsement into California, 2011-2012 (Low estimate)

Age Category	Number requesting endorsement & living in CA	Percent of RNs living in other states requesting endorsement
Under 25	73	2.88%
25-29	590	2.53%
30-34	589	1.77%
35-39	377	1.08%
40-44	284	0.69%
45-49	174	0.52%
50-54	160	0.43%
55-59	165	0.37%
60-64	90	0.23%
Over 64	33	0.86%

Sources: California Board of Registered Nursing license records, 2011-2012; BRN license records, 2013.

The high estimate of interstate migration is based on data from the 2008 BHP_r NSSRN. The NSSRN asked respondents about their current and former state of residence with the following questions:

- (1) Where do you currently reside?
- (2) Did you reside in the same city/town a year ago?
- (3) If the person does not live in the same place as one year previously: Where did you reside a year ago?

Using the variables corresponding to these questions in the 2008 NSSRN and applying sample weights, we were able to estimate the number and age distribution of RNs who did not reside in California in 2007, but did so in 2008. The share moving to California between 2007 and 2008 is divided by the estimated number of RNs residing in California in 2007 to obtain a rate of migration into California. Exhibit 7 presents these estimates.

Exhibit 7. Estimated movements from other states to California, 2007-2008 (High estimate)

Age Category	Number moving to California, 2007-2008	Number of RNs in California, 2007	Percent of RNs moving to California
Under 25	1,569	3,326	1.98%
25-29	4,146	18,125	2.00%
30-34	5,311	24,793	1.90%
35-39	4,811	31,111	1.45%
40-44	2,556	30,128	0.73%
45-49	3,246	38,383	0.73%
50-54	1,869	43,684	0.38%
55-59	2,161	37,339	0.55%
60-64	760	22,893	0.30%
65-69	183	13,500	0.13%
70-74	196	6,213	0.37%

Source: Bureau of Health Professions, 2010.

Note that during 2007 and early 2008, California's economy was growing rapidly and both the U.S. and California economy were strong. In-migration rates was likely to have been higher at that time than we might expect in the future. Thus, we estimate future migration with more weight to recent patterns of endorsement requests, and de-emphasizing the 2007-2008 estimates from the NSSRN. We calculate the "best estimate" as:

$$\text{Best estimate} = 0.2 * \text{high estimate} + 0.8 * \text{low estimate}$$

Because future interstate movements of nurses are highly uncertain, this variable is largely responsible for the overall difference between the high supply forecast and the low forecast. It also is responsible for the lower estimates of in-migration in 2013 as compared with 2011.

Movements from inactive to active license status

We obtained data from the BRN, by age category, on the number of RNs with California addresses changing from inactive to active license status for the most recent fiscal year. The total has ranged from 189 nurses in 2002-2003 to 796 nurses in 2011-2012. The 2011-2012 data are used to estimate the number and age distribution of RNs changing from inactive to active license status (Exhibit 9).

Exhibit 8. Rates of migration of RNs to California from other states as a function of the California RN population.

	High estimate (NSSRN)	Low estimate (BRN)	Best estimate 2013	Best estimate 2011
Under 25	47.2%	2.9%	11.7%	8.1%
25-29	22.9%	2.5%	6.6%	9.3%
30-34	21.4%	1.8%	5.7%	8.2%
35-39	15.5%	1.1%	4.0%	6.1%
40-44	8.5%	0.7%	2.2%	3.2%
45-49	8.5%	0.5%	2.1%	3.0%
50-54	4.3%	0.4%	1.2%	1.7%
55-59	5.8%	0.4%	1.5%	2.3%
60-64	3.3%	0.2%	0.8%	1.3%
65-69	1.4%	0.1%	0.3%	0.7%
70-74	3.2%	0.0%	0.6%	1.4%
75-79	0.0%	0.0%	0.0%	0.0%
80+	9.8%	0.0%	2.0%	3.3%

Sources: California Board of Registered Nursing license records, FY 2011-2012; Bureau of Health Professions, 2010.

Exhibit 9. Number and age distribution of RNs changing status from inactive to active license status, 2011-2012

Age Category	Number	Percent	Age Category	Number	Percent
<30	2	0.3%	55-59	95	11.9%
30-34	15	1.9%	60-64	96	12.1%
35-39	27	3.4%	65-69	111	13.9%
40-44	45	5.7%	70-74	125	15.7%
45-49	39	4.9%	75+	156	19.6%
50-54	85	10.7%	Total	796	100.0%

Source: California Board of Registered Nursing license records, FY 2011-2012.

Movements from lapsed to active license status

The BRN provided data on the number and age distribution of RNs whose licenses were lapsed and later were reactivated. In the 2011-2012 fiscal year, 868 RNs living in California reactivated their licenses. 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. These data are presented in Exhibit 10.

Exhibit 10. Number and rate of RNs reactivating lapsed licenses, 2011-2012

Age Category	Number of reactivated licenses	Rate of reactivation
<30	26	0.10%
30-34	72	0.22%
35-39	86	0.25%
40-44	113	0.27%
45-49	103	0.31%
50-54	123	0.33%
55-59	117	0.26%
60-64	101	0.26%
65-69	64	0.28%
70-74	40	0.39%
75+	23	0.40%

Source: California Board of Registered Nursing license records, FY 2011-2012.

Migration out of California (to another state or country)

Estimates of migration out of California were created with data from the 2008 NSSRN and California BRN records of nurses requesting outgoing endorsement. The first estimate is based on analysis of the 2008 NSSRN data. The same variables used to calculate migration of RNs into California were used to calculate the high estimate of migration out of California. First, estimates of the number and age distribution of RNs who moved out of California between 2007 and 2008 were computed. Then, the number and age distribution of RNs who resided in California in 2007 were tabulated. Finally, for each age category, the estimated share of RNs who moved out of California between 2007 and 2008 was calculated by dividing the number who moved out of California by the total number in California in 2007.

Two additional estimates were obtained from BRN records on applications for outgoing endorsements in 2011-2012, by age group. Some of these people requesting outgoing endorsement had in-state addresses at the time of the request, and others had out-of-state addresses. Both of these numbers were divided by the numbers of RNs in each age group in 2013 to obtain estimates of the rate of out-migration. Exhibit 11 presents the rates used in the model. The “best estimate” is the average of the three estimated out-migration rates.

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 and the NSSRN. 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.

Exhibit 11. Estimated annual rates of RNs migrating out of California.

Age Category	NSSRN estimate	BRN estimate – CA addresses	BRN estimate – all addresses	Best estimate 2013	Best estimate 2011
Under 25	0.0%	2.9%	5.3%	4.1%	25.2%
25-29	13.9%	2.9%	6.4%	4.7%	10.1%
30-34	1.9%	2.1%	5.0%	3.6%	4.0%
35-39	5.6%	1.3%	3.6%	2.4%	4.1%
40-44	2.4%	1.0%	2.6%	1.8%	2.2%
45-49	2.2%	0.8%	2.5%	1.7%	2.4%
50-54	1.2%	0.8%	2.2%	1.5%	1.5%
55-59	2.1%	0.8%	1.8%	1.3%	1.6%
60-64	2.0%	0.5%	1.4%	0.9%	1.3%
65-69	1.9%	0.4%	1.1%	0.7%	1.1%
70-74	1.5%	0.1%	0.6%	0.4%	0.8%
75-79	0.0%	0.3%	0.2%	0.1%	0.1%
80+	0.0%	0.0%	0.0%	0.0%	0.0%

Source: California Board of Registered Nursing license records, FY 2011-2012; Bureau of Health Professions, 2010.

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 the 2011-2012 fiscal year. These data were provided in age groups up through “75 and older”. The number of RNs with a non-active license divided by the number of current active RNs to produce initial estimates of the rate at which nurses leave the pool of actively licensed RNs.

The 2004 and 2008 NSSRN were used to obtain an alternative estimate of movements from active to inactive license status, and to obtain estimates for age groups through 65 and older. First, the number of RNs who were U.S. residents in 2004 was calculated, by age category. The number of RNs (U.S. residents only), by age category, who responded in the 2008 survey that they received their first U.S. license between 2004 and 2008 was added to this figure. Then the number of RNs who were U.S. residents in 2008, by age category, was calculated for age categories four years older than those tabulated in 2004. The formula for estimating the number going “inactive” is:

$$\text{Number of inactive RNs (US residents only)} = \text{Number of RNs in 2008} - \text{Number of RNs in 2004} - \text{Number newly licensed between 2004 and 2008.}$$

The rate of inactivation is:

$$\text{Inactive Rate} = \text{Number of inactive RNs (US residents only)} / \text{Number of RNs in 2008}$$

This calculation was translated into a yearly rate with the following formula:

$$\text{Yearly Rate} = 1 - (1 - \text{Inactive rate})^{0.25}$$

If the estimated rate from the NSSRN was negative, it was assumed to be zero. For nurses under 65 years old, the average of the BRN-based estimate and the NSSRN-based estimate was used to compute the rate at which nurses’ licenses go inactive or lapse. For nurses

80 years and older, the NSSRN estimate was averaged with the BRN estimate for the 75-79 age group. Exhibit 12 presents the rates used in the supply model.

Exhibit 12. Estimated annual rates of RNs changing from active to inactive or lapsed license status, by age category.

Age Category	BRN Estimate	NSSRN Estimate	Best Estimate 2013	Best Estimate 2011
<30	0.69%	0.00%	0.35%	0.02%
30-34	0.86%	0.00%	0.43%	0.35%
35-39	0.79%	0.00%	0.40%	0.07%
40-44	0.73%	0.01%	0.37%	0.08%
45-49	0.70%	1.33%	1.01%	0.76%
50-54	0.77%	2.70%	1.74%	1.50%
55-59	0.86%	4.79%	2.82%	2.64%
60-64	1.50%	6.20%	3.85%	3.60%
65-69	3.75%	12.91%	8.33%	7.81%
70-74	6.52%		9.71%	8.86%
75-79	8.86%		10.88%	9.86%
Over 79			10.88%	9.86%

Sources: California Board of Registered Nursing license records, 2011-2012; Bureau of Health Professions, 2010.

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 moves into the next age category every year after 2013. In this manner, the workforce is “aged.” For the 80 years and older category, 100% of the previous year remains and 20% of those 75 to 79 years older in the previous year enter. For each age category, the basic formula is:

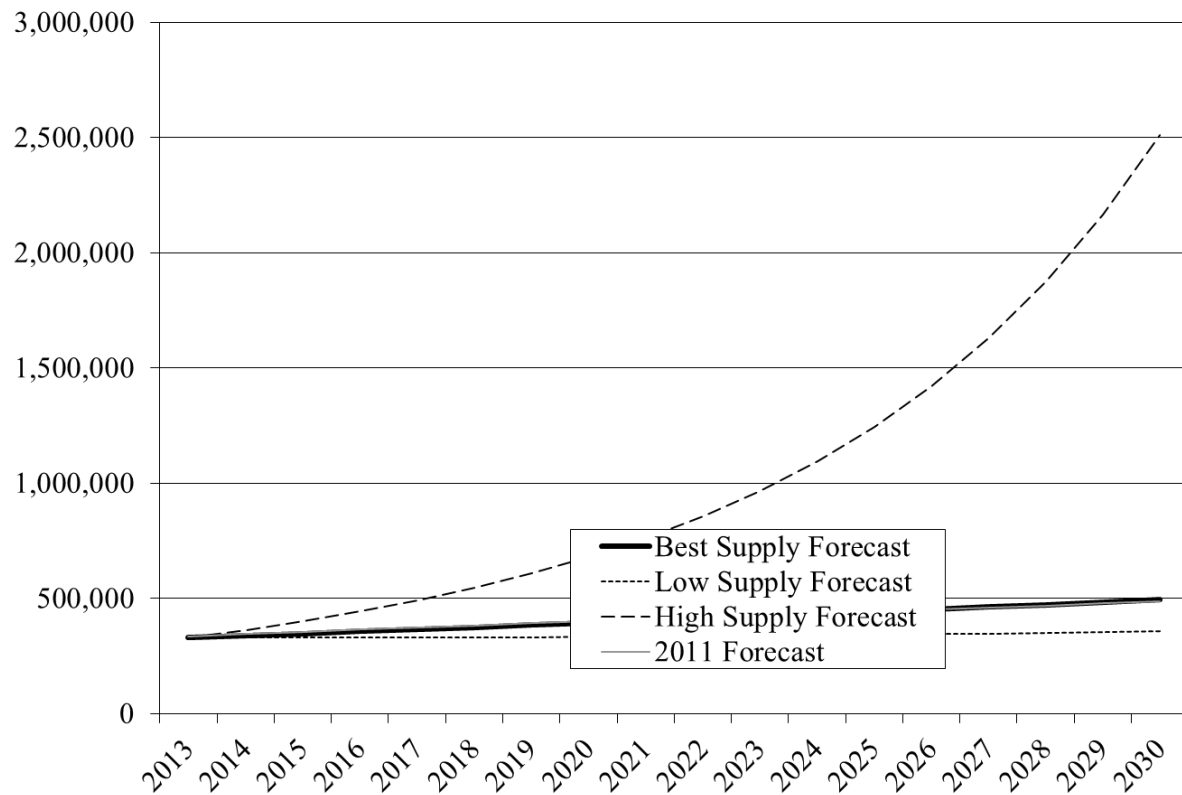
Forecasted Supply of CA RNs = Current supply of RNs as of 2013 + Estimated total inflows – Estimated total outflows.

This formula is used to produce a forecast of the total active RN population residing in California through 2030.

We estimate that California will have 493,563 active resident RNs by 2030, as shown in Exhibit 13. This is a decrease as compared with the 2011 forecast of 526,486 RNs by 2030. This difference is largely due to continuing increases in RN graduations and changes in interstate migration of nurses.

As noted above, there was a range of plausible estimates for several inflow and outflow parameters of the model. Different sources of data provided different estimates of migration to California, migration from California, changes from active to inactive license status, and the projected number of new nursing graduates. Exhibit 13 presents the range of supply estimates that result when the highest and lowest possible supply forecasts are calculated. The parameters underlying the highest forecast are likely implausible, and the rapid growth of the RN workforce in the high forecast is largely driven by a very high rate of migration to California from other states. Nonetheless, these forecasts are useful to provide a sense of the range of possible supply outcomes that could occur given potential changes in any or several of the variables identified above.

Exhibit 13. Forecasted number of RNs with active licenses residing in California, 2013-2030.



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; Using data from the 2012 BRN Survey of RNs, the proportion of RNs living in California with active licenses that are employed in nursing was estimated for each age category. The estimates range from 91% of RNs aged 45 to 49, and 23% of RNs 80 years and older. Employment rates in 2012 were generally higher than in 2008 for nurses age 40 years and older, and lower for younger RNs. This change in employment likely reflects the lower availability of jobs for recently-graduated RNs (Bates, Keane, Chu & Spetz 2013); if enough jobs were available, younger RNs would probably be employed at a rate similar to 2008. The low estimate of the

employment rate is the lower of the 2008, 2010, and 2012 employment rates for each age group, and the high estimate is the higher of these rates. The best estimate is the average of the low and high rates.

In the supply model, to account for variation in hours worked by RNs, the 2012 BRN Survey of RNs was used to estimate the average usual hours worked per week in all nursing jobs, for each age category, by active RNs who reside in California and were employed in nursing. These estimated hours per week are divided by 40 to obtain the average full-time equivalent employment (FTEE) for each age category. The data used for this calculation is presented in Exhibit 14. As with the estimates of the employment rate, the high estimate is the higher of the number of hours worked in 2008, 2010, and 2012 and the low estimate is the lower of these two. The best estimate is the average of the high and low estimates.

Exhibit 14. Employment rates and average hours worked per week by RNs residing in California, 2012

Age Category	Share Employed, 2012	Average Hours per Week, 2012	Share Employed, 2010	Average Hours per Week, 2010	Share Employed, 2008	Average Hours per Week, 2008
Under 25	93.2%	36.2	79.2%	32.8	100.0%	47.1
25-29	89.6%	36.7	91.3%	36.1	97.4%	35.8
30-34	88.7%	35.2	93.2%	34.9	95.5%	36.6
35-39	90.1%	35.9	94.7%	36.3	95.2%	36.2
40-44	92.6%	36.6	92.4%	36.2	89.7%	36.6
45-49	90.7%	36.2	92.3%	37.2	93.4%	37.3
50-54	91.1%	36.2	91.7%	37.0	89.8%	37.6
55-59	85.9%	36.7	87.8%	36.5	87.2%	36.7
60-64	79.3%	35.3	81.4%	35.7	75.5%	35.3
65-69	55.8%	30.7	49.8%	32.2	65.2%	33.4
70-74	38.1%	24.0	43.5%	27.6	42.6%	24.0
75-79	29.0%	23.0	27.9%	13.1	36.0%	24.5
80+	25.1%	19.3	25.0%	28.5	23.3%	31.1

Source: Spetz, Keane, Chu and Blash, 2013, BRN 2012 Survey of Registered Nurses.

Exhibit 15 presents projected high, low and best estimates of FTEE supply, based on the best estimates of the future count of RNs. The 2013 forecast is slightly lower than that of 2011, reflecting the declines in the forecasted total number of RNs discussed above.

The supply forecasts and U.S. Census Bureau projections of total population in the state can be used to calculate the number of full-time equivalent employed RNs per 100,000 people in the population for the years 2013 through 2030 (Exhibit 16). The calculation method is comparable to that used by the federal government, and based on data from the NSSRN (Bureau of Health Professions, 2010). The report summarizing the 2008 NSSRN estimates that there was a median of 786 FTEE RNs per 100,000 US residents in 2008, and 542 FTEE RNs per 100,000 in California. The national average was 746 FTEE RNs per 100,000. California’s estimated rate for 2013 was 657 RNs per 100,000, based on the 2013 BRN license files and 2012 Survey of

Registered Nurses. The supply model presented here predicts that California’s RN-per-100,000 ratio will rise to 722 by 2020 and to 843 by 2030.

Exhibit 15. Forecasted full-time equivalent supply of RNs, based on “best estimate” forecasted count of RNs, 2013-2030.

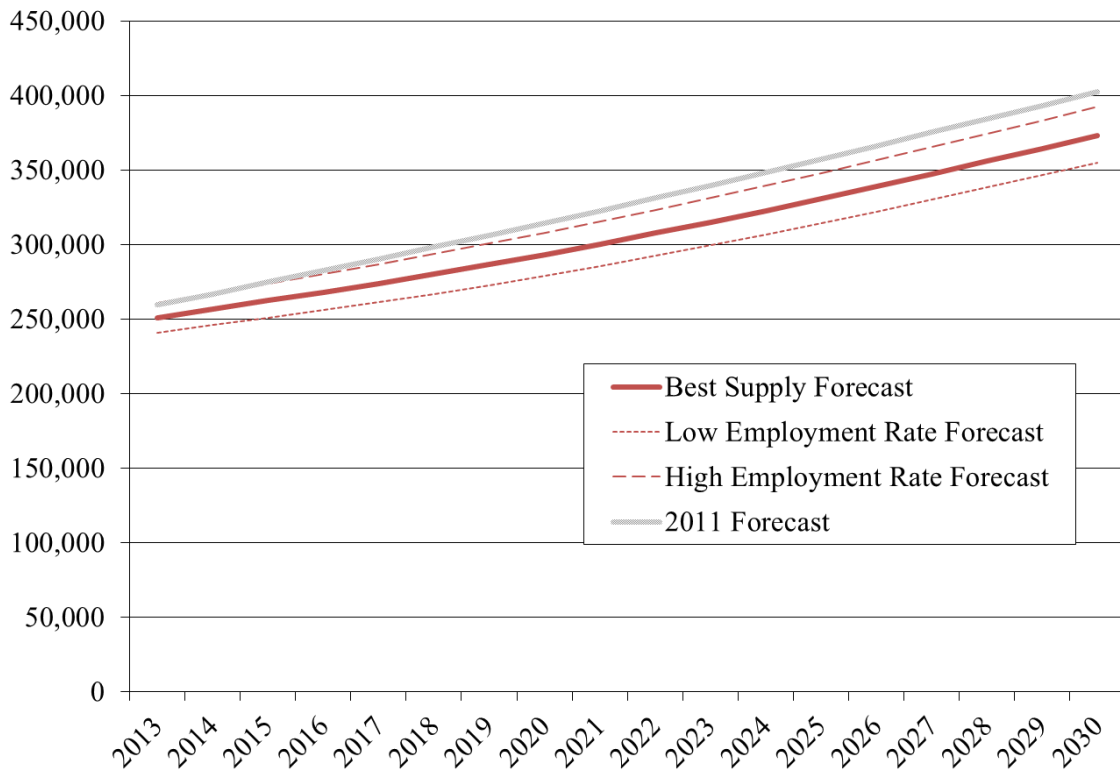
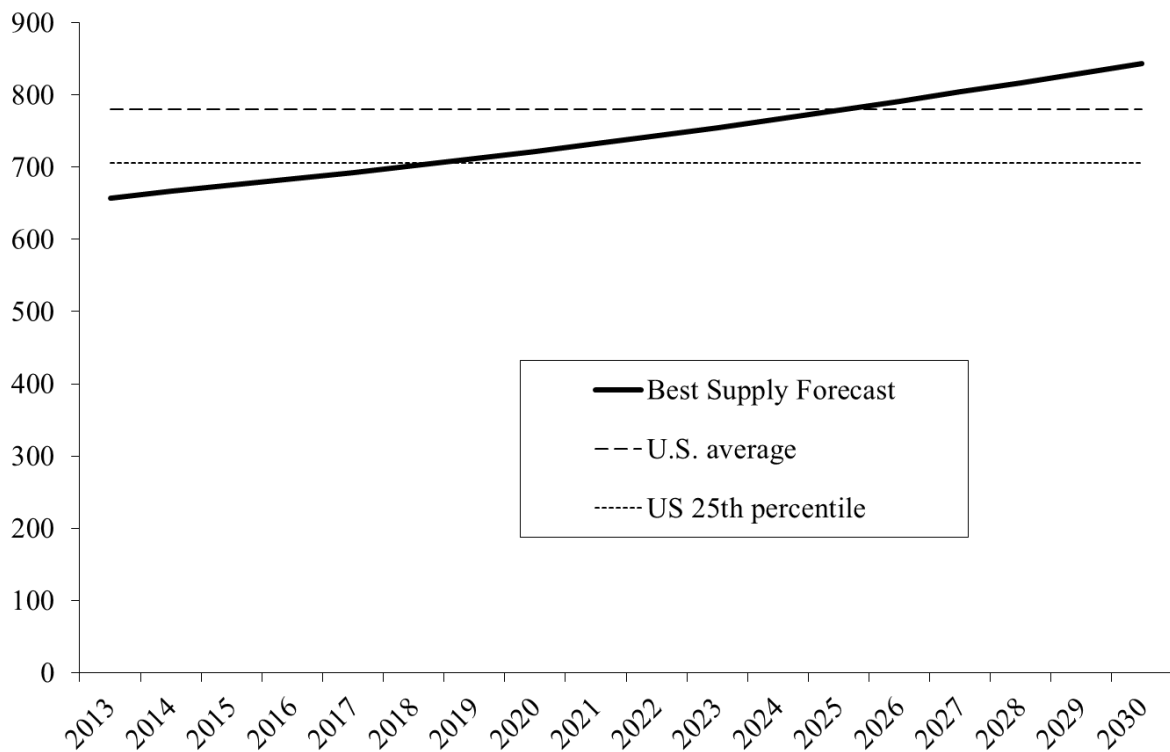


Exhibit 16. Forecasted full-time equivalent supply of RNs per 100,000 population, 2013-2030



The Demand for RNs

The demand for RNs can be measured and forecasted 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 needing a minimum of 2.28 health care professionals per 1,000 population, in order to achieve the goal of 80 percent of deliveries being attended by a skilled birth attendant (WHO 2006). Similarly, policymakers could target a stable number of nurses per capita, based on the current number of nurses per capita, a target developed by an expert panel based on review of health needs and the role of nurses in meeting those needs, or a goal based on comparisons with other U.S. 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 its patient care services to afford more nurses. An employer might have resources that could be used to hire more nurses, but might think that investment in an electronic medical record will produce more value to patients. The demand for nurses is essentially derived from economic forces, which may not be aligned 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 U.S. RN-to-population ratios
- An employment forecast published by the California Employment Development Department for 2020
- Demand forecasts based on 2011 employment in hospitals and future population growth and aging

These approaches are informed by a survey of RN employers conducted in fall 2012, and by Massachusetts's experience after implementation of its statewide health insurance reform. The Massachusetts health insurance reform is similar in many ways to the Patient Protection and Affordable Care Act (PPACA), and thus may help predict how PPACA will affect RN demand.

Forecasts based on RNs per capita

One frequently-used benchmark of the need for RNs is the number of employed RNs per 100,000 population (California Institute for Nursing and Health Care, 2006). This metric is reported by the BHP in the NSSRN report (Bureau of Health Professions, 2010). For over ten years, California has had one of the lowest ratios of employed RNs-per-100,000 population in the United States and ranked 48th in 2008. Many policy advocates have supported efforts to move California's full-time equivalent employment of RNs toward the 25th percentile nationwide (706 RNs per 100,000) or even the national average (746 RNs per 100,000). These benchmarks were compared with the current and forecasted population of California (California Department of Finance, 2013) to project need for RNs to remain at current FTEE RN-to-population ratios, to reach the 25th national ratio, and to attain the national average ratio.

Forecasts based on hospital staffing of RNs per patient day

The main shortcoming of targeting a fixed number of RNs per population is that the target is arbitrarily defined. The current number of nurses per capita may not be a large enough number to deliver health care needs, and if there is a shortage of nurses, the number may not be as large as economic demand. Likewise, a target number based on a national average or other source might not reflect the unique population and health care system of California. An additional shortcoming is that fixed nurse-to-population ratios do not account for increases in the demand for health services associated with population aging. However, this approach has the benefit of being easy to understand and adjust, and provides a clear indication of how California's supply compares to national levels of supply.

A second approach to forecasting demand for RNs uses current hospital utilization and staffing patterns to estimate future demand. First, the number of hospital patient days per ten-year age group was obtained from the OSHPD Inpatient Hospital Discharge Data for 2011, for short-term acute-care hospitals (Office of Statewide Health Planning and Development, 2012).² Then, age-specific population forecasts were gathered from the California Department of

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.

Finance (2013). Dividing patient days by 2013 population provides the number of patient days per population, per age group. These rates of patient days can be applied to future population projections to get forecasts of patient days by age category. To produce forecasts of hospital demand for RNs, RN hours per patient day were obtained from OSHPD's Hospital Annual Financial Data for 2010-2011 (Office of Statewide Health Planning and Development, 2012). Average RN hours per patient day in 2011 were 12.93. Multiplying the RN hours per patient day figure of 12.93 by the patient day forecasts produces a forecast of RN hours needed in the future. To equate these hours to FTEEs, RN hours are divided by 1768 (average annual productive hours per FTE).

The calculations described above provide demand forecasts for only one type of employer (hospitals). In order to extrapolate these forecasts across all employment settings, they were compared with other known estimates of RN employment. First, EDD's estimate of the number of RN jobs in 2010 was used as a calibration, estimating that 49.4 percent of jobs were in the short-term acute-care hospitals that reported to OSHPD. Second, the BRN 2012 survey was used to calibrate against the OSHPD data, indicating that 44.5 percent of jobs were in these hospitals. The EDD-based estimates forecast there will be 315,615 FTEE positions for nurses in 2030, while the BRN-based estimates indicate there will be 350,166 positions.

Employment Development Department forecasts

The most recent projections by the EDD indicate that there will be 306,100 registered nurse jobs in California by 2020 (California Employment Development Department, 2010). The EDD forecast does not distinguish between full-time and part-time jobs. To estimate the FTEE employment implied by the EDD forecasts, we use the adjustment of 0.9, which is the average number of hours worked per week by California RNs (36) divided by 40. The FTEE forecast for 2020 is thus 275,782.

Adjusting for low demand due to economic recession

The above-described forecasting methods can be useful in considering long-term trends in demand, but do not account for the impact of the economic recession on demand, and the potential impact of economic recovery. Since January 2008, the United States has been mired in a deep recession. In fall 2010, a survey of nurse employers was conducted, and found that nearly half of the responding hospitals found that demand was less than supply, and another 11.3 percent thought demand and supply were in balance (Bates, Keane, & Spetz 2011). Respondents expected employment of RNs to increase 4.4 percent between 2010 and 2011, and 1.1 percent between 2011 and 2012. These growth rates are higher than those calculated from the forecasts based on expected patient days (3.6% total from 2010 to 2012), and suggest that in 2012 there may have been 2,000 more hospital-based positions than forecasted. This represents less than 1 percent variation in the forecasts. A more recent survey of employers found that there has been some slight improvement in the labor market, but the vacancy rate has not changed notably (Bates, Chu, and Spetz 2013). Thus, adjustments were not made to the demand forecasts based on the employer surveys.

Accounting for ACA

The implementation of the Affordable Care Act (ACA) is expected to increase access to health insurance, and likely will increase demand for health care services (Coffman and Ojeda, 2010). In particular, growth in demand for primary care services is expected to be more rapid, as well as for other professionals whose work supports primary care, such as laboratory technicians who provide diagnostic tests and pharmacists. A recent analysis of health care employment in Massachusetts found that employment grew about 8 percent over a five-year period prior to implementation of that state's health insurance reform, and 9.5 percent over nearly a five-year period afterward (Staiger, Auerbach, & Buerhaus 2011). However, most of this growth was in administrative positions; employment of health care professionals grew 2.8 percent in Massachusetts between 2005-2006 and 2008-2009, while it grew 5.9 percent in the rest of the United States.

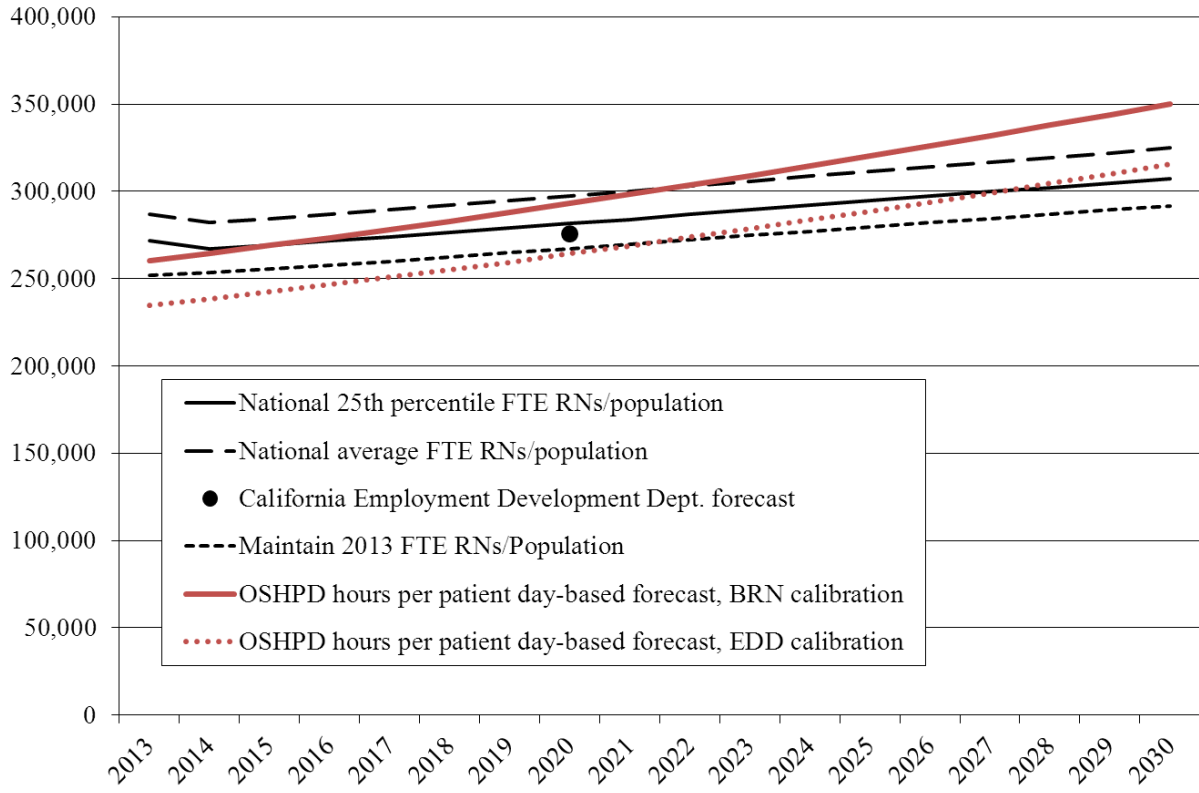
It is unclear how the ACA might affect the demand forecasts for RNs in California. Most registered nurses do not provide primary care services, and thus the main area of anticipated growth in demand may not impact them as much as other health professionals. Nurse practitioner demand may rise, but only 3.5 percent of RNs have the job title of NP (Spetz, Keane, Chu, and Blash 2013), and thus growth in their demand will have little effect on overall RN demand. RN positions could rise more rapidly than in Massachusetts because Massachusetts had a relatively good supply of health professionals in advance of their implementation of health insurance reform, and thus their system may have been able to absorb increased demand for services easily. In California, more health professionals may be needed to meet the higher demand for health services.

The evidence suggests that the ACA is likely to impact primary care professionals more substantially than other health professionals, and may have no impact on employment growth for any health professionals. Thus, it seems likely that the ACA will have little to no impact on demand for RNs, and the demand forecasts presented here are not adjusted to account for any potential impact of the ACA.

Comparing the demand forecasts

Exhibit 17 compares all aforementioned demand forecasts of full-time equivalent RNs. The forecasts estimate that the FTEE demand for RNs in 2013 ranged from 234,516 to 286,985. Demand in 2030 is forecasted to be between 291,679 and 350,166. These lower figures are not likely to accurately represent total future demand, because they do not account for additional demand caused by future population growth and aging. The EDD forecast for 2020 is lower than that produced by targeting the national 25th percentile of RN-to-population ratios, and slightly higher than that calculated from estimated future patient days when calibrated using employment data from the BRN.

Exhibit 17. Forecasted full-time equivalent demand for RNs, 2013-2030.



Comparing Supply and Demand for RNs

Through most of the 2000s, there was a widespread perception that California faced a significant long-term shortage of RNs, and forecasts published by the BRN were consistent with this perception. Since the 2005 forecasts were published, yearly RN graduations have more than doubled. The forecasts published in 2011 reflected part of this improvement in RN graduations, and indicated that California had closed the gap between RN supply and demand. The rapid onset of the economic recession that began in December 2007 has led to concerns that RN supply is now greater than demand, although in the long term another RN shortage could emerge.

Exhibit 18 presents two supply forecasts and two demand forecasts. The supply forecasts are the “best” forecast, and the “low” forecast, which assumes that interstate migration of RNs is biased towards nurses leaving California. The demand forecasts are based on future patient days, and also the benchmark of California reaching the 25th percentile of nationwide FTE RNs per 100,000.

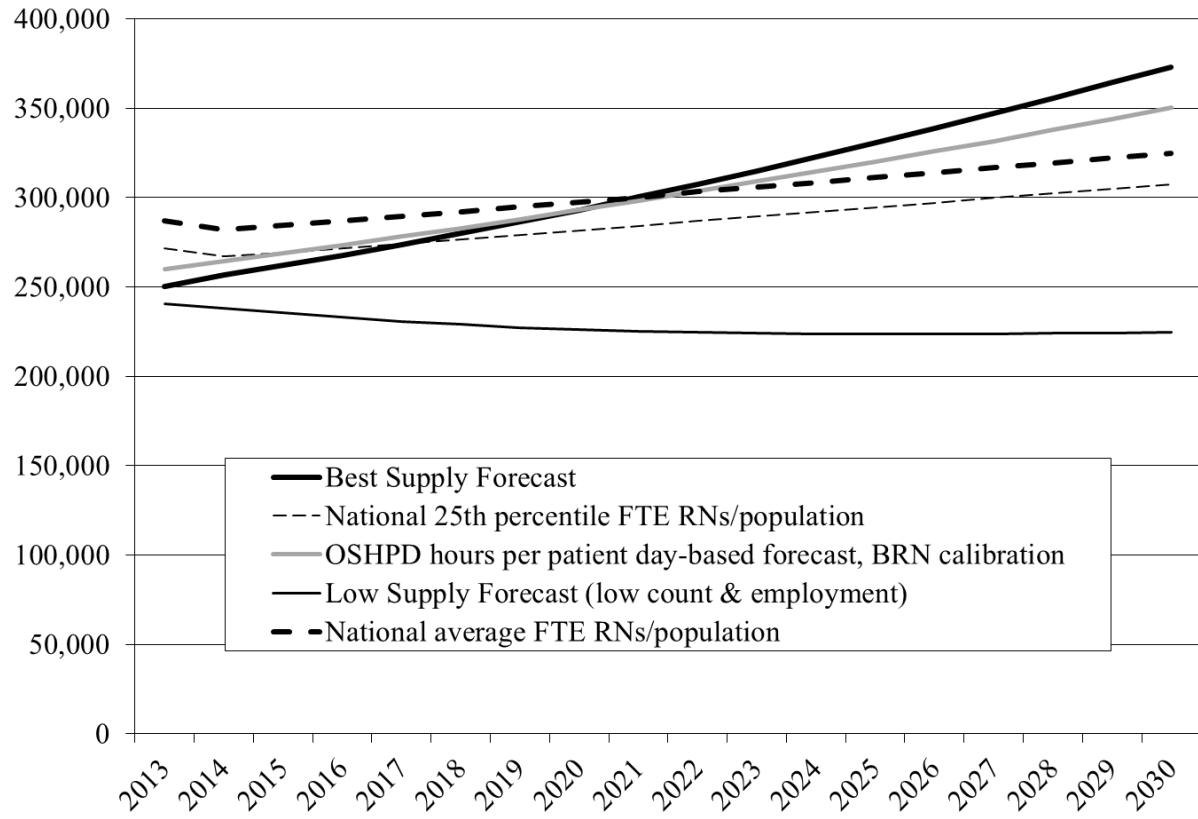
The best estimate is that in 2013 there were 250,472 FTE RNs available to work, and the patient days-based estimate is that there are 260,189 positions to be filled. This suggests a small shortage of RNs in 2013. This is consistent with employer survey data that indicate that in some parts of California, employers are having difficulty filling specialized nursing positions (Bates, Chu, Keane, and Spetz, 2013).

In the long-term, the best supply forecast predicts that nurse supply will rise more rapidly than California’s population as a whole, and RN supply will surpass the national 25th percentile of FTE RNs per 100,000 by 2018. Supply is forecasted to grow substantially more rapidly than the demand estimate based on hospital utilization. However, the low estimate of supply indicates that it is possible that California enters another period of RN shortage soon, and such a shortage could persist for decades. Which scenario prevails will depend on a number of factors:

- Whether RN graduations are sustained at the current level or increase
- Whether inter-state migration leads to more nurses entering California than leaving
- Whether older RNs continue to work at higher rates than in the past
- Whether younger RNs are able to work at rates similar to 2008, rather than the lower rates of 2010 and 2012

It is likely in the short run that more nurses will leave California than will enter, and if a surplus persists, then out-migration will prevail in the long term. Whether older RNs will continue to work at a higher rate than in the past and younger RNs will find jobs in California depend on the rate of economic recovery.

Exhibit 18. Forecasted full-time equivalent supply of and demand for RNs, 2013-2030.



Comparison of the 2013 Forecasts with Previous Forecasts

The forecasts presented here use a similar methodology to that used previously by Coffman, Spetz, Seago, Rosenoff, and O’Neil (2001), Spetz and Dyer (2005), Spetz (2007), Spetz (2009), and Spetz (2011). The magnitude of the projected shortage changed dramatically between the 2005 and 2007 forecasts. In 2005, the estimated shortage ranged between 6,872 and 21,161 RN FTEs; in 2007, the shortage was estimated to be at least 10,294 RN FTEs. However, while the 2005 forecasts predicted that the shortage would worsen continuously, reaching up to 122,223 FTEs by 2030, the 2007 forecasts predicted that the shortage will improve, and California would surpass the national average of RN FTEs per 100,000 population (825) by 2022. The 2009 forecasts were similar to those of 2007, although California was not anticipated to reach the national average of RN FTEs per 100,000 population until 2025. The 2011 forecasts indicate that supply will rise more rapidly than estimated in 2009, and that California will surpass the national average of RN FTEs per 100,000 population by 2020. The 2013 forecasts are similar to those from 2011, although the potential shortage is not as large as previously forecasted.

Policy Implications

The 2005 forecast report advised that “The only plausible solution to the RN shortage, based on our preliminary analyses, appears to be continued efforts to increase the numbers of graduates from California nursing programs.” This recommendation was acted upon by state leaders. Significant increases in state funding for expanded educational capacity of nursing programs, increased funding for equipment, use of updated instructional technologies, and other needed educational resources have had a favorable impact on addressing the RN shortage in California. Between 2004-2005 and 2009-2010, nursing graduations increased 72 percent, reaching over 11,500 new RN graduates per year. Graduations have declined slightly since then, to fewer than 11,000 per year, but the new forecasts indicate that this number of graduations per year appears sufficient to meet future RN demand.

Policymakers should be cautioned that the 2013 BRN forecasts represent long-term forecasts and are not intended to reflect rapidly changing economic and labor market conditions. They also are based on the most currently available data; the factors that affect RN supply and demand are unlikely to remain static. The most important possible changes include: (1) the number of graduations from RN education programs; (2) inter-state migration; and (3) employment rates of older RNs. These factors and any other potential influences on California’s nursing shortage, such as the limited pool of faculty, limited availability of clinical education placements, and faculty salaries that are not competitive with clinical practice positions, should be monitored continuously.

California leaders should observe closely the employment paths of recent nursing graduates who are entering a difficult job market and may choose to leave the nursing profession or leave California. Moreover, they should watch new enrollments in nursing programs, which could drop as state colleges and universities face tight budgets and as potential students hear there might not be enough nursing jobs. California will likely need to maintain the present number of nursing graduates in order to meet long-term health care needs.

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Acronyms

BHPr – Bureau of Health Professions, part of the Health Resources and Services Administration in the U.S. Department of Health and Human Services

BRN – California Board of Registered Nursing

BLS – U.S. Bureau of Labor Statistics

CA – California

DOF – California Department of Finance

EDD – California Employment Development Department

FTE – Full-time Equivalent

FTEE – Full-time Equivalent Employment

NCLEX-RN – National Council Licensure Examination – Registered Nurses (NCLEX is a registered trademark and/or servicemark of the National Council of State Boards of Nursing, Inc.)

NSSRN – National Sample Survey of Registered Nurses

OSHPD – California Office of Statewide Health Planning and Development

RN – Registered Nurse

UCSF – University of California San Francisco