



WORKFORCE DEVELOPMENT BOARD OF VENTURA COUNTY

HEALTHCARE COMMITTEE MEETING

Friday, May 3, 2019
8:00 a.m. – 10:00 a.m.

CHANGE IN LOCATION:
Crowne Plaza Ventura Beach Hotel
San Miguel Room
450 East Harbor Boulevard, Ventura

MEETING AGENDA

| | | |
|------------|---|--|
| 8:00 a.m. | 1.0 Call to Order and Agenda Review | Greg Barnes |
| 8:03 a.m. | 2.0 Public Comments <i>Procedure: The public is welcome to comment. All comments not related to items on the agenda may be made at the beginning of the meeting only.</i> | Greg Barnes |
| 8:10 a.m. | 3.0 Approval of Minutes: March 1, 2019 | Greg Barnes |
| | 4.0 Ventura County Regional Strategic Workforce Development Plan | |
| 8:15 a.m. | • Healthcare Deputy Sector Navigator: Update | Irene Ornelas |
| 8:25 a.m. | • 2019-2020 Meeting Calendar | Patricia Duffy |
| 8:35 a.m. | • Specialty Nursing – Prioritizing Regional Needs/ Developing an Action Plan | John Cordova Irene Ornelas Committee Members |
| 9:50 a.m. | 5.0 Committee Member Comments | Committee Members |
| 10:00 a.m. | 6.0 Adjournment <u>Next Meeting</u> TBA | Greg Barnes |

Individuals who require accommodations for their disabilities (including interpreters and alternate formats) are requested to contact the Workforce Development Board of Ventura County staff at (805) 477-5306 at least five days prior to the meeting. TTY line: 1-800-735-2922.

For information about the Workforce Development Board of Ventura County, go to workforceventuracounty.org



WDB Healthcare Committee Meeting
Friday, March 1, 2019
8:00 a.m. - 9:30 a.m.

United Food and Commercial Workers, Local 770 (UFCW)
816 Camarillo Springs Road (Meeting Room/Suite A), Camarillo

MINUTES

Meeting Attendees

Committee

Greg Barnes* (Chair)
Thea Bruzdinski
Michelle Culpepper
Marilyn Jansen*
Christina Lee
Sandra Melton
Irene Ornelas
Michelle Reynolds
Richard Trogman*
Carolina Ugarte
Bill Werner

WDB Administration

Patricia Duffy
Rebecca Evans

Guests

Charlyn Gutierrez (Westminster
Free Clinic)
Yvonne Jonason (ETP)
Lisa Mitchell (Hospital Association
of Southern California)

*WDB Member

1.0 Call to Order and Agenda Review

Greg Barnes called the meeting to order at 8:07 a.m.

2.0 Public Comments

Yvonne Jonason from ETP, announced the availability of funding through ETP, for industry to train workers. There is 100 million dollars available for training.

3.0 Approval of Minutes: November 2, 2018

Motion to approve: Bill Werner
Second: Thea Bruzdinski

4.0 Ventura County Regional Strategic Workforce Plan

• Healthcare Deputy Sector Navigator: Update

Irene Ornelas, the new Deputy Sector Navigator for Healthcare for the South Coast Central Coast Community College Region, updated the committee on the State plan to align with community colleges vision for success. Ms. Ornelas explained that "Statewide wide, there is a call to action by the Chancellor's office for all industry sectors to align with the community college **Vision for Success** to transform the community college system. All industry sectors are tasked with breaking down silos across sectors and within our regions by looking for collaboration opportunities." She discussed how as a sector the Health Workforce Initiative Team, for the Community Colleges, have chosen the following workplans:

1. ***Bridging Academic-Practice Gaps*** by transforming the educational pedagogy/andragogy and curricula to bridge the academic-practice gap (s). The Health Workforce Initiative will provide opportunities for professional development and incumbent worker training, through pilot programs, expansion of programs and replication of projects.
2. ***Advancement Opportunities for Healthcare Professions*** by providing apprenticeship models of education, creating RN specialty courses for incumbent workers, expanding clinical placement quantity and quality and training faculty and leadership leads to increase enrollments in CTE programs.
3. ***Health Care Career Pathways (Guided Pathways)*** by expanding pipeline projects and/or pathway programs to provide equitable access to information, recruitment and preparation for underrepresented groups, diverse groups and economically disadvantaged students to support attainment of health careers. Clarification of the pathway, promotion of the pathway and expansion will meet the outcome of increased enrollments.
4. ***Career Development for Rural/Under-resourced Populations/Areas*** by broadening and increasing engagement with rural areas, designated qualified opportunity zones and other under-resourced communities to provide entry-level health care workers with stackable certificates and career ladders.

Ms. Ornelas mentioned the work on a pilot project to have an EMT to Paramedic apprenticeship. Yvonne Jonason, from ETP, mentioned that ETP money may be able to assist in this training process.

- Behavioral Health, Vista Del Mar: Update

Michelle Culpepper, Director of Human Services Vista Del Mar Hospital, updated the Committee members on the status of the hospital since the destruction of the hospital during the Thomas fire. They have 55 beds and can now reopen. There are 14 beds that are not able to be filled due to staffing needs. Currently the challenge is staff and the need to use travel RNs which is very expensive. They are projected to begin rebuilding in the next 6 months and will have 120 beds upon completion. There have been delays in getting the necessary building permits from the County. This is the first hospital that has burned down, so Statewide there is no precedent set for moving through the process. Ms. Culpepper also spoke about housekeeping staffing needs. Committee members expressed the extreme need to have this hospital since there is a crisis in where to place mental health patients due to the lack of available beds for treatment. Committee members also discussed the need for more locked unit beds. There is a critical need in the hospitals to have a place to send patients with mental health problems. Currently the ERs are the place the patients are brought in and it is creating a critical problem in the ERs to have no place to send them. Ms Culpepper was asked about having a locked unit in the hospital and she stated there is no plan for that, at this time, but encouraged Committee members to communicate the need.

A Committee member noted the critical need for psychiatrists in Ventura who can evaluate emergency psychiatric needs. Patricia Duffy mentioned that, in other cities, having a psychiatric residency program helps to fill that need.

Committee members discussed new graduate nurses as a possible pipeline for the hospital. In the past student nurses have done their behavioral health training at Vista Del Mar.

The need for the Committee to prioritize the focus on behavior health was discussed. Lisa Mitchell from HASC mentioned that HASC is committed to addressing the behavioral health needs.

- Specialty Nursing Event Discussion and Next Steps:

Committee members continued their discussion on specialty nursing needs in the region. The results from the group discussions that took place at the January 30th RN Workforce Forum, were in the packet for committee members to review and discuss. It was clear as we discussed specialty nursing needs, that each hospital represented at the table had different needs. Some do in house training, others had need in several specialty areas. A Committee member mentioned the critical need at her hospital was Cath Lab nurses. The problem is compounded by the inability to find teachers, they would need to bring someone from out of the area. Lisa Mitchell, from HASC, mentioned HASC wanted to create advisory groups to address the specialty nurse shortage issue. It was suggested, by Committee members, that we use the current Healthcare Committee and invite others to attend to continue the specialty nursing shortage discussion and to plan solutions. The plan is to reach out to the other attendees from the January meeting and invite them to attend a follow up discussion at the May 3rd Healthcare Committee meeting.

- Healthcare Occupational Growth Projections:

Patricia Duffy mentioned the updated chart in the packet and recognized the work of WDB staff member Tracy Johnson, for updating it for the Committee. A committee member mentioned how helpful the chart is and that they use it all the time.

5.0 Committee Member Comments

There were no committee member comments.

6.0 Adjournment

The meeting adjourned at 9:20 a.m.

Next Meeting: May 3, 2019

Nursing Seminar

VENTURA COLLEGE
SET YOUR COURSE

ETHICS OF PATIENT CARE

Health Workforce Initiative in collaboration
with Ventura College School of Nursing

Eventbrite Registration Link:
<http://bit.ly/EthicsofPatientCare2019>



OVERVIEW:

- Advanced Health Care Directives
- Ethics 101 & when to go to the Ethics Committee
- Moral Distress and Burnout

FREE CEUs

2.5 CEUs will be provided

BRN Provider # #01293

For RN Professionals,
Faculty, and Students

AGENDA:

| | |
|---------------|---|
| 8:30am | Registration & Networking Breakfast |
| 9:00am | Welcome |
| 9:15-10:15am | Presentation 1: <i>The Ethics of Patient Care</i> |
| 10:15-10:30am | Break |
| 10:30-11:30am | Presentation 2: <i>Moral Distress & Burnout</i> |
| 11:30am | Closing Remarks |
| 11:45am | Networking / Lunch / Tour of Nursing Labs |

Date: May 31, 2019

Location: Applied Science Center
ASC Room 130

GUEST SPEAKER:

George E. West

Service Area VP Mission Integration & Ethics - Dignity Health Central Coast



Health Workforce Initiative



2019-2020 MEETING CALENDAR
Workforce Development Board of Ventura County (WDB) and WDB Committees

| | WORKFORCE DEVELOPMENT BOARD | EXECUTIVE COMMITTEE | BUSINESS SERVICES COMMITTEE | CLEAN/GREEN COMMITTEE | HEALTHCARE COMMITTEE | MANUFACTURING COMMITTEE | MEMBERSHIP COMMITTEE | OUTREACH COMMITTEE | PROGRAMS COMMITTEE |
|-----------------------|-----------------------------|---------------------|-----------------------------|-----------------------|----------------------------------|-------------------------|----------------------|--------------------|--------------------|
| JULY 2019 | | | | | TBA- | | | | |
| AUGUST 2019 | | | | | | | | | |
| SEPTEMBER 2019 | | | | | September 20 8:00 – 9:30 a.m. | | | | |
| OCTOBER 2019 | | | | | | | | | |
| NOVEMBER 2019 | | | | | November 1 8:00 – 9:30 a.m. | | | | |
| DECEMBER 2019 | | | | | | | | | |

Locations
AJCC Riverpark = America’s Job Center of California, 3rd Floor, 2901 N. Ventura Road, Oxnard
EDC-VC = Economic Development Collaborative – Ventura County, 4001 Mission Oaks Boulevard, Camarillo
HSA = Human Services Agency, 855 Partridge Drive, Ventura
UFCW = United Food and Commercial Workers International Union, 816 Camarillo Springs Road, Camarillo
VCCF = Ventura County Community Foundation (VCCF) Nonprofit Center, 4001 Mission Oaks Boulevard, Camarillo
VCOE = Ventura County Office of Education, 5100 Adolfo Road, Camarillo

| | |
|-----------------|---------------------|
| CANCELED | RE-SCHEDULED |
| NEW | CHANGED |

2019-2020 MEETING CALENDAR
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|---------------|-----------------------------|---------------------|-----------------------------|-----------------------|-------------------------------|-------------------------|----------------------|--------------------|--------------------|
| JANUARY 2020 | | | | | January 3 8:00 – 9:30 a.m. | | | | |
| FEBRUARY 2020 | | | | | | | | | |
| MARCH 2020 | | | | | March 6 8:00 – 9:30 a.m. | | | | |
| APRIL 2020 | | | | | | | | | |
| MAY 2020 | | | | | May 8 8:00 – 9:30 a.m. | | | | |
| JUNE 2020 | | | | | | | | | |

| | | |
|---|-----------------|---------------------|
| Locations AJCC Riverpark = America’s Job Center of California, 3 rd Floor, 2901 N. Ventura Road, Oxnard EDC-VC = Economic Development Collaborative – Ventura County, 4001 Mission Oaks Boulevard, Camarillo HSA = Human Services Agency, 855 Partridge Drive, Ventura UFCW = United Food and Commercial Workers International Union, 816 Camarillo Springs Road, Camarillo VCCF = Ventura County Community Foundation (VCCF) Nonprofit Center, 4001 Mission Oaks Boulevard, Camarillo VCOE = Ventura County Office of Education, 5100 Adolfo Road, Camarillo | CANCELED | RE-SCHEDULED |
| | NEW | CHANGED |

Forecasts of the Registered Nurse Workforce in the Los Angeles Region of California

by Joanne Spetz
Healthforce Center at UCSF
December 2018

Abstract

The Los Angeles region of California, which consists of Los Angeles, Orange, and Ventura counties, has a growing supply of registered nurses (RNs) due to expansion of local RN education programs and satellite campuses. Projections of supply and demand through 2035 indicate that an RN shortage may exist now, but is likely to dissipate due to rapid supply growth. A surplus of RNs is possible in the future.



This report was developed in collaboration with HealthImpact and with funding from the California Community College Chancellors Office.

Background

Recent data suggest that a shortage of registered nurses (RNs) may be emerging in California. The Fall 2017 Survey of Nurse Employers found that many Chief Nursing Officers are experiencing difficulty recruiting RNs for specialized positions and that more than 85% of hospitals reported demand for RNs being greater than the available supply (Chu, Bates, & Spetz 2018). Hospital vacancy rates have been rising since 2013, reaching 6.3% in 2017. There also has been growth in the share of newly-graduated RNs reporting they are employed within 12 months of licensure, increasing from 59% in 2013 to 81% in 2017 (HealthImpact 2018). There is variation across regions in the reported difficulty of finding qualified staff, with some employers suggesting there is a surplus of recently-graduated nurses and others indicating severe shortfalls of nurses at all levels of experience.

Rising retirement rates contribute to the challenge of recruiting nurses, particularly those with specialized skills and experience (Buerhaus & Auerbach 2011). In addition, the implementation of the most significant components of the Affordable Care Act (ACA) – an expansion of Medi-Cal and the implementation of the Covered California health insurance exchange to facilitate insurance enrollment – reduced the share of nonelderly Californians without health insurance from 16.2% in 2011 (Charles 2015) to 8.1% in 2015 (Cohen et al. 2016). Growing numbers of insured people will demand more health care services, which in turn drives demand for health professionals, including RNs. Moreover, the ACA established programs to encourage improved care management in order to deliver health care more efficiently and effectively; this type of care provides incentives for health care systems to increase their utilization of RNs (Spetz 2014).

This report provides forecasts of regional RN supply and demand in the Los Angeles region of California, based on a statewide projection model developed for the California Board of Registered Nursing (BRN).

The data used to construct the model were derived from the 2016 BRN Survey of Registered Nurses (Spetz, Chu, & Jura 2017), the 2015-2016 BRN Annual Schools Report (Blash & Spetz 2018), and BRN license records. The supply forecast is compared with several benchmarks of demand, including national ratios of RNs per capita, estimates of future hospital utilization, and projections published by the California Employment Development Department (EDD 2017).

Definition and Description of the Los Angeles Region

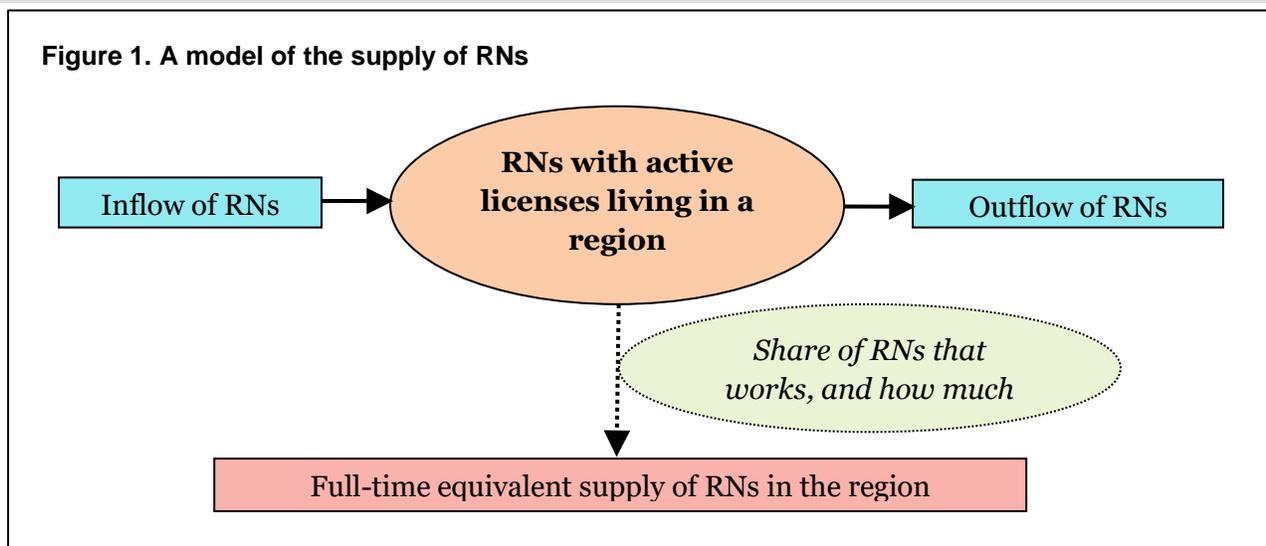
The Los Angeles region of California is defined by the counties of Los Angeles, Orange, and Ventura, which are three of the five counties in the Census Bureau Consolidated Statistical Area of Los Angeles-Long Beach. This region corresponds to the combined Employment Development Department Metropolitan Divisions of Anaheim-Santa Ana-Irvine and Los Angeles-Long Beach-Glendale, and the Oxnard-Thousand Oaks-Ventura Metropolitan Statistical Area. There are 134 short-term general, children's, and specialty hospitals in the region, as well as 33 associate degree (AD), 14 bachelor's degree (BSN), and six entry-level master's (ELM) RN education programs. There also are two RN education programs based outside the region that have satellite campuses in the region: National University and University of San Francisco.

The Supply of RNs

In February 2018, there were 119,643 RNs with current, active licenses living in the Los Angeles region. The RN workforce constantly changes with the entrance of newly graduated nurses; migration of nurses from other regions, 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:

- 1) Inflows of nurses: Additions to the number of RNs in the region
 - a) Graduates from regional nursing programs
 - b) Graduates of nursing programs in other states and regions who obtain their first RN license in California and move to the region
 - c) Internationally-educated nurses who immigrate to the region and obtain their RN license
 - d) Inter-regional and interstate migration of RNs
 - e) Changes from inactive to active license status
 - f) Changes from lapsed to active license status
- 2) Outflows of nurses: The departure of RNs from the region
 - a) Migration out of region (to another region, state or country)
 - b) Movements from active to inactive or lapsed license status
- 3) Labor force participation factors: Decisions to work, and how much to work
 - a) Share of RNs with active licenses that work in nursing
 - b) Average number of hours worked per week by RNs working in nursing

The inflows are added to the number of RNs living in the region with active licenses, 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 (FTE) employment 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, 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. The total supply of employed RNs is determined by the age distribution of the stock of RNs, as well as of each inflow and outflow component. In the supply model, the number of RNs with active licenses who reside in the region 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, 75-79, and 80 and older. The model assumes that nurses are evenly distributed within each 5-year age group. Therefore, in each year, 20% of the RNs in each age group – or 1 in 5 RNs – moves into the next (older) age group, until they reach the oldest age group. The youngest age group (under 25) spans 7 years, but because there were so few RNs under 20 years old in 2018, the 20% assumption is used for this group as well.

For each year of the model, the inflow estimates are added to each age group and the outflow estimates are subtracted from each age group, resulting in a forecast of the new stock of RNs for the subsequent year. For each age category, the basic formula is:

$$\begin{aligned}
 &\text{Forecasted Supply of RNs next year} \\
 &= \text{Current supply of RNs in current year} \\
 &\quad + \text{Estimated total inflows} \\
 &\quad - \text{Estimated total outflows.}
 \end{aligned}$$

Employment rates and hours worked per week in nursing are then applied to the estimated stock of RNs in each age group, resulting in an estimated FTE

supply. This calculation is iterated through 2035 to obtain yearly forecasts of the region’s RN supply.

It is important to acknowledge sources of variability and uncertainty in the supply model. For example, in 2010 and 2012, a greater share of nurses over age 60 was employed as compared with prior years. This increase was likely the result of older nurses delaying retirement due to declines in the value of their retirement savings (Buerhaus & Auerbach 2011). More recent data indicate that employment of nurses in this age group has returned to lower pre-recession levels (Spetz, Chu, & Jura 2017). However, it also is possible that “baby boomer” nurses have different intentions regarding retirement than did previous generations, and that higher rates of employment in older age groups will reemerge as a result. This variability in estimated employment participation rates contributes to uncertainty in the supply model. Thus, a range of estimates representing the highest and lowest plausible values is used. In the final models, the “baseline estimate” for each parameter is the average of the low and high estimates, unless otherwise noted.

Stock of RNs in 2018

Data describing the number of RNs with active licenses in February, 2018, were obtained from the BRN. At that time, 119,643 RNs had active licenses and an address in the Los Angeles region. Table 1 presents the number of actively licensed RNs living in the region for each age group.

Table 1. Counts of actively-licensed RNs living in the Los Angeles region, by age group, February, 2018

Source: California BRN licensing records.

| Age group | Count | % of total |
|--------------|----------------|---------------|
| Under 25 | 1,779 | 1.5% |
| 25-29 | 10,715 | 9.0% |
| 30-34 | 15,310 | 12.8% |
| 35-39 | 13,733 | 11.5% |
| 40-44 | 13,645 | 11.4% |
| 45-49 | 14,650 | 12.2% |
| 50-54 | 11,308 | 9.5% |
| 55-59 | 12,039 | 10.1% |
| 60-64 | 13,296 | 11.1% |
| 65-69 | 7,930 | 6.6% |
| 70-74 | 3,314 | 2.8% |
| 75-79 | 1,365 | 1.1% |
| 80+ | 559 | 0.5% |
| Total | 119,643 | 100.0% |

Graduates from RN education programs

RN education programs in the Los Angeles region produced 4,821 new graduates during the 2016-2017 academic year, according to the BRN Annual School Report (Blash & Spetz 2018). Growth in new student enrollments leads to growth in graduates in future years. AD programs are designed so that students can complete the nursing component of the degree in two years, and in most BSN programs, students are formally enrolled in nursing major courses during the last two to three years of the program; the duration is shorter for accelerated BSN programs. In general, student enrollment changes translate to changes in the number of RN graduates two to three years in the future.

To predict the number of future graduates, actual new student enrollments in a given year were compared with the number of graduates two years later. In the Los Angeles region over the period 2012-2013 through 2016-2017, on average, the number of graduates totaled 83.2% of the number of new student enrollments two years prior. This average

rate was used to estimate the number of future graduates as a function of new enrollments.

Forecasting the number of graduates beyond the 2018-2019 academic year is difficult because total new student enrollments after 2016-2017 are not yet known. As part of the BRN Annual School Survey, schools are asked to estimate future new student enrollment. For example, in the 2016-2017 survey, schools were asked to report expected student enrollment totals for the 2017-2018 and 2018-2019 academic years. Schools in the region estimated that 2017-2018 new student enrollments would be 6,619 and that 2018-2019 new student enrollments would be 6,780. These estimates were multiplied by 83.2% to obtain the forecasted number of graduates for 2019-2020 and 2020-2021. From these totals, 548 projected graduates who attended satellite campuses in other regions were subtracted. The forecast model assumes that new student enrollments will be stable after the 2018-2019 academic year. Actual numbers of graduates from 2012-2013 through 2016-2017 and predicted numbers of graduated from 2017-2018 through 2020-2021 are presented in Table 2.

Table 2. Actual and forecasted numbers of new RN enrollments and graduations

Source: 2016-2017 BRN Annual Schools Report: Data Summary and Historical Trend Analysis, 2018.

| Academic year | Actual/forecasted new student enrollments | Actual/forecasted number of graduates |
|---------------|---|---------------------------------------|
| 2012-2013 | 5,166* | 4,063* |
| 2013-2014 | 5,224* | 4,244* |
| 2014-2015 | 5,964* | 4,442* |
| 2015-2016 | 5,966* | 4,886* |
| 2016-2017 | 6,040* | 4,821* |
| 2017-2018 | 5,882 | 4,415 |
| 2018-2019 | 6,043 | 4,477 |
| 2019-2020 | | 4,958 |
| 2020-2021 | | 5,092 |

* Actual enrollments/graduates, which do not include satellite campuses.

Graduates from nursing programs in other states and countries

Each year, some graduates of nursing programs in other states obtain their first RN license in California. According to the BRN, in 2016, 159 such out-of-state graduates had an address in the Los Angeles region. Additionally, in 2016, the BRN reported that 703 internationally-educated nurses passed the National Council Licensure Examination for RNs (NCLEX-RN) and received initial licensure as an RN in California, 176 of whom had an address in the Los Angeles region.

Age distributions of new graduates and licensees

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 graduates: 18-25, 26-30, and then ten-year age groups for graduates over age 30. To be consistent with the forecasting model, the region’s new graduates were allocated into five-year age groups and assumed that graduates of nursing programs in other states who obtain initial RN licensure in California have the same age distribution as the region’s graduates.

BRN records of internationally-educated nurses who received initial U.S. licensure in California include the birth year, so these nurses were added to the model by age group. Table 3 presents the age distribution of new RN graduates used in the model.

Inter-region and interstate migration of RNs

Estimates of migration to the Los Angeles region were calculated from BRN licensing files for 2016 and 2018, as well as from BRN records of nurses requesting endorsement of their out-of-state license to California. Inter-region migration was calculated by counting the total number of RNs who lived outside the Los Angeles region in 2016 (including those with out-of-state addresses), who then reported a mailing address within the Los Angeles region in 2018, and dividing this number by two to obtain an annual average for each age group. This was added to the number of RNs who requested endorsement of their license from another state in 2016 and reported a Los Angeles region address.

Table 3. Estimated age distributions of new graduates

Sources: 2016-2017 BRN Annual Schools Report: Data Summary and Historical Trend Analysis, 2018, & California BRN licensing files.

| Age group | Graduates of US RN programs | Internationally-educated graduates |
|-----------|-----------------------------|------------------------------------|
| 18-25 | 34.7% | 8.0% |
| 26-29 | 31.5% | 33.5% |
| 30-34 | 12.4% | 27.3% |
| 35-39 | 12.4% | 11.9% |
| 40-44 | 3.6% | 8.0% |
| 45-49 | 3.6% | 5.7% |
| 50-54 | 0.9% | 2.8% |
| 55-59 | 0.9% | 1.7% |
| 60-64 | 0.1% | 0.6% |
| 65+ | 0.0% | 0.6% |

The region’s in-migration was computer as the sum of RNs who migrated to the Los Angeles region divided by the total number of actively licensed RNs residing in the region in 2018 (per BRN licensing records). These data are presented in Table 4.

Table 4. Movement of RNs into Los Angeles region

Source: California BRN licensing records.

| Age group | Average annual number moving to region 2016-18 | Number requesting endorsement | Total as a share of RNs living in region |
|--------------|--|-------------------------------|--|
| Under 25 | 65 | 73 | 7.7% |
| 25-29 | 371 | 218 | 5.5% |
| 30-34 | 322 | 145 | 3.0% |
| 35-39 | 209 | 93 | 2.2% |
| 40-44 | 171 | 53 | 1.6% |
| 45-49 | 144 | 46 | 1.3% |
| 50-54 | 110 | 42 | 1.3% |
| 55-59 | 112 | 25 | 1.1% |
| 60-64 | 82 | 19 | 0.8% |
| Over 64 | 39 | 7 | 0.3% |
| Total | 1,625 | 721 | |

Movements from inactive and delinquent to active license status

BRN data were obtained describing the number of RNs changing from inactive to active license status and from delinquent to active status in 2016, by age group. These data are presented in Table 5.

Table 5. Number and age distribution of RNs changing status from inactive or delinquent to active license status, Los Angeles region, 2016

Source: California BRN licensing records.

| Age group | Count | % of total |
|--------------|--------------|---------------|
| Under 30 | 41 | 1.9% |
| 30-34 | 145 | 6.6% |
| 35-39 | 178 | 8.1% |
| 40-44 | 193 | 8.8% |
| 45-49 | 256 | 11.7% |
| 50-54 | 236 | 10.8% |
| 55-59 | 236 | 10.8% |
| 60-64 | 300 | 13.7% |
| 65-69 | 286 | 13.0% |
| 70-74 | 189 | 8.6% |
| 75+ | 132 | 6.0% |
| Total | 2,192 | 100.0% |

Migration out of the region

Estimates of migration out of the Los Angeles region to other regions or states were derived from 2016 and 2018 BRN licensing files. Out-migration was calculated by taking the total number of RNs in each group who lived in the Los Angeles region in 2016, but then reported a mailing address outside of the region in 2018, and dividing it by two to obtain an annual average. The region’s out-migration rate was computed as the sum of RNs who left the Los Angeles region divided by the total number of actively licensed RNs residing in the region in 2018, by age group (per BRN licensing records). Table 6 presents the rates used in the model.

Table 6. Estimated annual rates of RNs migrating out of the Los Angeles region

Source: California BRN licensing records.

| Age group | Average annual number moving out of region 2016-18 | Total as a share of RNs living in region |
|--------------|--|--|
| Under 25 | 46.5 | 2.6% |
| 25-29 | 348.5 | 3.3% |
| 30-34 | 423 | 2.8% |
| 35-39 | 263 | 1.9% |
| 40-44 | 204.5 | 1.5% |
| 45-49 | 190 | 1.3% |
| 50-54 | 163.5 | 1.4% |
| 55-59 | 182.5 | 1.5% |
| 60-64 | 167.5 | 1.3% |
| 65-69 | 76 | 1.0% |
| 70-74 | 36 | 1.1% |
| 75+ | 0 | 0.0% |
| Total | 2,101 | |

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 BRN licensing files for 2016 and 2018. The number of RNs who lived in the Los Angeles region in 2016 but who were no longer actively licensed in 2018 was calculated and divided by two to obtain an annual average for each age group. This was divided by the number of RNs in each age group in 2018 to obtain the rates at which RNs allow their licenses to lapse or become inactive. The data are presented in Table 7.

Table 7. Estimated annual rates of RNs allowing licenses to lapse or become inactive

Source: California BRN licensing records.

| Age group | Average annual number changing to lapsed/inactive status 2016-18 | Total as a share of RNs living in region |
|--------------|--|--|
| Under 25 | 23.5 | 1.3% |
| 25-29 | 151.5 | 1.4% |
| 30-34 | 200.5 | 1.3% |
| 35-39 | 157.5 | 1.1% |
| 40-44 | 175 | 1.3% |
| 45-49 | 161 | 1.1% |
| 50-54 | 179.5 | 1.6% |
| 55-59 | 268.5 | 2.2% |
| 60-64 | 554 | 4.2% |
| 65-69 | 686.5 | 8.7% |
| 70-74 | 675 | 12.9% |
| Total | 3,232.5 | |

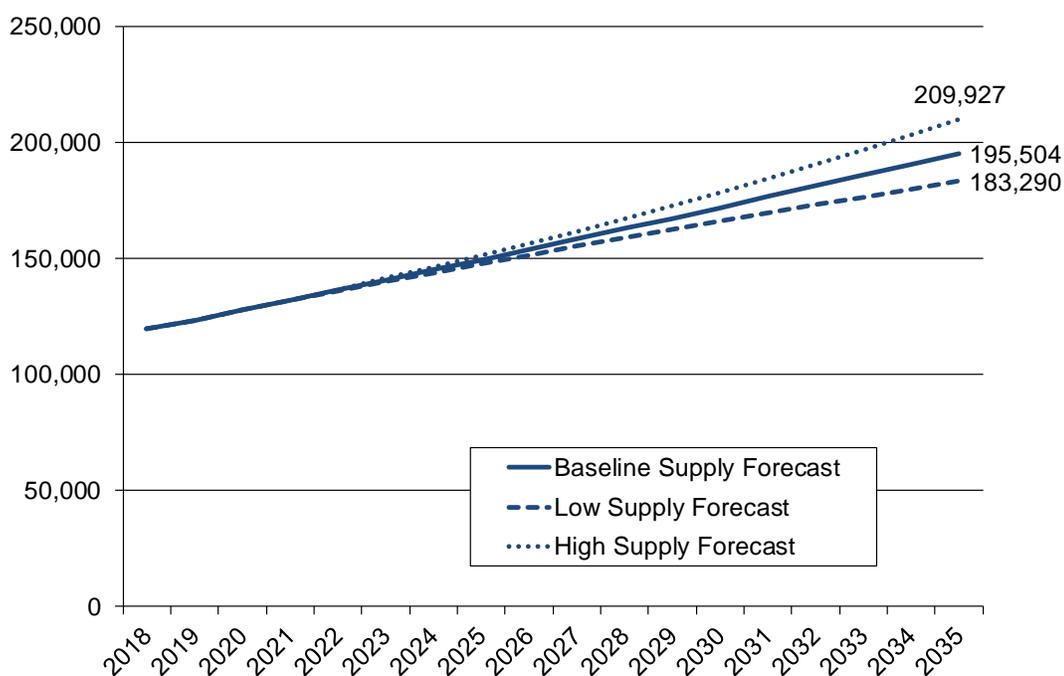
Supply forecasts of the region’s RN workforce

Figure 2 presents the supply forecasts based on the projection model described above. A range of supply

estimates were calculated; the baseline forecast assumes that RN education programs maintain the number of graduates, after 2022, the low forecast assumes that RN graduations shrink by 1% per year, and the high model assumes that graduations increase by 1% per year after 2022.

The forecasted number of RNs with active licenses does not account for variation in hours worked, or the fact that some RNs with active licenses do not work in nursing. Employment rates by age groups have varied since 2008, likely due to the economic recession that began in late 2007. During the recession, younger nurses were employed at lower rates and older nurses were employed at higher rates than in other years. To account for variation in employment rates over time, multiple years of data were examined. The proportion of RNs in the Los Angeles region employed in nursing in 2016, by age group, was calculated from the 2016 BRN Survey of RNs. Statewide employment rates by age group were obtained from BRN Surveys of RNs from 2008 through 2016 (Spetz, Chu, & Jura 2017). The employment rate used for the “low” forecast was the lowest of these employment rates, and the

Figure 2. Forecasted number of RNs with active licenses residing in the Los Angeles region



employment rate used for the “high” forecast was the highest of these rates. The baseline estimate is the average of the low and high rates and is presented in Table 8.

Table 8. Employment rates of RNs in the Los Angeles region

Source: Spetz, J, Chu, L, Jura, M. 2017. 2016 Survey of Registered Nurses. Sacramento, CA: California Board of Registered Nursing.

| Age group | Actual region 2016 | Low estimate | High estimate | Baseline estimate |
|-----------|--------------------|--------------|---------------|-------------------|
| Under 25 | 100.0% | 89.6% | 100.0% | 94.8% |
| 25-29 | 92.9% | 92.9% | 97.4% | 95.2% |
| 30-34 | 91.9% | 91.9% | 95.5% | 93.7% |
| 35-39 | 94.5% | 92.3% | 95.2% | 93.8% |
| 40-44 | 92.2% | 89.7% | 92.2% | 91.0% |
| 45-49 | 96.2% | 92.1% | 96.2% | 94.1% |
| 50-54 | 91.6% | 89.8% | 91.6% | 90.7% |
| 55-59 | 88.5% | 85.3% | 88.5% | 86.9% |
| 60-64 | 79.4% | 75.5% | 79.4% | 77.4% |
| 65-69 | 51.0% | 51.0% | 65.2% | 58.1% |
| 70-74 | 50.8% | 40.5% | 50.8% | 45.6% |
| 75-79 | 8.4% | 8.4% | 36.0% | 22.2% |
| 80+ | 0.0% | 0.0% | 24.2% | 12.1% |

The supply model also utilized data from the 2016 BRN Survey of RNs to calculate average usual hours worked per week in all nursing jobs in the Los Angeles region, by age group, as well as statewide average hours per week from 2008 through 2016 (Spetz, Chu, & Jura 2017). Estimated hours per week were divided by 40 to obtain the average full-time equivalent employment (FTE) for each age group. In the forecasts, the high for each age group is the highest of these FTE rates and the low estimate is the lowest of the FTE rates. The baseline estimate is the average of the high and low estimates and are presented in Table 9.

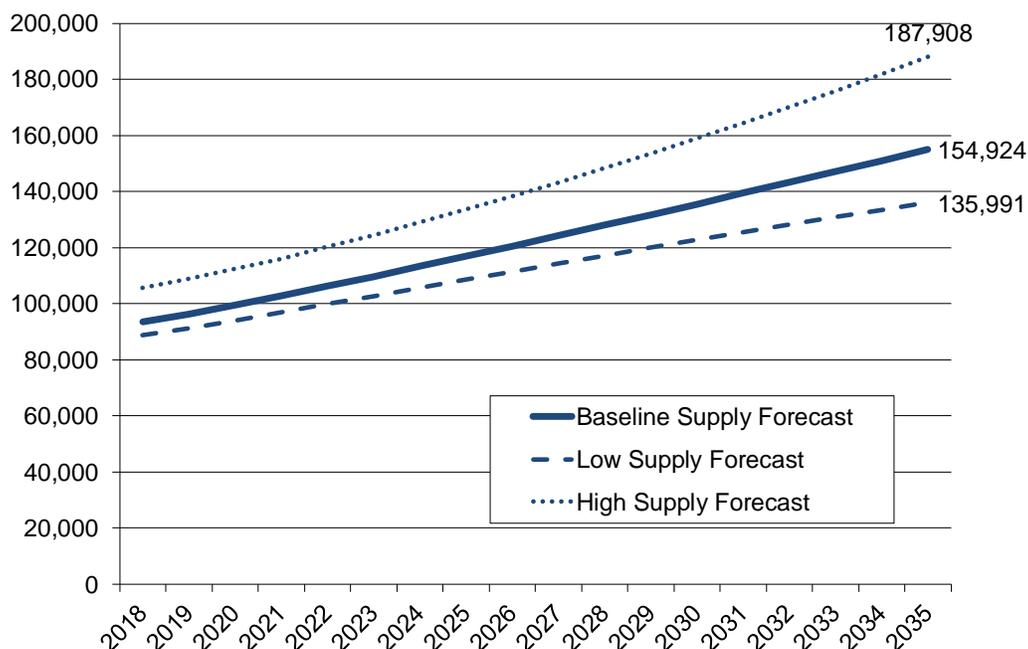
Table 9. Hours worked per week by employed RNs in the Los Angeles region

Source: Spetz, J, Chu, L, Jura, M. 2017. 2016 Survey of Registered Nurses. Sacramento, CA: California Board of Registered Nursing.

| Age group | Actual region 2016 | Low estimate | High estimate | Baseline estimate |
|-----------|--------------------|--------------|---------------|-------------------|
| Under 25 | 36.6 | 36.6 | 47.1 | 41.8 |
| 25-29 | 36.0 | 35.8 | 36.4 | 36.1 |
| 30-34 | 36.3 | 35.8 | 36.6 | 36.2 |
| 35-39 | 36.1 | 35.8 | 36.2 | 36.0 |
| 40-44 | 35.2 | 35.2 | 37.0 | 36.1 |
| 45-49 | 35.6 | 35.6 | 37.4 | 36.5 |
| 50-54 | 39.5 | 36.9 | 39.5 | 38.2 |
| 55-59 | 38.2 | 36.6 | 38.2 | 37.4 |
| 60-64 | 37.1 | 35.3 | 37.1 | 36.2 |
| 65-69 | 36.0 | 32.0 | 36.0 | 34.0 |
| 70-74 | 32.5 | 24.0 | 32.5 | 28.2 |
| 75-79 | 32.9 | 18.8 | 32.9 | 25.8 |
| 80+ | 40.0 | 25.2 | 40.0 | 32.6 |

Figure 3 presents projected high, low, and baseline estimates of FTE supply of actively licensed RNs for the Los Angeles region. These estimates in 2035 range from 135,991 to 187,908, demonstrating the importance of assumptions about education program growth and labor force participation of RNs.

Figure 3. Forecasted full-time equivalent supply of RNs, 2018-2035



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 in determining demand 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% of newborn deliveries being attended by a skilled birth attendant (WHO 2006). Similarly, demand for RNs could be defined as a specific number of nurses per capita. It is important to recognize, however, that demand based on population needs is not the same thing as demand based on economic factors. 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 decide that investment in a

new electronic health record will produce more value to patients. In this context, demand for nurses is derived from economic forces, which may not be aligned with population needs.

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

- Fixed benchmarks based on current RN-to-population ratios in the region
- Fixed benchmarks based on U.S. RN-to-population ratios
- Demand forecasts based on 2015 hospital patient days, employment in hospitals, and future population growth and aging
- Regional employment forecasts for 2024 published by the California Employment Development Department (EDD 2017)

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. For decades, California has had one of the lowest ratios of employed RNs per capita in the U.S., usually ranking in the bottom 5 nationwide. Many policy advocates have supported efforts to increase California's FTE employment of RNs per capita to be on par with that of other states, targeting either the current 25th percentile ratio (916 RNs per 100,000) or the national average ratio (1,038 RNs per 100,000). Data on the current and forecasted population of the Los Angeles region (California Department of Finance 2018) were used to calculate the number of RNs that would be needed to maintain the current RN-to-population ratios, reach the 25th percentile ratio, and reach the national average ratio.

The main shortcoming of targeting a fixed number of RNs per population, such as a national average, is that the target may not reflect the unique population and health care system of the state or region. An additional shortcoming is that fixed nurse-to-population ratios do not account for increased demand for health care services resulting from an increase in the number of persons with insurance coverage or an aging population.

Forecasts based on hospital staffing of RNs per patient day

A second approach to forecasting demand for RNs is to use current hospital utilization and staffing patterns to estimate growth in future demand for RNs. The first step in this process was to obtain the total number of hospital patient discharges in 2015 (the most recent data available) from short-term, acute-care hospitals in the Los Angeles region (Office of Statewide Health Planning and Development 2016). In order to estimate the total number of patient days per age group (10-year ranges), these data were multiplied by the average length of stay per age group, as reported by Hospital National Inpatient Statistics (AHRQ 2014).

To calculate the rate of hospital utilization per age group, the total number of patient days per age group was divided by the estimated population of each age group in the region. Age-specific population estimates and forecasts were sourced from the

California Department of Finance (2018). These rates of patient days per age group were then applied to the population projections to forecast total patient days by age group.

To produce forecasts of hospital demand for RNs, RN hours per patient day were calculated using OSHPD's Hospital Annual Financial Data (Office of Statewide Health Planning and Development 2017). In 2016, a total of 86,680,762 productive RN hours were reported by hospitals in the Los Angeles region. The number of RN hours per discharge was calculated by dividing total productive RN hours by the number of patient days in 2017, resulting in an estimated 12.26 productive RN hours per patient day. Multiplying the number of productive RN hours per patient day by the forecasted total number of patient days produces an estimate of hospital-based RN hours needed in the future. To equate these estimates to FTE jobs, RN hours were divided by 1,768 (average annual productive hours per FTE), resulting in 49,028 FTE RN employment in 2017.

The calculations described above provide demand forecasts for only one type of care setting (hospitals), and only for a subset of hospitals (long-term hospitals and federal hospitals are not included in the calculations). The 2016 BRN Survey of Registered Nurses indicates that total FTE employment in the Los Angeles region was 94,917 (Spetz et al. 2017); thus, total RN employment was 1.94 times greater than hospital RN employment. To forecast total demand for RNs, it was assumed that total RN demand would continue to be 1.94 times greater than hospital RN demand in future years. The projections indicate there will be a need for 64,781 FTE RNs in hospitals and 125,416 FTE RNs throughout the region in 2035.

Employment Development Department forecasts

The most recent projection by the California Employment Development Department (EDD) indicates that there will be 110,920 RN jobs in the Los Angeles region in 2024 (California Employment Development Department 2018). The EDD projection does not distinguish between full-time

and part-time jobs. To estimate the FTE employment implied by the EDD projection, an adjustment factor of 0.914 was used, which is the average number of hours worked per week by RNs in the region in 2016 (36.56), divided by 40 (Spetz, Chu, and Jura 2017). This results in an projected 101,378 FTE jobs across the region in 2024.

Comparing the demand forecasts

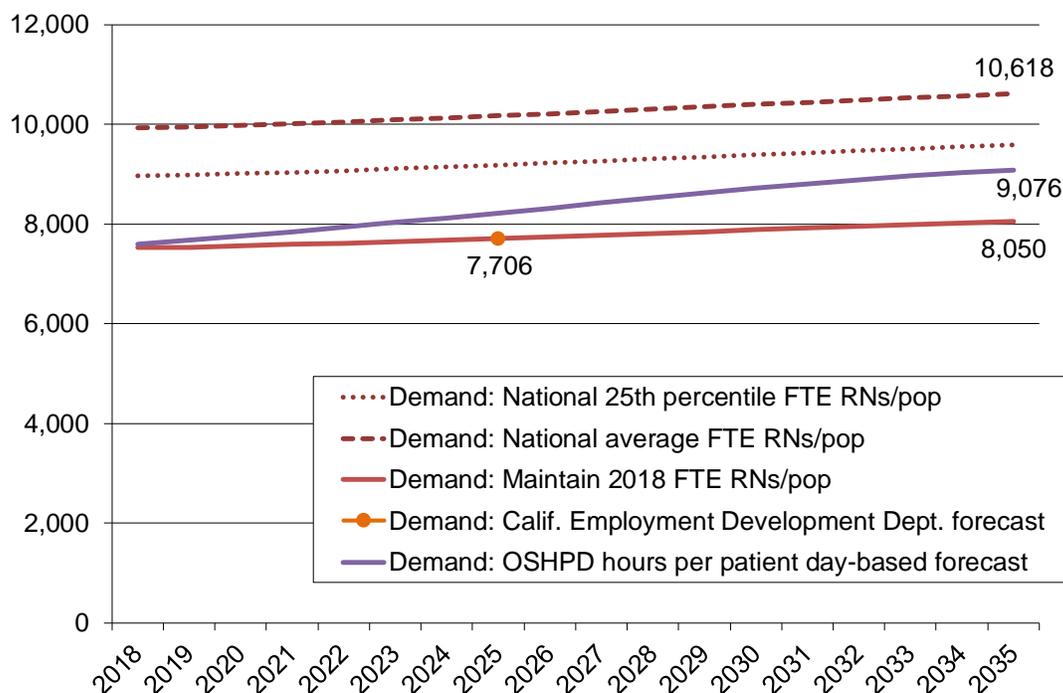
Figure 4 compares alternative forecasts of demand for full-time equivalent RNs. In order to maintain the current RN-to-population ratio in the Los Angeles region, 101,010 FTE RNs will be needed in 2035. The forecast based on projected growth in hospital utilization results in 118,085 FTE RNs needed in 2035. To reach the national average ratio of RNs per population, 142,539 FTE RNs will be needed in 2035. Figure 4 also shows that the projected number of FTE RN jobs in 2024 derived from EDD is slightly above the trajectory of demand based on maintaining the region’s current RN-to-population ratio.

Comparing Supply and Demand for RNs

Figure 5 compares the baseline supply forecast and the low supply forecast with three alternate demand forecasts: (1) demand based on attaining the national per capita ratio at the 25th percentile; (2) demand based on attaining the national average per capita ratio; and (3) demand based on forecasted growth in hospital patient days. All forecasts are for FTE employment.

The baseline supply forecast estimates that in 2018, there were 93,442 FTE RNs available to work; the low supply forecast estimates there were 88,770 FTEs. The projections of RN demand based on hours per patient day (OSHPD data) indicate there was demand for 96,232 RNs that year, suggesting the market faced a shortage. It is worth noting that RN supply in 2018 was 22.7% lower than demand based on the national per capita ratio at the 25th percentile, which is consistent with the assessment that the region now has an RN shortage. In the long term, the baseline supply forecast predicts that nurse supply

Figure 4. Forecasted full-time equivalent demand for RNs, 2018-2035



will increase more rapidly than the Los Angeles region’s population as a whole, but RN supply will not reach the national 25th percentile of FTE RNs per 100,000 until 2028. The low projection of supply also indicates it is likely that the Los Angeles region will have adequate supply in the future.

Additional factors that affect regional RN shortages

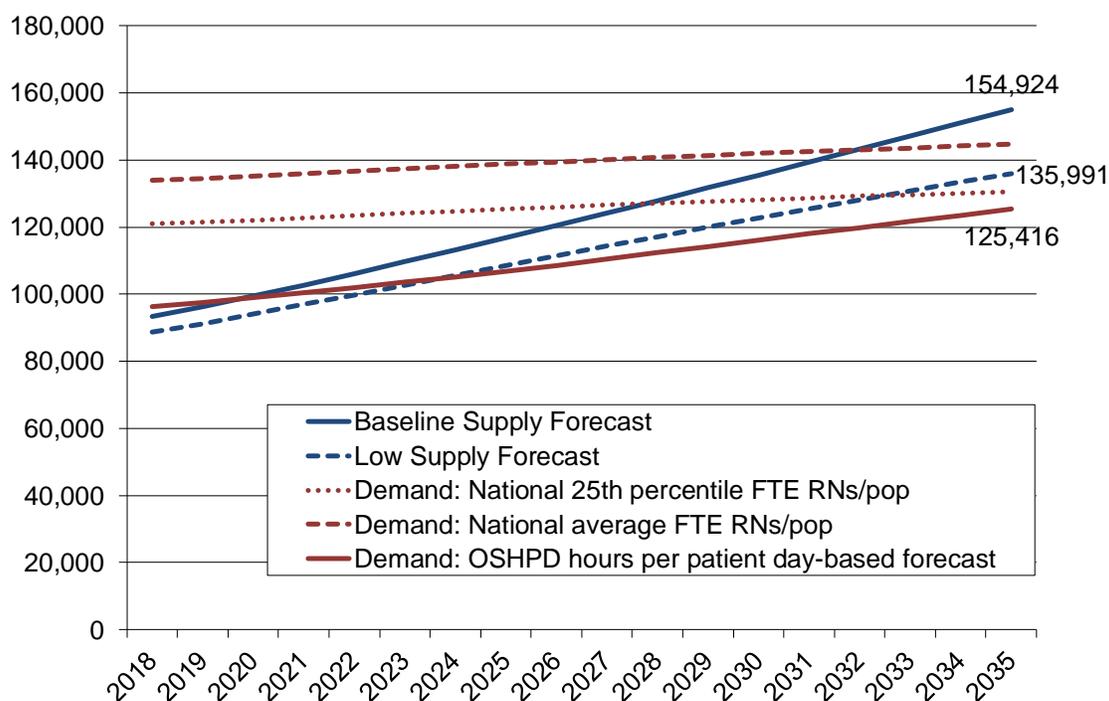
Some RNs travel across regions for work, which could result in fewer or more nurses working in the Los Angeles region. Data from the 2016 BRN Survey of RNs indicates that 96.7% of employed RNs who lived in the Los Angeles region also worked in the region. Approximately 1,524 RNs worked in the Inland Empire region (1.6%), 1,001 worked in the Central Coast region (1.0%), and 325 worked in the Southern Border area (0.3%). Conversely, some nurses living in other regions worked in the Los Angeles region: approximately 5,499 from the Inland Empire region, 495 from the Central Valley region, 296 from the Southern Border area, and small numbers from the Central Coast, San Francisco Bay Area, and Northern Counties. In sum, in 2016 the Los Angeles region had an estimated 3,400 more

RNs crossing regional boundaries to work in the area versus to work outside the area.

A second factor that may affect the supply of RNs is that some are also advanced practice RNs (APRNs) – nurse practitioners (NPs), certified nurse-midwives (CNMs), clinical nurse specialists (CNSs), and nurse anesthetists (CRNAs). Both the supply projections and the projections of demand for RNs based on RN-to-population ratios and hospital patient utilization treat all these APRNs as RNs. The EDD projection does not include APRNs. In the Los Angeles region, 6.6% of RNs are NPs, 0.2% are CNMs, and 0.4% are CRNAs. If these APRNs are not considered part of the RN supply, together they reduce the region’s baseline supply by approximately 7.2% (7,131 RNs).

Hospital employment data sourced from OSHPD were examined to identify the number of RN hours worked by contract personnel in 2016. Use of contract staff by hospitals may indicate the degree to which hospitals are experiencing a shortage of RNs with the skills required for open positions. However, since contract personnel are used to fill gaps during staff vacations and leaves of absence, as well as

Figure 5. Forecasted full-time equivalent supply and demand for RNs, 2018-2035



normal seasonal fluctuations in hospital utilization, this is not a perfect measure of the magnitude of RN shortage. The OSHPD data indicated that the average share of hospital RN hours provided by contract staff in the Los Angeles region was 6.7%, which was equivalent to a total of 3,763 FTE RNs.

Overall assessment of RN labor market in the region

Together, data on inter-regional commuting, the size of the advanced practice workforce, and the employment of agency personnel suggest that RN supply in the Los Angeles region might be 3,700 fewer than the model calculation, and demand might be approximately 3,750 greater in 2018. The baseline supply and demand forecasts estimate that the region has a shortage of more than 2,500 FTE RNs, and addition of inter-region commuting and the use of contract RNs suggests that the total shortage may be more than 10,000 FTE RNs (10.4%) in 2018. However, this shortage is projected to dissipate over the next decade since RN supply is forecasted to grow more rapidly than demand and a surplus could emerge in the Los Angeles region by 2025.

Policy Implications

The Los Angeles region of California may have a shortage of RNs now, and has a lower-than-average RN-per-100,000 population ratio. However, recent growth in RN education programs will mitigate the shortage over the next decade, and a surplus of RNs is possible in the future. The growth of supply will allow health care systems the opportunity to employ nurses in a wide variety of roles that fully utilize their skills in direct patient care, care management, patient education, home health, and ambulatory care.

These projections could change if any of the variables in the model change. The most important changes that could change the projections are increases or decreases in: (1) the number of graduates from RN education programs; (2) inter-regional migration; and/or (3) employment rates of RNs. These factors and any other potential influences on the Los

Angeles region's nursing supply, 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.

Regional health care and education leaders should track the employment paths of recent nursing graduates as they develop specialized skills to fill the roles of experienced nurses who will retire in the near future. Moreover, they should monitor new student enrollments in nursing programs, as well as the degree to which employers are reliant on contract personnel and commuters, to determine whether local RN education programs have expanded sufficiently to eliminate the shortage that now exists.

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Forecasts of the Registered Nurse Workforce in the Central Coast Region of California

by Joanne Spetz
Healthforce Center at UCSF
December 2018

Abstract

Projections of registered nurse (RN) supply and demand through 2035 indicate that the Central Coast region of California, which consists of four counties between the Los Angeles and San Francisco Bay regions, is likely to face a large shortage of RNs as a result of population growth, population aging, and inadequate numbers of new RN graduates.



This report was developed in collaboration with HealthImpact and with funding from the California Community College Chancellors Office.

Background

Recent data suggest that a shortage of registered nurses (RNs) may be emerging in California. The Fall 2017 Survey of Nurse Employers found that many Chief Nursing Officers are experiencing difficulty recruiting RNs for specialized positions and that more than 85% of hospitals reported demand for RNs being greater than the available supply (Chu, Bates, & Spetz 2018). Hospital vacancy rates have been rising since 2013, reaching 6.3% in 2017. There also has been growth in the share of newly-graduated RNs reporting they are employed within 12 months of licensure, increasing from 59% in 2013 to 81% in 2017 (HealthImpact 2018). There is variation across regions in the reported difficulty of finding qualified staff, with some employers suggesting there is a surplus of recently-graduated nurses and others indicating severe shortfalls of nurses at all levels of experience.

Rising retirement rates contribute to the challenge of recruiting nurses, particularly those with specialized skills and experience (Buerhaus & Auerbach 2011). In addition, the implementation of the most significant components of the Affordable Care Act (ACA) – an expansion of Medi-Cal and the implementation of the Covered California health insurance exchange to facilitate insurance enrollment – reduced the share of nonelderly Californians without health insurance from 16.2% in 2011 (Charles 2015) to 8.1% in 2015 (Cohen et al. 2016). Growing numbers of insured people will demand more health care services, which in turn drives demand for health professionals, including RNs. Moreover, the ACA established programs to encourage improved care management in order to deliver health care more efficiently and effectively; this type of care provides incentives for health care systems to increase their utilization of RNs (Spetz 2014).

This report provides forecasts of regional RN supply and demand in the Central Coast region of California, based on a statewide projection model developed for the California Board of Registered

Nursing (BRN). The data used to construct the model were derived from the 2016 BRN Survey of Registered Nurses (Spetz, Chu, & Jura 2017), the 2015-2016 BRN Annual Schools Report (Blash & Spetz 2018), and BRN license records. The supply forecast is compared with several benchmarks of demand, including national ratios of RNs per capita, estimates of future hospital utilization, and projections published by the California Employment Development Department (EDD 2017).

Definition and Description of the Central Coast Region

The Central Coast region of California is defined by the counties of Monterey, San Benito, Santa Barbara, and San Luis Obispo counties. This region corresponds to the combined Employment Development Department Metropolitan Statistical Areas (MSA) of Salinas, Santa Maria-Santa Barbara, and San Luis Obispo-Paso Robles. There are 14 short-term general, children's, and specialty hospitals in the region, as well as five associate degree (AD) RN education programs. There also is a satellite campus of California State University Channel Islands in the region.

The Supply of RNs

In February 2018, there were 9,977 RNs with current, active licenses living in the Central Coast region. The RN workforce constantly changes with the entrance of newly graduated nurses; migration of nurses from other regions, 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:

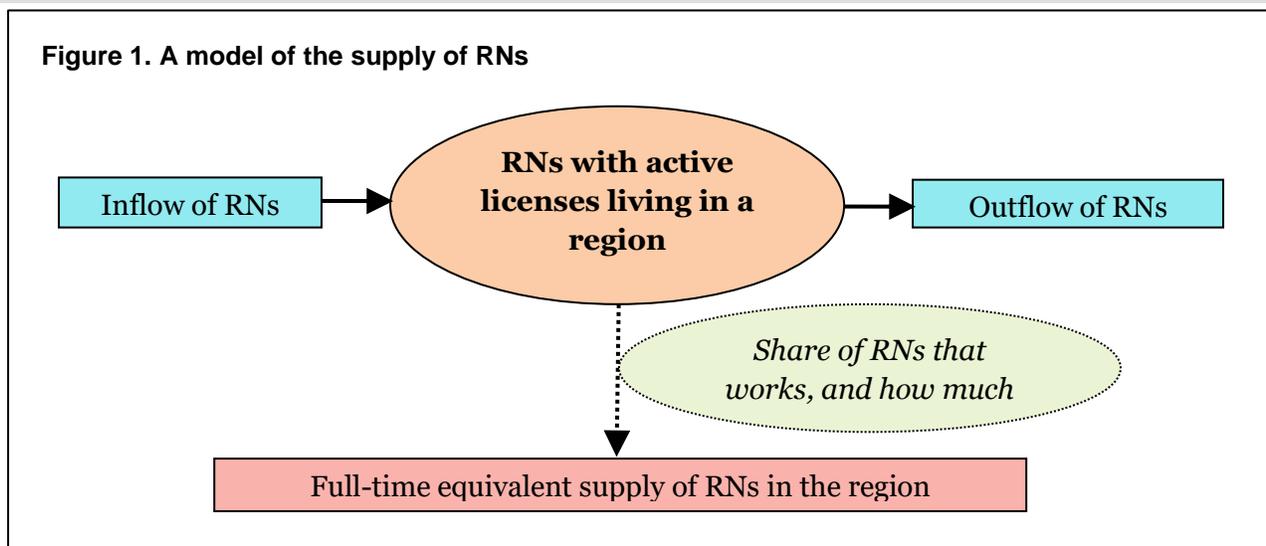
- 1) Inflows of nurses: Additions to the number of RNs in the region
 - a) Graduates from regional nursing programs

- b) Graduates of nursing programs in other states and regions who obtain their first RN license in California and move to the region
 - c) Internationally-educated nurses who immigrate to the region and obtain their RN license
 - d) Inter-regional and interstate migration of RNs
 - e) Changes from inactive to active license status
 - f) Changes from lapsed to active license status
- 2) Outflows of nurses: The departure of RNs from the region
 - a) Migration out of region (to another region, state or country)
 - b) Movements from active to inactive or lapsed license status
- 3) Labor force participation factors: Decisions to work, and how much to work
 - a) Share of RNs with active licenses that work in nursing
 - b) Average number of hours worked per week by RNs working in nursing

The inflows are added to the number of RNs living in the region with active licenses, 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 (FTE) employment 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, 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. The total supply of employed RNs is determined by the age distribution of the stock of RNs, as well as of



each inflow and outflow component. In the supply model, the number of RNs with active licenses who reside in the region 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, 75-79, and 80 and older. The model assumes that nurses are evenly distributed within each 5-year age group. Therefore, in each year, 20% of the RNs in each age group – or 1 in 5 RNs – moves into the next (older) age group, until they reach the oldest age group. The youngest age group (under 25) spans 7 years, but because there were so few RNs under 20 years old in 2018, the 20% assumption is used for this group as well.

For each year of the model, the inflow estimates are added to each age group and the outflow estimates are subtracted from each age group, resulting in a forecast of the new stock of RNs for the subsequent year. For each age category, the basic formula is:

$$\begin{aligned}
 &\text{Forecasted Supply of RNs next year} \\
 &= \text{Current supply of RNs in current year} \\
 &\quad + \text{Estimated total inflows} \\
 &\quad - \text{Estimated total outflows.}
 \end{aligned}$$

Employment rates and hours worked per week in nursing are then applied to the estimated stock of RNs in each age group, resulting in an estimated FTE supply. This calculation is iterated through 2035 to obtain yearly forecasts of the region’s RN supply.

It is important to acknowledge sources of variability and uncertainty in the supply model. For example, in

2010 and 2012, a greater share of nurses over age 60 was employed as compared with prior years. This increase was likely the result of older nurses delaying retirement due to declines in the value of their retirement savings (Buerhaus & Auerbach 2011). More recent data indicate that employment of nurses in this age group has returned to lower pre-recession levels (Spetz, Chu, & Jura 2017). However, it also is possible that “baby boomer” nurses have different intentions regarding retirement than did previous generations, and that higher rates of employment in older age groups will reemerge as a result. This variability in estimated employment participation rates contributes to uncertainty in the supply model. Thus, a range of estimates representing the highest and lowest plausible values is used. In the final models, the “baseline estimate” for each parameter is the average of the low and high estimates, unless otherwise noted.

Stock of RNs in 2018

Data describing the number of RNs with active licenses in February, 2018, were obtained from the BRN. At that time, 9,977 RNs had active licenses and an address in the Central Coast region. Table 1 presents the number of actively licensed RNs living in the region for each age group.

Table 1. Counts of actively-licensed RNs living in the Central Coast region, by age group, February, 2018

Source: California BRN licensing records.

| Age group | Count | % of total |
|--------------|--------------|---------------|
| Under 25 | 80 | 0.8% |
| 25-29 | 558 | 5.6% |
| 30-34 | 1,081 | 10.8% |
| 35-39 | 1,107 | 11.1% |
| 40-44 | 937 | 9.4% |
| 45-49 | 1,025 | 10.3% |
| 50-54 | 981 | 9.8% |
| 55-59 | 1,248 | 12.5% |
| 60-64 | 1,460 | 14.6% |
| 65-69 | 967 | 9.7% |
| 70-74 | 362 | 3.6% |
| 75-79 | 124 | 1.2% |
| 80+ | 47 | 0.5% |
| Total | 9,977 | 100.0% |

Graduates from RN education programs

RN education programs in the Central Coast region produced 230 new graduates during the 2016-2017 academic year, according to the BRN Annual School Report (Blash & Spetz 2018). Growth in new student enrollments leads to growth in graduates in future years. AD programs are designed so that students can complete the nursing component of the degree in two years, and in most BSN programs, students are formally enrolled in nursing major courses during the last two to three years of the program; the duration is shorter for accelerated BSN programs. In general, student enrollment changes translate to changes in the number of RN graduates two to three years in the future.

To predict the number of future graduates, actual new student enrollments in a given year were compared with the number of graduates two years later. In the Central Coast region over the period 2012-2013 through 2016-2017, on average, the number of graduates totaled 82.3% of the number of new student enrollments two years prior. This

average rate was used to estimate the number of future graduates as a function of new enrollments.

Forecasting the number of graduates beyond the 2018-2019 academic year is difficult because total new student enrollments after 2016-2017 are not yet known. As part of the BRN Annual School Survey, schools are asked to estimate future new student enrollment. For example, in the 2016-2017 survey, schools were asked to report expected student enrollment totals for the 2017-2018 and 2018-2019 academic years. Schools in the region estimated that 2017-2018 new student enrollments would be 228 and that 2018-2019 new student enrollments would be 234. These estimates were multiplied by 82.3% to obtain the forecasted number of graduates for 2019-2020 and 2020-2021. To these totals were added 20 projected graduates from satellite campuses located in the region. The forecast model assumes that new student enrollments will be stable after the 2018-2019 academic year. Actual numbers of graduates from 2012-2013 through 2016-2017 and predicted numbers of graduates from 2017-2018 through 2020-2021 are presented in Table 2.

Table 2. Actual and forecasted numbers of new RN enrollments and graduations

Source: 2016-2017 BRN Annual Schools Report: Data Summary and Historical Trend Analysis, 2018.

| Academic year | Actual/forecasted new student enrollments | Actual/forecasted number of graduates |
|---------------|---|---------------------------------------|
| 2012-2013 | 246* | 183* |
| 2013-2014 | 242* | 199* |
| 2014-2015 | 226* | 188* |
| 2015-2016 | 226* | 184* |
| 2016-2017 | 230* | 214* |
| 2017-2018 | 240 | 206 |
| 2018-2019 | 256 | 209 |
| 2019-2020 | | 208 |
| 2020-2021 | | 213 |

* Actual enrollments/graduates, which do not include satellite campuses.

Graduates from nursing programs in other states and countries

Each year, some graduates of nursing programs in other states obtain their first RN license in California. According to the BRN, in 2016, 14 such out-of-state graduates had an address in the Central Coast region. Additionally, in 2016, the BRN reported that 703 internationally-educated nurses passed the National Council Licensure Examination for RNs (NCLEX-RN) and received initial licensure as an RN in California, four of whom had an address in the Central Coast region.

Age distributions of new graduates and licensees

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 graduates: 18-25, 26-30, and then ten-year age groups for graduates over age 30. To be consistent with the forecasting model, the region’s new graduates were allocated into five-year age groups and assumed that graduates of nursing programs in other states who obtain initial RN licensure in California have the same age distribution as the region’s graduates.

BRN records of internationally-educated nurses who received initial U.S. licensure in California include the birth year, so these nurses were added to the model by age group. Table 3 presents the age distribution of new RN graduates used in the model.

Inter-region and interstate migration of RNs

Estimates of migration to the Central Coast region were calculated from BRN licensing files for 2016 and 2018, as well as from BRN records of nurses requesting endorsement of their out-of-state license to California in 2016. Inter-region migration was calculated by counting the total number of RNs who lived outside the Central Coast region in 2016 (including those with out-of-state addresses), who then reported a mailing address within the Central Coast region in 2018, and dividing this number by two to obtain an annual average for each age group. This was added to the number of RNs who requested endorsement of their license from another state in 2016 and reported a Central Coast region address.

Table 3. Estimated age distributions of new graduates

Sources: 2016-2017 BRN Annual Schools Report: Data Summary and Historical Trend Analysis, 2018, & California BRN licensing files.

| Age group | Graduates of US RN programs | Internationally-educated graduates |
|-----------|-----------------------------|------------------------------------|
| 18-25 | 10.3% | 0.0% |
| 26-29 | 35.5% | 25.0% |
| 30-34 | 19.4% | 25.0% |
| 35-39 | 19.4% | 50.0% |
| 40-44 | 6.3% | 0.0% |
| 45-49 | 6.3% | 0.0% |
| 50-54 | 1.4% | 0.0% |
| 55-59 | 1.4% | 0.0% |
| 60-64 | 0.0% | 0.0% |
| 65+ | 0.0% | 0.0% |

The region’s in-migration rate was computed as the sum of RNs who migrated to the Central Coast region divided by the total number of actively licensed RNs residing in the region in 2018 (per BRN licensing records). These data are presented in Table 4.

Table 4. Movement of RNs into Central Coast region

Source: California BRN licensing records.

| Age group | Average annual number moving to region 2016-18 | Number requesting endorsement | Total as a share of RNs living in region |
|--------------|--|-------------------------------|--|
| Under 25 | 8 | 4 | 15.0% |
| 25-29 | 50 | 27 | 13.7% |
| 30-34 | 55 | 19 | 6.8% |
| 35-39 | 42 | 6 | 4.3% |
| 40-44 | 33 | 7 | 4.3% |
| 45-49 | 27 | 5 | 3.1% |
| 50-54 | 46 | 2 | 4.9% |
| 55-59 | 40 | 5 | 3.6% |
| 60-64 | 38 | 3 | 2.8% |
| Over 64 | 17 | 2 | 1.3% |
| Total | 356 | 80 | |

Movements from inactive and delinquent to active license status

BRN data were obtained describing the number of RNs changing from inactive to active license status and from delinquent to active status in 2016, by age group. These data are presented in Table 5.

Table 5. Number and age distribution of RNs changing status from inactive or delinquent to active license status, Central Coast region, 2016

Source: California BRN licensing records.

| Age group | Count | % of total |
|--------------|------------|----------------|
| Under 30 | 3 | 1.3% |
| 30-34 | 11 | 4.8% |
| 35-39 | 15 | 6.5% |
| 40-44 | 9 | 3.9% |
| 45-49 | 18 | 7.8% |
| 50-54 | 27 | 11.7% |
| 55-59 | 35 | 15.2% |
| 60-64 | 38 | 16.5% |
| 65-69 | 38 | 16.5% |
| 70-74 | 22 | 9.5% |
| 75+ | 15 | 6.5% |
| Total | 231 | 100.00% |

Migration out of the region

Estimates of migration out of the Central Coast region to other regions or states were derived from 2016 and 2018 BRN licensing files. Out-migration was calculated by taking the total number of RNs in each group who lived in the Central Coast region in 2016, but then reported a mailing address outside of the region in 2018, and dividing it by two to obtain an annual average. The region’s out-migration rate was computed as the sum of RNs who left the Central Coast region divided by the total number of actively licensed RNs residing in the region in 2018, by age group (per BRN licensing records). Table 6 presents the rates used in the model.

Table 6. Estimated annual rates of RNs migrating out of the Central Coast region

Source: California BRN licensing records.

| Age group | Average annual number moving to region 2016-18 | Total as a share of RNs living in region |
|--------------|--|--|
| Under 25 | 7 | 8.8% |
| 25-29 | 40.5 | 7.3% |
| 30-34 | 56.5 | 5.2% |
| 35-39 | 31 | 2.8% |
| 40-44 | 17 | 1.8% |
| 45-49 | 26 | 2.5% |
| 50-54 | 24.5 | 2.5% |
| 55-59 | 32 | 2.6% |
| 60-64 | 29.5 | 2.0% |
| 65-69 | 15.5 | 1.6% |
| 70-74 | 6 | 1.7% |
| 75+ | 0 | 0.0% |
| Total | 285.5 | |

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 BRN licensing files for 2016 and 2018. The number of RNs who lived in the Central Coast region in 2016 but who were no longer actively licensed in 2018 was calculated and divided by two to obtain an annual average for each age group. This was divided by the number of RNs in each age group in 2018 to obtain the rates at which RNs allow their licenses to lapse or become inactive. The data are presented in Table 7.

Table 7. Estimated annual rates of RNs allowing licenses to lapse or become inactive

Source: California BRN licensing records.

| Age group | Average annual number changing to lapsed/inactive status 2016-18 | Total as a share of RNs living in region |
|--------------|--|--|
| Under 25 | 1.5 | 1.9% |
| 25-29 | 10 | 1.8% |
| 30-34 | 22 | 2.0% |
| 35-39 | 17.5 | 1.6% |
| 40-44 | 8.5 | 0.9% |
| 45-49 | 13.5 | 1.3% |
| 50-54 | 27 | 2.8% |
| 55-59 | 41.5 | 3.3% |
| 60-64 | 88 | 6.0% |
| 65-69 | 94 | 9.7% |
| 70-74 | 67.5 | 12.7% |
| Total | 391 | |

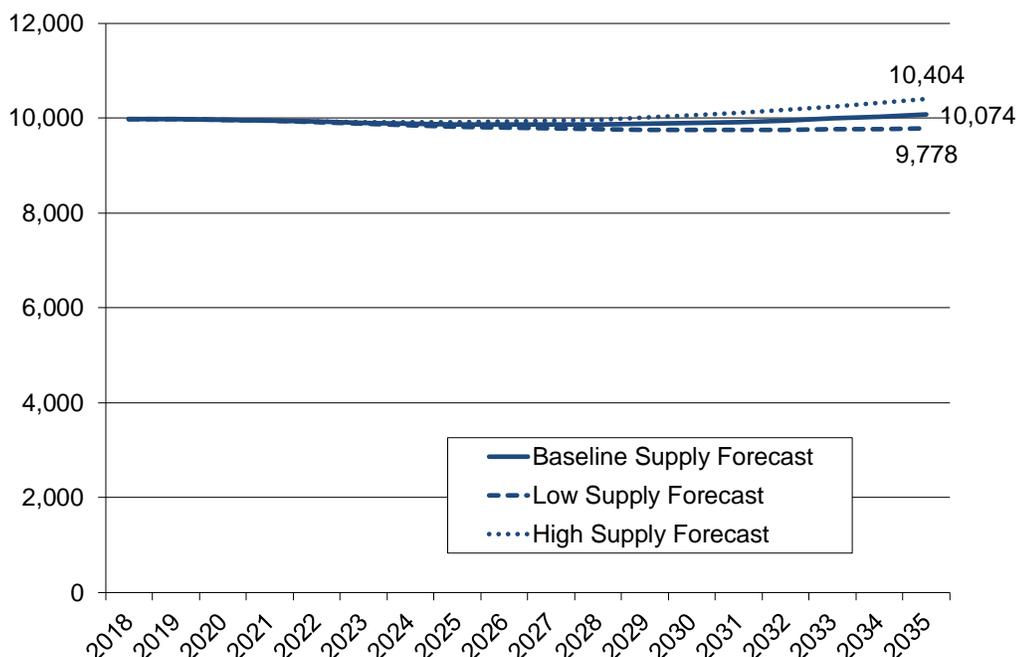
Supply forecasts of the region’s RN workforce

Figure 2 presents the supply forecasts based on the projection model described above. A range of supply

estimates were calculated; the baseline forecast assumes that RN education programs maintain the number of graduates, after 2022, the low forecast assumes that RN graduations shrink by 1% per year, and the high model assumes that graduations increase by 1% per year after 2022.

The forecasted number of RNs with active licenses does not account for variation in hours worked, or the fact that some RNs with active licenses do not work in nursing. Employment rates by age groups have varied since 2008, likely due to the economic recession that began in late 2007. During the recession, younger nurses were employed at lower rates and older nurses were employed at higher rates than in other years. To account for variation in employment rates over time, multiple years of data were examined. The proportion of RNs in the Central Coast region employed in nursing in 2016, by age group, was calculated from the 2016 BRN Survey of RNs. Statewide employment rates by age group were obtained from BRN Surveys of RNs from 2008 through 2016 (Spetz, Chu, & Jura 2017). The employment rate used for the “low” forecast was the lowest of these employment rates, and the

Figure 2. Forecasted number of RNs with active licenses residing in the Central Coast region



employment rate used for the “high” forecast was the highest of these rates. The baseline estimate is the average of the low and high rates and is presented in Table 8.

Table 8. Employment rates of RNs in the Central Coast region

Source: Spetz, J, Chu, L, Jura, M. 2017. 2016 Survey of Registered Nurses. Sacramento, CA: California Board of Registered Nursing.

| Age group | Actual region 2016 | Low estimate | High estimate | Baseline estimate |
|-----------|--------------------|--------------|---------------|-------------------|
| Under 25 | 100.0% | 89.6% | 100.0% | 94.8% |
| 25-29 | 100.0% | 93.5% | 100.0% | 96.7% |
| 30-34 | 93.6% | 92.1% | 95.5% | 93.8% |
| 35-39 | 84.3% | 84.3% | 95.2% | 89.7% |
| 40-44 | 90.6% | 89.7% | 91.1% | 90.4% |
| 45-49 | 92.3% | 92.1% | 93.4% | 92.7% |
| 50-54 | 84.3% | 84.3% | 90.8% | 87.6% |
| 55-59 | 87.7% | 85.3% | 87.7% | 86.5% |
| 60-64 | 58.9% | 58.9% | 78.5% | 68.7% |
| 65-69 | 45.5% | 45.5% | 65.2% | 55.3% |
| 70-74 | 63.2% | 40.5% | 63.2% | 51.8% |
| 75-79 | 40.0% | 32.0% | 40.0% | 36.0% |
| 80+ | 0.0% | 0.0% | 24.2% | 12.1% |

The supply model also utilized data from the 2016 BRN Survey of RNs to calculate average usual hours worked per week in all nursing jobs in the Central Coast region, by age group, as well as statewide average hours per week from 2008 through 2016 (Spetz, Chu, & Jura 2017). Estimated hours per week were divided by 40 to obtain the average full-time equivalent employment (FTE) for each age group. In the forecasts, the high for each age group is the highest of these FTE rates and the low estimate is the lowest of the FTE rates. The baseline estimate is the average of the high and low estimates and are presented in Table 9.

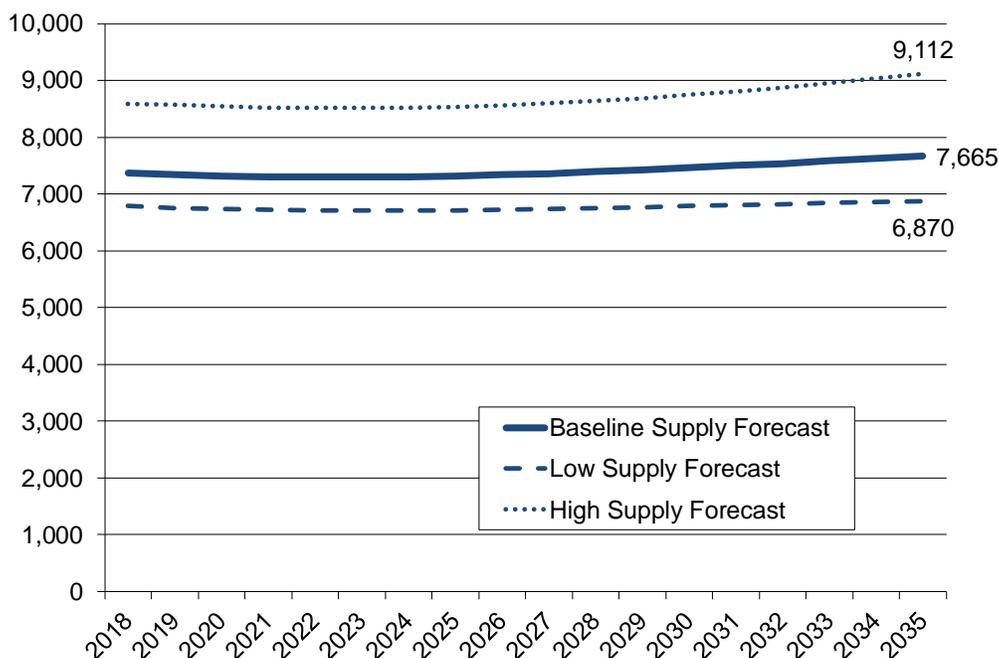
Table 9. Hours worked per week by employed RNs in the Central Coast region

Source: Spetz, J, Chu, L, Jura, M. 2017. 2016 Survey of Registered Nurses. Sacramento, CA: California Board of Registered Nursing.

| Age group | Actual region 2016 | Low estimate | High estimate | Baseline estimate |
|-----------|--------------------|--------------|---------------|-------------------|
| Under 25 | 36.0 | 36.0 | 47.1 | 41.5 |
| 25-29 | 38.0 | 35.8 | 38.0 | 36.9 |
| 30-34 | 35.6 | 35.6 | 36.6 | 36.1 |
| 35-39 | 35.2 | 35.2 | 36.2 | 35.7 |
| 40-44 | 38.1 | 36.4 | 38.1 | 37.3 |
| 45-49 | 40.9 | 36.7 | 40.9 | 38.8 |
| 50-54 | 35.1 | 35.1 | 37.6 | 36.3 |
| 55-59 | 37.2 | 36.6 | 37.4 | 37.0 |
| 60-64 | 36.9 | 35.3 | 36.9 | 36.1 |
| 65-69 | 33.9 | 32.0 | 33.9 | 33.0 |
| 70-74 | 30.5 | 24.0 | 30.5 | 27.2 |
| 75-79 | 26.2 | 18.8 | 26.2 | 22.5 |
| 80+ | 21.0 | 21.0 | 31.1 | 26.1 |

Figure 3 presents projected high, low, and baseline estimates of FTE supply of actively licensed RNs for the Central Coast region. The estimates for 2035 range from 6,870 to 9,112, demonstrating the importance of assumptions about education program growth and labor force participation of RNs.

Figure 3. Forecasted full-time equivalent supply of RNs, 2018-2035



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 in determining demand 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% of newborn deliveries being attended by a skilled birth attendant (WHO 2006). Similarly, demand for RNs could be defined as a specific number of nurses per capita. It is important to recognize, however, that demand based on population needs is not the same thing as demand based on economic factors. 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 decide that investment in a

new electronic health record will produce more value to patients. In this context, demand for nurses is derived from economic forces, which may not be aligned with population needs.

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

- Fixed benchmarks based on current RN-to-population ratios in the region
- Fixed benchmarks based on U.S. RN-to-population ratios
- Demand forecasts based on 2015 hospital patient days, employment in hospitals, and future population growth and aging
- Regional employment forecasts for 2024 published by the California Employment Development Department (EDD 2017)

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. For decades, California has had one of the lowest ratios of employed RNs per capita in the U.S., usually ranking in the bottom 5 nationwide. Many policy advocates have supported efforts to increase California's FTE employment of RNs per capita to be on par with that of other states, targeting either the current 25th percentile ratio (916 RNs per 100,000) or the national average ratio (1,038 RNs per 100,000). Data on the current and forecasted population of the Central Coast region (California Department of Finance 2018) were used to calculate the number of RNs that would be needed to maintain the current RN-to-population ratios, reach the 25th percentile ratio, and reach the national average ratio.

The main shortcoming of targeting a fixed number of RNs per population, such as a national average, is that the target may not reflect the unique population and health care system of the state or region. An additional shortcoming is that fixed nurse-to-population ratios do not account for increased demand for health care services resulting from an increase in the number of persons with insurance coverage or an aging population.

Forecasts based on hospital staffing of RNs per patient day

A second approach to forecasting demand for RNs is to use current hospital utilization and staffing patterns to estimate growth in future demand for RNs. The first step in this process was to obtain the total number of hospital patient discharges in 2015 (the most recent data available) from short-term, acute-care hospitals in the Central Coast region (Office of Statewide Health Planning and Development 2016). In order to estimate the total number of patient days per age group (10-year ranges), these data were multiplied by the average length of stay per age group, as reported by Hospital National Inpatient Statistics (AHRQ 2014).

To calculate the rate of hospital utilization per age group, the total number of patient days per age group was divided by the estimated population of each age group in the region. Age-specific population estimates and forecasts were sourced from the

California Department of Finance (2018). These rates of patient days per age group were then applied to the population projections to forecast total patient days by age group.

To produce forecasts of hospital demand for RNs, RN hours per patient day were calculated using OSHPD's Hospital Annual Financial Data (Office of Statewide Health Planning and Development 2017). In 2016, a total of 6,491,678 productive RN hours were reported by hospitals in the Central Coast region. The number of RN hours per discharge was calculated by dividing total productive RN hours by the number of patient days in 2017, resulting in an estimated 13.73 productive RN hours per patient day. Multiplying the number of productive RN hours per patient day by the forecasted total number of patient days produces an estimate of hospital-based RN hours needed in the future. To equate these estimates to FTE jobs, RN hours were divided by 1,768 (average annual productive hours per FTE), resulting in 3,672 FTE RN employment in 2017.

The calculations described above provide demand forecasts for only one type of care setting (hospitals), and only for a subset of hospitals (long-term hospitals and federal hospitals are not included in the calculations). The 2016 BRN Survey of Registered Nurses report indicates that total FTE employment in the Central Coast region was 7,130 (Spetz et al. 2017); thus, total RN employment was 1.94 times greater than hospital RN employment. To forecast total demand for RNs, it was assumed that total RN demand would continue to be 1.94 times greater than hospital RN demand in future years. The projections indicate there will be a need for 4,919 FTE RNs in hospitals and 9,552 FTE RNs throughout the region in 2035.

Employment Development Department forecasts

The most recent projection by the California Employment Development Department (EDD) indicates that there will be 7,800 RN jobs in the Central Coast region in 2024 (California Employment Development Department 2018). The EDD projection does not distinguish between full-

time and part-time jobs. To estimate the FTE employment implied by the EDD projection, an adjustment factor of 0.899 was used, which is the average number of hours worked per week by RNs in the region in 2016 (35.96), divided by 40 (Spetz, Chu, and Jura 2017). This results in a projected 7,011 FTE jobs across the region in 2024.

Comparing the demand forecasts

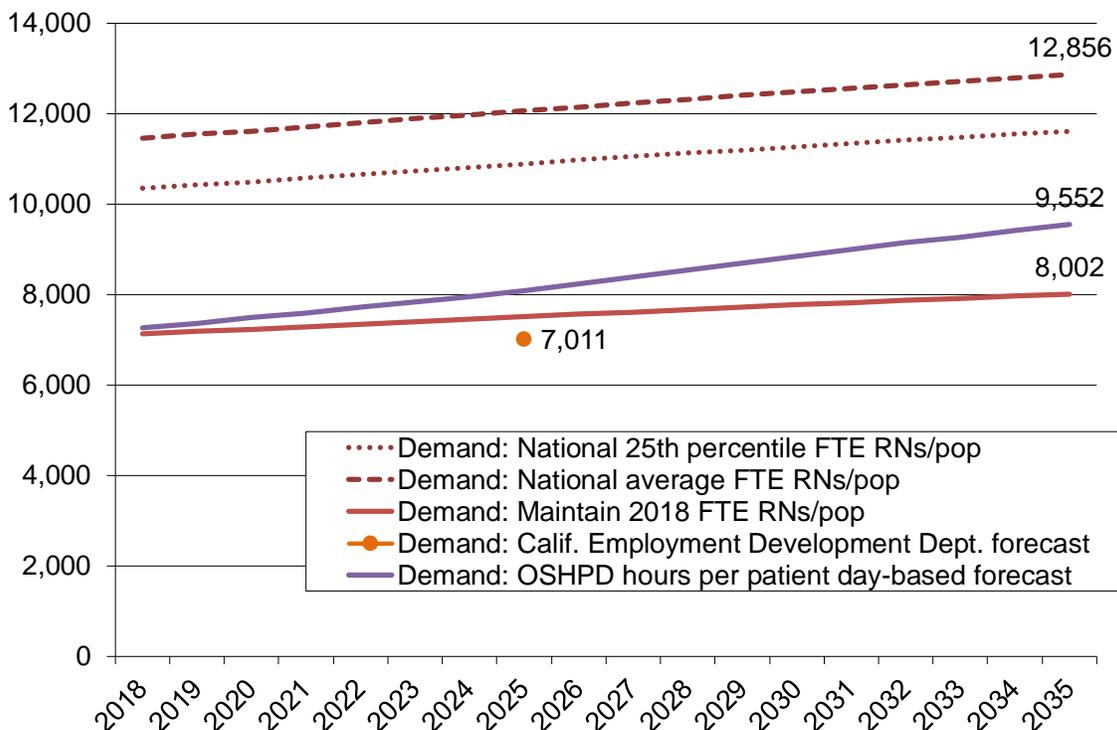
Figure 4 compares alternative forecasts of demand for full-time equivalent RNs. In order to maintain the current RN-to-population ratio in the Central Coast region, 8,002 FTE RNs will be needed in 2035. The forecast based on projected growth in hospital utilization results in 9,552 FTE RNs needed in 2035. To reach the national average ratio of RNs per population, 12,856 FTE RNs will be needed in 2035. Figure 4 also shows that the projected number of FTE RN jobs in 2024 derived from EDD is slightly below the trajectory of demand based on maintaining the region’s current RN-to-population ratio.

Comparing Supply and Demand for RNs

Figure 5 compares the baseline supply forecast and the low supply forecast with three alternate demand forecasts: (1) demand based on attaining the national per capita ratio at the 25th percentile; (2) demand based on attaining the national average per capita ratio; and (3) demand based on forecasted growth in hospital patient days. All forecasts are for FTE employment.

The baseline supply forecast estimates that in 2018 there were 7,371 FTE RNs available to work; the low supply forecast estimates there were 6,788 FTEs. The projections of RN demand based on hours per patient day (OSHPD data) indicate there was demand for 7,261 RNs that year, suggesting the market was fairly balanced. However, it is worth noting that RN supply in 2018 was 28.7% lower than demand based on the national per capita ratio at the 25th percentile, which may indicate that current demand for RNs is lower than optimal. In the long term, the baseline supply forecast predicts that nurse

Figure 4. Forecasted full-time equivalent demand for RNs, 2018-2035



supply will increase very little while RN demand will increase as a result of population growth and aging. The Central Coast region is facing a shortage of RNs, which will become severe if RN education programs contract or the employment rate of licensed nurses falls.

Additional factors that affect regional RN shortages

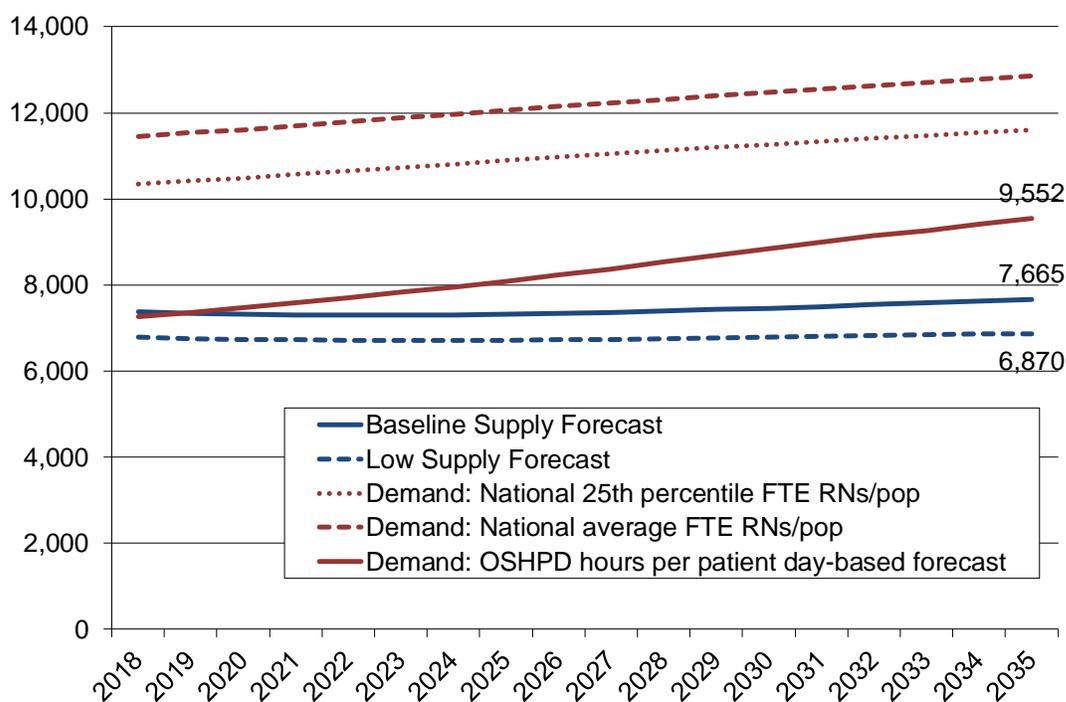
Some RNs travel across regions for work, which could result in fewer or more nurses working in the Central Coast region. Data from the 2016 BRN Survey of RNs indicates that 95.7% of employed RNs who lived in the Central Coast region also worked in the region. Approximately 203 RNs worked in the San Francisco Bay Area region (2.8%), 66 worked in the Los Angeles region (0.9%), and 38 worked in the Central Valley or Sacramento regions. Conversely, some nurses living in other regions worked in the Central Coast region: approximately 559 from the San Francisco Bay Area, 1,001 from the Los Angeles region, 221 from the Inland Empire, and 45 from the Central Valley. In sum, in 2016 the Central Coast region had an estimated 1,500 more RNs crossing

regional boundaries to work in the area versus to work outside the area.

A second factor that may affect the supply of RNs is that some are also advanced practice RNs (APRNs) – nurse practitioners (NPs), certified nurse-midwives (CNMs), clinical nurse specialists (CNSs), and nurse anesthetists (CRNAs). Both the supply projections and the projections of demand for RNs based on RN-to-population ratios and hospital patient utilization treat all these APRNs as RNs. The EDD projection does not include APRNs. In the Central Coast region, 6.2% of RNs are NPs, 0.6% are CNMs, and 0.3% are CRNAs. If these APRNs are not considered part of the RN supply, together they reduce the region’s baseline supply by approximately 7.1% (524 RNs).

Hospital employment data sourced from OSHPD were examined to identify the number of RN hours worked by contract personnel in 2016. Use of contract staff by hospitals may indicate the degree to which hospitals are experiencing a shortage of RNs with the skills required for open positions. However, since contract personnel are used to fill gaps during

Figure 5. Forecasted full-time equivalent supply and demand for RNs, 2018-2035



staff vacations and leaves of absence, as well as normal seasonal fluctuations in hospital utilization, this is not a perfect measure of the magnitude of RN shortage. The OSHPD data indicated that the average share of hospital RN hours provided by contract staff in the Central Coast region was 7.1%, which was the second-highest regional rate across the state and equivalent to a total of 184 FTE RNs.

Overall assessment of RN labor market in the region

Together, data on inter-regional commuting, the size of the advanced practice workforce, and the employment of agency personnel suggest that RN supply in the Central Coast region might be 1,000 more than the model calculation, and demand might be approximately 190 greater in 2018. The relatively large number of RNs commuting to the region suggests that the local supply of RNs is inadequate and employers rely on commuters to meet demand. The situation is projected to worsen in the Central Coast region due to the projected demand for RNs in the region increasing more rapidly than supply. The shortage is likely to become severe by 2035 if there are not increases in local RN graduations or concerted efforts to increase migration and/or commuting to the Central Coast region.

Policy Implications

The Central Coast region of California appears to have an RN labor market that is balanced largely due to reliance on inter-regional commuting into the area. A severe shortage is likely to emerge because the region is projected to have increasing demand for RNs but has relatively small numbers of RN program graduations. As a result, there will be up to 25% fewer RNs than needed in 2035.

These projections could change if any of the variables in the model change. The most important changes that could change the projections are increases or decreases in: (1) the number of graduates from RN education programs; (2) inter-regional migration; and/or (3) employment rates of RNs. These factors and any other potential influences on the Central

Coast region's nursing supply, 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.

Regional health care and education leaders should track the employment paths of recent nursing graduates as they develop specialized skills to fill the roles of experienced nurses who will retire in the near future. Moreover, they should monitor new student enrollments in nursing programs, as well as the degree to which employers are reliant on contract personnel and commuters, to determine the extent to which local RN education programs should expand.

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The mission of the Healthforce Center is to equip health care organizations with the workforce knowledge and leadership skills to effect positive change.

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Ventura/Santa Barbara RN Workforce Forum: Group Discussion Questions – Jan 30, 2019

Question 1: What are some barriers and obstacles that may be preventing or slowing progress in meeting the shortage of experienced specialty RNs?

- Demographics – Island
- External funding for Specialty RN
- Lack of Preceptors
- Capacity
- Lack of knowledge of options (new grads)
- Lack of pool of experienced RNs
- Retention of specialty experienced staff
- Cost of living
- Shortage of staff preceptors, lack of knowledge of funding sources, grant writers, coordinators
- Cost of living
- Generational shifts
- Cost of training
- Leanness of staffing
- Pay scale (higher LA County) and living expenses work/life balance
- Generational limitations (5 different in workforce)
- Commuting (North)
- Competing
- Increased workload + increased acuity = increased stress (more likely to leave)
- Less resilience/coping skills
- More technical skill – less social skills
- Require 2 – 3 years' experience to go into specialty settings
- Travel nursing more attractive
- Cost of living in Santa Barbara
- Job opportunities for SB spouse; child care
- Most openings on night shift
- Engaged RN preceptors
- Formalized preceptor training program

Question 2: What practices, processes or strategies provide the greatest opportunities for change or improvement to address the shortage of experienced specialty RNs?

- Within your hospital/academic setting?
- Within the region as a whole? (brainstorm ideas, identify and report top 3)

- Acute care transition
- New grad program
- Keeping informed – high school/pre-nursing
- Scholarships
- Growth opportunities
- Clinical advancement program (CAP)
- Support for goals
- Move competitive salaries for nursing instructors, need for specialty pathways for academics & hospitals
- Retention strategies
- Generational strategies
- Internal infrastructure/resources
- Collaboration of health systems
- * Clinical ladders (specialty areas) and leadership opportunities
- Involving staff in the change
- Regular check-ins
- Mentorship/residency programs
- Incentives for such programs
- * Education as an organization priority
- More training in academic settings on communication skills
- * nurse “fellowship” in specialty programs
- Create positive culture/approach to new RNs
- Teaching good role modeling w/new RNs
- Residency (has separate budget)/apprenticeship
- Cost-sharing w/colleges for faculty
- Education & healthcare partners collaborate to offer specific programs
- Collaboration between various RN education programs and the hospitals

Question 3: When considering the option of conducting/participating in one or more specialty courses, what next steps can be taken by hospitals/schools in the next 1-3 months to explore/develop or conduct/expand one or more specialty courses through an academic practice partnership? (identify specific actionable steps - who, what, where, when)

- Faculty
- Clinical placements
- Electives (pre & post licensure)
- Point person to build bridge between hospitals and academia
- Funding
- Simulations
- Requirements
- Support for transition
- New grads (< 6 mos.) not hired
- Return to practice RNs
- Reintroduce student-nurse tech model as the beginning of an apprenticeship in a specialty area, online didactics, increased partnerships and collaborations between hospitals and academics
- Grants?
- One school a year to offer (summer) course
- Rotate every year from partnering school
- Gap analysis
- Identify 1 specialty area to focus on (ICU? OR?)
- Focus groups/planning
- Sharing ideas/pool resources
ex. Didactics, competencies;
- Checklists (standardization)
- Core skills
- Hosting courses at different organizations to benefit the whole
- Specialty certification incentives
- WHO: Educator
WHAT: Senior RN students have focused apprenticeship in specialty areas
- Cohort model
- Forecasting future RN needs each year
- Educators & hospitals talk about new trends