Supply & Demand of RNs in the Sacramento & Northern regions

Joanne Spetz, PhD, FAAN
Professor, Philip R. Lee Institute for Health Policy Studies
Associate Director for Research, Healthforce Center
University of California, San Francisco

September 2018
Tales of a nursing shortage…

U.S. still headed for nurse shortage

The U.S. Is Running Out of Nurses
The country has experienced nursing shortages for decades, but an aging population means the problem is about to escalate.

Is US headed for worst nursing shortage?

By: Howard Gerber - @inquirerdotnet
INQUIRER.net US Bureau / 01:51 AM November 30, 2017
Forecasting future RN supply & demand

- **National forecasts:** market is balanced
  - National Center for Health Workforce Analysis, 2017
    - National surplus of 293,800 RNs by 2030 (8.2%)
    - Assumes supply = demand in 2014
  - Auerbach et al. 2015 – 128,000 RN shortage by 2025 (4%)

- **California**
  - NCHWA 2017 – 44,500 short (11.5%)
  - Auerbach et al. 2017 – only 0.7% per capita supply growth in Pacific region
  - Spetz 2017 – no shortage overall, but skills & regional imbalance
## Perceptions of employers: Overall labor market

<table>
<thead>
<tr>
<th>Year</th>
<th>High demand: difficult to fill open positions</th>
<th>Moderate demand: some difficulty filling open positions</th>
<th>Demand is in balance with supply</th>
<th>Demand is less than supply available</th>
<th>Demand is much less than supply available</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>37.9%</td>
<td>49.7%</td>
<td>8.3%</td>
<td>4.1%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>34.3%</td>
<td>55.2%</td>
<td>7.6%</td>
<td>2.9%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>40.1%</td>
<td>46.9%</td>
<td>6.8%</td>
<td>5.6%</td>
<td>0.6%</td>
</tr>
<tr>
<td>2014</td>
<td>18.4%</td>
<td>49.0%</td>
<td>13.1%</td>
<td>12.6%</td>
<td>6.8%</td>
</tr>
<tr>
<td>2013</td>
<td>8.6%</td>
<td>32.3%</td>
<td>18.7%</td>
<td>26.8%</td>
<td>13.6%</td>
</tr>
<tr>
<td>2012</td>
<td>5.5%</td>
<td>45.2%</td>
<td>19.8%</td>
<td>17.1%</td>
<td>12.4%</td>
</tr>
<tr>
<td>2011</td>
<td>4.7%</td>
<td>43.9%</td>
<td>6.8%</td>
<td>23.6%</td>
<td>20.9%</td>
</tr>
<tr>
<td>2010</td>
<td>5.3%</td>
<td>30.9%</td>
<td>11.8%</td>
<td>27.0%</td>
<td>25.0%</td>
</tr>
</tbody>
</table>

- **High demand: difficult to fill open positions**
- **Moderate demand: some difficulty filling open positions**
- **Demand is in balance with supply**
- **Demand is less than supply available**
- **Demand is much less than supply available**

Source: Chu & Spetz, 2018, Survey of Nurse Employers Fall 2017
Differences across regions:
Overall RN labor market

Source: Chu & Spetz, 2018, Survey of Nurse Employers Fall 2017
Differences across regions: Experienced RNs

Source: Chu & Spetz, 2018, Survey of Nurse Employers Fall 2017
Differences across regions: New Grad RNs

Sacramento & North: 2.6
SF Bay: 2.6
Central CA: 2.5
LA: 2.1
Inland Empire: 2.2
S. Border: 1.5

Source: Chu & Spetz, 2018, Survey of Nurse Employers Fall 2017
New Graduate Employment

Source: HealthImpact, 2018, Survey of Recent RN Graduates
Regional Differences in New Grad Employment

<table>
<thead>
<tr>
<th>Region</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF Bay</td>
<td>71%</td>
<td></td>
</tr>
<tr>
<td>Orange/Inland</td>
<td>86%</td>
<td></td>
</tr>
<tr>
<td>N CA</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>San Diego/Imperial</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td>Central Valley</td>
<td>93%</td>
<td></td>
</tr>
<tr>
<td>Sacramento</td>
<td>76%</td>
<td></td>
</tr>
<tr>
<td>N Sac Valley</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td>Central Coast</td>
<td>94%</td>
<td></td>
</tr>
</tbody>
</table>

Source: HealthImpact, 2018, Survey of Recent RN Graduates
A model of the supply of RNs

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

Share of nurses who work, and how much they work

Full-time equivalent supply of RNs
Forecasting demand is harder

- Number of nurses per capita
  - What is the target?
    - National average?
    - Some arbitrary benchmark?
    - Estimates of how many providers are needed to provide XYZ?
- Demand-based models can be based on economic demand models
  - Easier said than done....
Age distribution of licensed RNs - Sacramento

Source: Spetz et al., 2016 California Survey of RNs
RN graduations per year - Sacramento

These numbers do not include satellite campuses

Source: California Board of Registered Nursing, Annual Schools Reports
Statewide graduations are expected to hold steady

<table>
<thead>
<tr>
<th></th>
<th>New enrollment</th>
<th>Projected enrollment from 1 yr</th>
<th>Projected enrollment from 2 yrs</th>
<th>Graduations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-2015</td>
<td>13,318</td>
<td>12,162</td>
<td>13,347</td>
<td>11,119</td>
</tr>
<tr>
<td>2015-2016</td>
<td>13,152</td>
<td>13,110</td>
<td>12,177</td>
<td>11,191</td>
</tr>
<tr>
<td>2016-2017</td>
<td>13,152</td>
<td>13,862</td>
<td>13,236</td>
<td>10,761</td>
</tr>
<tr>
<td>2017-2018</td>
<td></td>
<td>14,219</td>
<td></td>
<td>10,627</td>
</tr>
<tr>
<td>2018-2019</td>
<td></td>
<td></td>
<td></td>
<td>11,200</td>
</tr>
<tr>
<td>2019-2020</td>
<td></td>
<td></td>
<td></td>
<td>11,489</td>
</tr>
</tbody>
</table>

Source: California Board of Registered Nursing Annual Schools Report, 2015-2016
Sacramento-Yuba graduations are projected to continue to grow

<table>
<thead>
<tr>
<th></th>
<th>New enrollment</th>
<th>Projected enrollment from 1 yr</th>
<th>Projected enrollment from 2 yrs</th>
<th>Graduations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2016</td>
<td>563</td>
<td>478</td>
<td>668</td>
<td>452</td>
</tr>
<tr>
<td>2016-2017</td>
<td>620</td>
<td>624</td>
<td>493</td>
<td>448</td>
</tr>
<tr>
<td>2017-2018</td>
<td>708</td>
<td>632</td>
<td></td>
<td>461</td>
</tr>
<tr>
<td>2018-2019</td>
<td></td>
<td>712</td>
<td></td>
<td>507</td>
</tr>
<tr>
<td>2019-2020</td>
<td></td>
<td></td>
<td></td>
<td>579</td>
</tr>
<tr>
<td>2020-2021</td>
<td></td>
<td></td>
<td></td>
<td>583</td>
</tr>
</tbody>
</table>

Source: California Board of Registered Nursing Annual Schools Report, 2017-2018
What is projected population growth in the Sacramento region?

Population (thousands)

Graduation projection

2,342

2,599

483

583

0


Population (thousands)  Graduation projection
Age distribution of licensed RNs – Northern Region

Source: Spetz et al., California Survey of RNs, 2012

Source: Spetz et al., 2016 California Survey of RNs

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Statewide</th>
<th>Northern Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-54 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55-59 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60-64 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65+ years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Spetz et al., 2016 California Survey of RNs
RN graduations per year – Northern region

These numbers do not include satellite campuses

Source: California Board of Registered Nursing, Annual Schools Reports
Northern region graduations are projected to grow

<table>
<thead>
<tr>
<th></th>
<th>New enrollment</th>
<th>Projected enrollment from 1 yr</th>
<th>Projected enrollment from 2 yrs</th>
<th>Graduations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2016</td>
<td>351</td>
<td>365</td>
<td>367</td>
<td>347</td>
</tr>
<tr>
<td>2016-2017</td>
<td>373</td>
<td>382</td>
<td>356</td>
<td>363</td>
</tr>
<tr>
<td>2017-2018</td>
<td></td>
<td>493</td>
<td>385</td>
<td>326</td>
</tr>
<tr>
<td>2018-2019</td>
<td></td>
<td></td>
<td>505</td>
<td>347</td>
</tr>
<tr>
<td>2019-2020</td>
<td></td>
<td></td>
<td></td>
<td>458</td>
</tr>
<tr>
<td>2020-2021</td>
<td></td>
<td></td>
<td></td>
<td>469</td>
</tr>
</tbody>
</table>

Source: California Board of Registered Nursing Annual Schools Report, 2017-2018
What is projected population growth in the Northern region?
California RN supply and demand forecasts, 2017-2035

- Best Supply Forecast
- Low Supply Forecast
- National 25th percentile FTE RNs/population
- National average FTE RNs/population
- OSHPD hours per patient day-based forecast


Supply forecasts increase over the years from 2017 to 2035.
Regional differences are important
Supply & demand forecasts for Sacramento region

Baseline Supply Forecast
Low Supply Forecast
Demand: National 25th percentile FTE RNs/pop
Demand: National average FTE RNs/pop
Demand: OSHPD hours per patient day-based forecast
Regional differences are important
Supply & demand forecasts for Northern Counties

Baseline Supply Forecast
Low Supply Forecast
Demand: National 25th percentile FTE RNs/pop
Demand: National average FTE RNs/pop
Demand: OSHPD hours per patient day-based forecast
Inflows and outflows for the Sac region

- **Inflows = 1,384 now, 1,506 by 2021**
  - Graduations: 461 in 2016-17, 583 in 2020-21
  - Migration into the region: 709 per year 2016-2018
  - Endorsements from other states: 214 in 2017

- **Outflows = 1,992 now**
  - Migration out of the region: 468 per year 2016-2018
  - Lapsed licenses: 1,524 per year 2016-2018

- Lapsed licenses are at predictable older ages
- New graduates tend to be younger than average – 60% <30 years
  - Migrants into the region also are young
Inflows and outflows for the Northern region

- **Inflows = 669 now, 812 by 2021**
  - Graduations: 326 in 2016-17, 469 in 2020-21
  - Migration into the region: 239 per year 2016-2018
  - Endorsements from other states: 104 in 2017

- **Outflows = 1,256 now**
  - Migration out of the region: 288 per year 2016-2018
  - Lapsed licenses: 968 per year 2016-2018

- Older nurses keep their licenses longer than average
- New graduates tend to be younger than average – 53% <30 years
Balanced labor markets!

- No need for aggressive program growth – models assume 1.5% per year

- Anticipated growth of graduations in northern counties might be more than needed, but not something to worry about

- Will these new RNs move to other regions or states?
  - >50% of recent RN grads work within 40 miles of high school
How do we address the challenge?

Labor market overall is well-balanced

Younger graduates will support the workforce for many years in the future

Long working lives of nurses in Northern Counties will be important