Supply & Demand of RNs in the Central Valley & Sierra region

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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 get worse.

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</th>
<th>Moderate demand</th>
<th>Demand in balance</th>
<th>Demand less than supply</th>
<th>Demand much less than supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>37.9%</td>
<td>49.7%</td>
<td>8.3%</td>
<td>4.1%</td>
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<tr>
<td>2016</td>
<td>34.3%</td>
<td>55.2%</td>
<td>7.6%</td>
<td>2.9%</td>
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<tr>
<td>2015</td>
<td>40.1%</td>
<td>46.9%</td>
<td>6.8%</td>
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<tr>
<td>2014</td>
<td>18.4%</td>
<td>49.0%</td>
<td>13.1%</td>
<td>12.6%</td>
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<tr>
<td>2013</td>
<td>8.6%</td>
<td>32.3%</td>
<td>18.7%</td>
<td>26.8%</td>
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<tr>
<td>2012</td>
<td>5.5%</td>
<td>45.2%</td>
<td>19.8%</td>
<td>17.1%</td>
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<tr>
<td>2011</td>
<td>4.7%</td>
<td>43.9%</td>
<td>6.8%</td>
<td>23.6%</td>
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<tr>
<td>2010</td>
<td>5.3%</td>
<td>30.9%</td>
<td>11.8%</td>
<td>27.0%</td>
<td></td>
</tr>
</tbody>
</table>

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

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

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<thead>
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<td>Central CA</td>
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<td>SF Bay</td>
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<td>Sacramento &amp; North</td>
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</tbody>
</table>

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

- SF Bay: 2017 - 4.2, 2016 - 4.2, 2015 - 4.0, 2014 - 4.0, 2013 - 4.0
- Sacramento & North: 2017 - 4.2, 2016 - 4.2, 2015 - 4.0, 2014 - 4.0, 2013 - 4.0

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

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

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

Share of nurses who work, and how much they work

Outflow of nurses

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

Source: Spetz et al., 2016 California Survey of RNs
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>
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<td>2015-2016</td>
<td>13,152</td>
<td>13,110</td>
<td>12,177</td>
<td>11,191</td>
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<td>2016-2017</td>
<td>13,862</td>
<td>13,236</td>
<td>10,761</td>
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<td>2017-2018</td>
<td>14,219</td>
<td>10,627</td>
<td>11,200</td>
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<td>2018-2019</td>
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<td>11,200</td>
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<tr>
<td>2019-2020</td>
<td></td>
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<td>11,489</td>
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</tbody>
</table>

Source: California Board of Registered Nursing Annual Schools Report, 2015-2016
Central Valley & Sierra graduations are projected to hold steady

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<thead>
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<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>1,276</td>
<td>1,101</td>
<td>1,094</td>
<td>1,097</td>
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<tr>
<td>2016-2017</td>
<td>1,305</td>
<td>1,099</td>
<td>1,101</td>
<td>1,161</td>
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<tr>
<td>2017-2018</td>
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<td>1,208</td>
<td>1,122</td>
<td>1,099</td>
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<tr>
<td>2018-2019</td>
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<td>1,244</td>
<td>1,124</td>
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<td>2019-2020</td>
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<td>1,040</td>
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<tr>
<td>2020-2021</td>
<td></td>
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<td></td>
<td>1,071</td>
</tr>
</tbody>
</table>

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

Population (thousands):
- 2011: 4,206
- 2021: 4,653

Graduation projection:
- 2011: 1,383
- 2021: 1,071
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
Regional differences are important: Forecasts for Central Valley & Sierra

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 Central region

- **Inflows = ~1,830 now**
  - Graduations: ~1,100 per year
  - Migration into the region: 529 per year 2016-2018
  - Endorsements from other states: 204 in 2017

- **Outflows = 2,703 now**
  - Migration out of the region: 777 per year 2016-2018
    - Concentrated among younger nurses
  - Lapsed licenses: 1,926 per year 2016-2018

- **Conclusion:** Outflows exceed inflows & population is growing
  - Not enough new graduates
Costs of shortages and turnover

- Productivity losses due to instability in the workforce
- Premiums paid to temporary RN staff
- Losses when beds are closed, patients are deferred
- Expense of overtime pay
- Training and orientation costs
- Patient safety failures when understaffed

Source: Cheryl Jones, Nursing Outlook, 2004
How do we address the challenge?

Central Valley & Sierra faces a shortage of about 20% by 2035.

Rapid population growth projected ➞ workforce needs to keep up.

Younger RN workforce, but not enough new graduates.