Supply & Demand of Registered Nurses in the Inland Empire

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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 worsen.

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></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**
  - 2017: 1.0
  - 2016: 2.0
  - 2015: 3.0
  - 2014: 4.0
  - 2013: 5.0

- **Central CA**
  - 2017: 1.5
  - 2016: 2.0
  - 2015: 2.5
  - 2014: 2.0
  - 2013: 1.5

- **LA**
  - 2017: 1.0
  - 2016: 2.0
  - 2015: 2.5
  - 2014: 2.0
  - 2013: 1.0

- **SF Bay**
  - 2017: 1.0
  - 2016: 2.0
  - 2015: 2.5
  - 2014: 2.0
  - 2013: 1.0

- **Inland Empire**
  - 2017: 1.0
  - 2016: 2.0
  - 2015: 2.5
  - 2014: 2.0
  - 2013: 1.0

**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 → 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

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

Source: California Board of Registered Nursing, Annual Schools Reports
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. Supply & demand forecasts for Inland Empire:

- Best 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
Statewide graduations are expected to hold steady

<table>
<thead>
<tr>
<th>Year</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>10,627</td>
<td></td>
</tr>
<tr>
<td>2018-2019</td>
<td></td>
<td></td>
<td>11,200</td>
<td></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
Inland Empire graduations are too low – and projected increases aren’t enough

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<th>Projected enrollment from 2 yrs</th>
<th>Graduations</th>
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<tbody>
<tr>
<td>2015-2016</td>
<td>1,067</td>
<td>1,048</td>
<td>1,661</td>
<td>923</td>
</tr>
<tr>
<td>2016-2017</td>
<td>954</td>
<td>1,300</td>
<td>1,048</td>
<td>946</td>
</tr>
<tr>
<td>2017-2018</td>
<td>1,444</td>
<td>1,309</td>
<td></td>
<td>778</td>
</tr>
<tr>
<td>2018-2019</td>
<td></td>
<td>1,451</td>
<td></td>
<td>696</td>
</tr>
<tr>
<td>2019-2020</td>
<td></td>
<td></td>
<td>1,053</td>
<td></td>
</tr>
<tr>
<td>2020-2021</td>
<td></td>
<td></td>
<td>1,058</td>
<td></td>
</tr>
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Source: California Board of Registered Nursing Annual Schools Report, 2017-2018
Other sources of RNs to the Inland Empire

- Migration from other regions to the Inland Empire:
  - 863 per year 2016-2018
- Endorsements from other states: 213 in 2017

- Migration out of the Inland Empire: 888 per year 2016-2018
- Lapsed licenses: 1,121 per year 2016-2018

- Conclusion: Not enough new graduates to keep up with population growth
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?

Inland Empire faces a shortage

Rapid population growth projected ➔ workforce needs to keep up

Younger RN workforce, but not enough new graduates