



## **Commuting patterns of RNs in California**

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Commuting of registered nurses (RNs) has important implications for nursing shortages. A county or region might have a large number of resident RNs, but if many of those RNs work in a different county or region, employers in the region of residence might perceive a shortage. California's counties are large, compared with counties in many other states, so inter-county commuting may not be an important phenomenon. However, if many nurses cross county lines when they commute, inferences about county and regional RN shortages may not accurately represent labor market conditions. This brief report provides information on inter-county commuting, based on a survey of California RNs conducted in 2006.

The 2006 Survey of Registered Nurses, conducted for the Board of Registered Nursing by the University of California, asked nurses to report the city, county, and state in which their primary nursing jobs were located. Of the 5,066 registered nurses who responded to the survey 3,425 provided sufficient information to determine the county in which they held their primary nursing positions. The county of residence and county of employment were cross-tabulated. Although the survey data include weights to ensure that analyses are representative of California and regions of the state, this brief report could not use the weights because it examines data on a county-by-county basis. The weights were designed for regions of the state, and the weights for these cannot be disaggregated.

Table 1 presents the estimated percent of RNs who work in the county in which they reside, by county of residence. There were fewer than 8 respondents from some counties, which was not enough to estimate the share of nurses who work in the county. These are indicated by "n/a" in the table. Many of the counties with a small number of respondents are rural, and in these counties all or nearly all of the survey respondents reported working within the county. These data suggest that nurses residing in rural counties are less likely to work outside the county. Figure 1 presents these same data on a map of California. The red counties have fewer than 55 percent of resident RNs working in the county; orange counties have 55 to 69 percent of residents working in the county; yellow counties have 70 to 79 percent; light green counties have 80 to 89 percent; dark green counties have 90 to 95 percent; and blue counties have more than 95 percent of resident RNs working in the county.

The San Francisco Bay and Sacramento areas are home to many RNs who commute outside their counties. Fewer than 55 percent of RNs in Marin, San Mateo, Solano, Yolo, Sutter, El Dorado, and Placer counties work in the county in which they live. High shares of RNs work outside their county of residence in Contra Costa, Napa, and Santa Cruz counties as well. The Inland Empire of San Bernardino and Riverside counties also has a large share of RNs commuting to other counties.

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Table 2 presents residence and employment cross-tabulations for counties in which less than 55 percent of RNs work within their county of residence. Nurses who commute outside their county of residence usually work in a contiguous county. Nurses in the Sacramento region (Sutter, Yolo, El Dorado, and Placer counties) commute most often to Sacramento, although 58 percent of Sutter county residents commute to Yuba county. A similar pattern is observed in the San Francisco Bay Area, with RNs in San Mateo most often traveling to San Francisco or Santa Clara, and nurses in Solano most often traveling to Contra Costa. More than half of survey respondents who lived in San Benito county commuted to Santa Clara county for their jobs, and 40 percent of Madera county residents commuted to Fresno county.

Table 3 presents residence and employment cross-tabulations for counties in which 55 to 69 percent of RNs work within their county of residence. These counties are all in the San Francisco and Inland Empire regions. Table 4 provides similar data for counties in which 70 to 79 percent do not commute outside their county of residence. Table 5 presents data for counties with 80 to 89 percent living and working in the same county; many of these counties are in the Central Valley (Kings, San Joaquin, Fresno, Kern).

Tables 6 and 7 provide cross-tabulations for counties in which 90 to 95 percent (Table 6) and more than 95 percent (Table 7) of RNs do not commute outside their county of residence. These counties include populous urban centers (Sacramento, Santa Clara, San Diego, and Los Angeles) and comparatively independent counties with enough hospital employers to offer a large number of nursing jobs (Tulare, Shasta, Mendocino, Butte, Santa Barbara, Monterey, Mendocino, and Humboldt). Los Angeles has the largest share of residents who work in the county, at 98 percent.

Table 8 presents data that examines from where nurses who work in a county come. The percentages in the table are the share of RNs that work in the county who also live there. As seen in this table, fewer than half of nurses who work in San Francisco live in that county. Only half of the nurses who work in Madera county live in that county. Figure 2 presents these same data on a map of the state. Employers located in the San Francisco Bay, Sacramento, Northern San Joaquin Valley, and Los Angeles regions have higher shares of nurses commuting from outside counties than do many other regions of California.

The data presented here demonstrate that cross-county commuting is not symmetric. Some counties are “receivers” of commuting RNs – such as Los Angeles, Sacramento, Santa Clara, and San Francisco – while other counties are “senders” – such as Marin, Solano, San Benito, Santa Cruz, and the Inland Empire counties. Some “sending” counties themselves rely on RNs commuting from other counties to meet their own workforce needs. The “sending” counties may have RN-to-population ratios that understate the degree to which there is a shortage of RNs. Conversely, the RN-to-population ratios of “receiving” counties may overstate the degree of shortage. Shortage designations should consider commuting patterns and the availability of nurses regionally, to ensure that accurate designations are made.

**Table 1: Percent of RNs working within the county in which they reside, by county of residence, 2006**

County of residence	Percent working within county	County of residence	Percent working within county
Alameda	70.8%	Orange	80.4%
Alpine	n/a	Placer	45.5%
Amador	n/a	Plumas	n/a
Butte	92.8%	Riverside	64.0%
Calaveras	n/a	Sacramento	90.3%
Colusa	n/a	San Benito	37.5%
Contra Costa	65.3%	San Bernardino	69.5%
Del Norte	n/a	San Diego	97.3%
El Dorado	41.2%	San Francisco	82.7%
Fresno	86.4%	San Joaquin	84.2%
Glenn	n/a	San Luis Obispo	85.3%
Humboldt	98.0%	San Mateo	52.1%
Imperial	n/a	Santa Barbara	96.2%
Inyo	n/a	Santa Clara	90.9%
Kern	89.6%	Santa Cruz	61.3%
Kings	83.3%	Shasta	91.6%
Lake	85.0%	Sierra	n/a
Lassen	n/a	Siskiyou	78.6%
Los Angeles	98.9%	Solano	52.5%
Madera	53.3%	Sonoma	73.0%
Marin	49.1%	Stanislaus	n/a
Mariposa	n/a	Sutter	33.3%
Mendocino	92.3%	Tehama	75.0%
Merced	75.0%	Trinity	n/a
Modoc	n/a	Tulare	90.9%
Mono	n/a	Tuolumne	75.0%
Monterey	92.3%	Ventura	79.2%
Napa	62.5%	Yolo	52.0%
Nevada	77.1%	Yuba	n/a

**Table 2: Counties of employment, for counties in which less than 55% of resident RNs work within the county, 2006**

<b>County of residence</b>	<b>County of employment</b>	<b>Percent</b>
Sutter	Yuba	58.3%
	Sutter	33.3%
	Sacramento	8.3%
San Benito	Santa Clara	62.5%
	San Benito	37.5%
El Dorado	Sacramento	50.0%
	El Dorado	41.2%
	Placer	5.9%
	Santa Clara	2.9%
Placer	Sacramento	51.5%
	Placer	45.5%
	Santa Clara	1.5%
	Nevada	1.5%
Marin	Marin	49.1%
	San Francisco	32.1%
	Sonoma	7.6%
	Solano	7.6%
	Alameda	3.8%
Yolo	Yolo	52.0%
	Sacramento	32.0%
	Solano	12.0%
	Humboldt	4.0%
San Mateo	San Mateo	52.1%
	San Francisco	26.8%
	Santa Clara	19.0%
	Alameda	1.4%
	Monterey	0.7%
Solano	Solano	52.5%
	Contra Costa	16.4%
	Alameda	8.2%
	Napa	8.2%
	San Francisco	8.2%
	Sonoma	1.6%
	Sacramento	1.6%
	Santa Clara	1.6%
Madera	Madera	53.3%
	Fresno	40.0%
	Mariposa	6.7%

**Table 3: Counties of employment, for counties in which 55% to 69% of resident RNs work within the county, 2006**

<b>County of residence</b>	<b>County of employment</b>	<b>Percent</b>
Santa Cruz	Santa Cruz	61.3%
	Santa Clara	29.0%
	San Mateo	3.2%
	Monterey	6.5%
Napa	Napa	62.5%
	Solano	25.0%
	Alameda	4.2%
	San Francisco	4.2%
	Sonoma	4.2%
Riverside	Riverside	64.0%
	San Bernardino	15.7%
	Los Angeles	8.2%
	Orange	7.5%
	San Diego	4.8%
Contra Costa	Contra Costa	65.3%
	Alameda	25.5%
	San Francisco	6.1%
	Solano	2.0%
	Santa Clara	1.0%
San Bernardino	San Bernardino	69.5%
	Los Angeles	20.1%
	Riverside	7.1%
	Orange	3.3%

**Table 4: Counties of employment, for counties in which 70% to 79% of resident RNs work within the county, 2006**

<b>County of residence</b>	<b>County of employment</b>	<b>Percent</b>
Alameda	Alameda	70.8%
	San Francisco	11.4%
	Santa Clara	7.3%
	Contra Costa	5.0%
	San Mateo	3.2%
	Marin	0.9%
	San Joaquin	0.5%
	San Luis Obispo	0.5%
	Stanislaus	0.5%
Sonoma	Sonoma	73.0%
	San Francisco	6.4%
	Marin	15.9%
	Napa	1.6%
	Solano	1.6%
Tehama	Tehama	75.0%
	Butte	12.5%
	Shasta	12.5%
Tuolumne	Tuolumne	75.0%
	Stanislaus	25.0%
Merced	Merced	75.0%
	San Benito	12.5%
	Stanislaus	12.5%
Nevada	Nevada	77.1%
	Sacramento	8.6%
	Placer	8.6%
	San Francisco	2.9%
	Sutter	2.9%
Siskiyou	Siskiyou	78.6%
	Mariposa	7.1%
	Contra Costa	7.1%
	Shasta	7.1%
Ventura	Ventura	79.2%
	Los Angeles	14.6%
	Santa Barbara	6.3%

**Table 5: Counties of employment, for counties in which 80% to 89% of resident RNs work within the county, 2006**

<b>County of residence</b>	<b>County of employment</b>	<b>Percent</b>
Orange	Orange	80.4%
	Los Angeles	18.1%
	San Diego	0.7%
	Riverside	0.7%
San Francisco	San Francisco	82.7%
	San Mateo	9.1%
	Trinity	0.9%
	Alameda	2.7%
	Santa Clara	2.7%
	Contra Costa	0.9%
	Marin	0.9%
Kings	Kings	83.3%
	Tulare	8.3%
	Madera	8.3%
San Joaquin	San Joaquin	84.2%
	Alameda	3.5%
	Sacramento	5.3%
	San Francisco	3.5%
	Stanislaus	3.5%
Lake	Lake	85.0%
	Mendocino	5.0%
	Sonoma	5.0%
	Butte	5.0%
San Luis Obispo	San Luis Obispo	85.3%
	Santa Barbara	8.4%
	Monterey	3.2%
	Stanislaus	1.1%
	Fresno	1.1%
	Kern	1.1%
Fresno	Fresno	86.4%
	Madera	10.6%
	Kern	1.5%
	Santa Clara	1.5%
Kern	Kern	89.6%
	Los Angeles	8.3%
	Kings	2.1%

**Table 6: Counties of employment, for counties in which 90% to 95% of resident RNs work within the county, 2006**

<b>County of residence</b>	<b>County of employment</b>	<b>Percent</b>
Sacramento	Sacramento	90.3%
	Placer	3.1%
	Yolo	1.5%
	Santa Clara	0.5%
	San Joaquin	1.0%
	El Dorado	1.0%
	Stanislaus	0.5%
	Alameda	0.5%
	Amador	0.5%
	Solano	0.5%
	San Francisco	0.5%
Santa Clara	Santa Clara	90.9%
	San Mateo	3.5%
	Monterey	0.9%
	Alameda	2.2%
	San Francisco	1.7%
	Contra Costa	0.4%
	Santa Cruz	0.4%
Tulare	Tulare	90.9%
	Fresno	3.0%
	Kings	3.0%
	El Dorado	3.0%
Shasta	Shasta	91.6%
	Tehama	5.6%
	Sacramento	2.8%
Monterey	Monterey	92.3%
	Santa Clara	4.8%
	Sacramento	1.0%
	San Benito	1.0%
	Santa Cruz	1.0%
Mendocino	Mendocino	92.3%
	Lake	7.7%
Butte	Butte	92.8%
	Shasta	1.5%
	Sacramento	1.5%
	Glenn	1.5%
	San Mateo	1.5%
	Sutter	1.5%



**Table 7: Counties of employment, for counties in which 95% or more of resident RNs work within the county, 2006**

<b>County of residence</b>	<b>County of employment</b>	<b>Percent</b>
Santa Barbara	Santa Barbara	96.2%
	San Luis Obispo	2.9%
	Ventura	1.0%
San Diego	San Diego	97.3%
	Orange	0.8%
	Alameda	0.4%
	Alpine	0.4%
	Imperial	0.4%
	San Bernardino	0.4%
	San Francisco	0.4%
Humboldt	Humboldt	98.0%
	Butte	2.0%
Los Angeles	Los Angeles	98.1%
	Orange	0.8%
	San Bernardino	0.8%
	Ventura	0.3%

**Table 8: Percent of RNs working within the county in which they reside, by county of employment, 2006**

County of employment	Percent living within county	County of employment	Percent living within county
Alameda	74.2%	Orange	82.8%
Alpine	n/a	Placer	73.2%
Amador	n/a	Plumas	n/a
Butte	90.1%	Riverside	87.9%
Calaveras	n/a	Sacramento	71.0%
Colusa	n/a	San Benito	n/a
Contra Costa	71.9%	San Bernardino	79.3%
Del Norte	n/a	San Diego	95.2%
El Dorado	82.4%	San Francisco	46.0%
Fresno	86.4%	San Joaquin	88.9%
Glenn	n/a	San Luis Obispo	95.3%
Humboldt	97.9%	San Mateo	73.3%
Imperial	n/a	Santa Barbara	89.3%
Inyo	100.0%	Santa Clara	73.9%
Kern	93.5%	Santa Cruz	90.5%
Kings	n/a	Shasta	95.6%
Lake	89.5%	Sierra	n/a
Lassen	n/a	Siskiyou	100.0%
Los Angeles	81.1%	Solano	65.3%
Madera	50.0%	Sonoma	85.2%
Marin	65.0%	Stanislaus	83.3%
Mariposa	n/a	Sutter	n/a
Mendocino	96.0%	Tehama	60.0%
Merced	n/a	Trinity	n/a
Modoc	n/a	Tulare	96.8%
Mono	n/a	Tuolumne	n/a
Monterey	91.4%	Ventura	95.0%
Napa	68.2%	Yolo	68.4%
Nevada	90.0%	Yuba	n/a

**Figure 1: Percent of RNs working in the county in which they reside, 2006**



