Supplement to the Initial Report on Health Impact Assessment and Competitive Effect Analysis of Proposed Acquisition of St. Elizabeth Care Center by the Ensign Group, Inc.

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Submitted to:
The Office of the California Attorney General

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I. Background and Assignment

On July 10, 2026, I submitted a report assessing the proposed acquisition of St. Elizabeth Care Center ("St. Elizabeth") by the Ensign Group, Inc. ("Ensign"). In that report, I examined, among other things, reported nursing staffing using annual Centers for Medicare & Medicaid Services ("CMS") Skilled Nursing Facility ("SNF") Cost Report data. I found no systematic reduction in total nursing hours following the California Ensign acquisitions that I analyzed, but I found evidence that Ensign substituted registered nurse ("RN") and licensed practical/vocational nurse ("LPN/LVN") hours with nursing assistant or nursing aide ("NA") hours (see **Section VIII.B.ii** of my initial report). That staffing analysis did not adjust reported nursing hours for resident acuity or compare staffing with acuity-based benchmarks.

The Office of the California Attorney General ("OCAG") subsequently identified recent reports by media organizations Hunterbrook and Muddy Waters that allege that Ensign focuses on residents with higher reported acuity, while staffing SNFs below levels appropriate for those residents' reported acuity. These alleged practices result in an alleged "staffing gap" at Ensign SNFs.[1] OCAG asked Ensign to explain whether the alleged practices occur at its California SNFs and provide assurances or corrective plans for St. Elizabeth. Ensign responded on August 7, 2026, by disputing the publications' allegations and asserting that its California operations do not engage in the alleged practices. Ensign also stated that St. Elizabeth would comply with California staffing requirements and resident acuity needs, accurately report staffing and quality data to CMS, maintain a licensed administrator, provide sufficient food and supplies, and ensure that related-party arrangements are at fair market value and do not compromise resident care.[2] OCAG asked me to provide a supplemental health care impact statement to assess whether Ensign's reported staffing levels are adequate relative to the measured acuity or nursing care needs of its residents.

This supplemental report performs two analyses. First, I compare staffing at California Ensign and non-Ensign SNFs using two acuity-based staffing benchmarks. Second, I examine whether case-mix adjusted staffing changes after Ensign acquires SNFs. I do not evaluate the other allegations in the reports by Hunterbrook and Muddy Waters, such as those related to therapy billing, administrator licensing, food and supplies, or related-party payments.[3]

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1 "Ensign: The Nursing Home Empire Built on Fatal Neglect," *Hunterbrook Media*, June 8, 2026 (stating that "after Ensign acquires a facility, we found, nursing hours fall" and alleging violations of state minimum staffing laws and manipulation of self-reported quality metrics), available at https://hntrbrk.com/investigations/ensign; "Ensign: Deceiving the Government at Estimated ~20% of Facilities," *Muddy Waters Research,* June 11, 2026, pp. 25-27 (stating that Ensign "staffs below … the national average despite serving higher-acuity residents"), available at https://muddywatersresearch.com/wp-content/uploads/2026/06/MW_ENSG_20260611.pdf.

2 Sale of St. Elizabeth Care Center – Response to July 31, 2026 Letter, August 7, 2026, p. 9 (stating that Ensign-affiliated operations in California "do not engage in the practices described in the [Hunterbrook and Muddy Waters] publications" and that St. Elizabeth will "staff the facility in accordance with California nurse-to-patient and direct care staffing ratio requirements and the acuity needs of its residents").

3 "Ensign: The Nursing Home Empire Built on Fatal Neglect," *Hunterbrook Media,* June 8, 2026 (reporting allegations concerning therapy billing, food and supplies, and related-party payments, including a former therapist's statement that "The 30 [minutes] would be erased and somebody would put in a 70"); "Ensign: Deceiving the Government at Estimated ~20% of Facilities," *Muddy Waters Research*, June 11, 2026, pp. 5-24 (alleging that an "unlicensed operator runs the building day-to-day" while a licensed administrator is not substantively involved in day-to-day management), available at https://muddywatersresearch.com/wp-content/uploads/2026/06/MW_ENSG_20260611.pdf.

II. Summary of Additional Findings

First, I find that California Ensign SNFs report total nursing hours per resident day ("HPRD") near or above the CMS expected staffing benchmark, which is based on U.S. average staffing levels, adjusted for resident acuity. However, relative to measured resident acuity, staffing is lower at Ensign California SNFs than at non-Ensign California SNFs under both benchmarks I evaluated.

Second, case-mix adjusted total nursing staffing shows a downward trend at Ensign-acquired SNFs before acquisition and remains lower following acquisition (albeit generally not statistically significant), with a similar pattern for LPN/LVN staffing.

III. Additional Analyses of Staffing Relative to Resident Acuity

A. Staffing and Case-Mix Measures

I evaluate four measures of staffing in this report.

The first is reported HPRD. A value of 4.0 total nursing HPRD means that a facility reported an average of four nursing hours per resident per day across the nursing staff included in the measure. Total nursing HPRD includes RN, LPN/LVN, and NA hours. Reported HPRD is determined using CMS's Payroll Based Journal ("PBJ"), through which nursing homes submit staffing hours based on payroll and other verifiable and auditable records.[4]

The second is staffing gaps relative to the CMS expected staffing benchmark. This measure is calculated as the CMS expected staffing benchmark minus reported HPRD. Positive values reflect HPRD that are below expected staffing, while negative values reflect HPRD that are above expected staffing. The CMS expected staffing benchmark is calculated by adjusting national average staffing up or down based on the facility's resident case mix, which reflects the mix of residents with different nursing care needs, as measured by its Nursing Case-Mix Index ("CMI"). CMS calculates the Nursing CMI using resident assessment information and includes residents regardless of payer when sufficient information is available to measure their nursing needs.[5] A negative value means that reported staffing exceeds the CMS expected staffing benchmark; however, this does not necessarily mean that the SNF is adequately staffed.

The third is staffing gaps relative to the benchmark developed by Harrington et al. (2025) in a peer-reviewed study published in the Journal of the American Geriatrics Society. Harrington et al.

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4 "Payroll Based Journal Methodology," *CMS,* October 30, 2024, available at https://data.cms.gov/resources/payroll-based-journal-methodology-0.

5 Beginning with staffing measured in 2024 Q1, CMS calculates the Nursing CMI using resident assignments to 25 nursing case-mix groups under the Patient-Driven Payment Model ("PDPM"). CMS derives those assignments from Minimum Data Set ("MDS") resident assessments. Residents with insufficient information to assign a nursing case-mix group are excluded from the calculation. Before 2024 Q1, CMS used a different resident classification methodology to adjust staffing for resident case mix. "Updates to Nursing Home Care Compare and Quality Measures," *CMS,* September 20, 2023, p. 2, available at https://www.cms.gov/files/document/qso-23-21-nh.pdf; "Design for Care Compare Nursing Home Five-Star Quality Rating System: Technical Users' Guide," *CMS,* July 2026, p. 12, available at https://www.cms.gov/medicare/provider-enrollment-and-certification/certificationandcomplianc/downloads/usersguide.pdf.

estimate the relationship between CMI and HPRD.[6,7] It then uses that estimated relationship to determine the expected staffing for each SNF. The staffing gap is then calculated as the benchmark developed by Harrington et al. minus reported HPRD. Positive numbers reflect staffing below expected levels, and negative numbers reflect staffing above expected levels.[8]

The second and third measures are both acuity-based staffing benchmarks but differ in the methodology that they use to calculate expected staffing of each SNF. I use both measures to confirm that those differences in methodology do not affect the results of my analysis.

The fourth is CMS' "case-mix adjusted HPRD" measure. This measure adjusts reported HPRD for differences in CMI, allowing staffing levels to be compared across SNFs with differences in resident CMI. Lower case-mix adjusted HPRD indicates lower reported staffing relative to the nursing needs associated with the SNF's CMI.[9] I use this measure instead of the Harrington et al. benchmark in **Section III.C** because the analysis in that section requires a measure over a longer historical period. Like the second and third measures, it can be used to determine if a SNF's staffing is higher or lower than expected based on its patients' CMI.

B. Descriptive Benchmark Comparisons

I compare staffing gaps between Ensign SNFs and non-Ensign SNFs in California in 2024-2025 using the two acuity-based benchmarks described in **Section III.A**.[10,11] The sample contains 70 Ensign SNFs in each year, 1,086 non-Ensign SNFs in 2024, and 1,083 non-Ensign SNFs in 2025.

Table 1 reports these staffing gaps for total, RN, and NA staffing; it does not report CMS case-mix adjusted HPRD.

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6 Harrington et al., "Nursing Home Guide to Adjusting Nurse Staffing for Resident Case-Mix," *Journal of the American Geriatrics Society,* 73(7), 2025, pp. 2139-2141. The study uses 0.62 and 3.84, the minimum and maximum Nursing CMI values among the 25 PDPM nursing groups, as the endpoints for relating CMI to expected RN, NA, and total nursing HPRD, with separate formulas for each staff type.

7 Harrington et al. estimate this relationship separately for RN, NA, and total nursing HPRD. Harrington et al. do not provide a formula for LPN/LVN HPRD.

8 Figures 1A and 1B present the 2024 average staffing gap calculations for the Harrington and CMS benchmarks, respectively.

9 "Design for Care Compare Nursing Home Five-Star Quality Rating System: Technical Users' Guide," *CMS,* July 2026, pp. 11-12, available at https://www.cms.gov/CertificationandComplianc/Downloads/usersguide.pdf.

10 I exclude SNFs acquired by Ensign during these years to avoid treating newly acquired SNFs as established Ensign SNFs.

11 For this analysis, I constructed a quarterly panel dataset from CMS Nursing Home Care Compare Provider Information files covering 2024 Q1 through 2025 Q4. The CMS data provide reported HPRD, Nursing CMI, and CMS case-mix HPRD. I applied the Harrington et al. (2025) formulas to each SNF's Nursing CMI to calculate the Harrington expected staffing benchmark.

Table 1
Average Staffing Gap at California Nursing Homes, 2024-2025

Benchmark	Staff Type	Ensign	Non-Ensign	Difference
CMS Expected Staffing	Total	-0.09	-0.29	0.20
	RN	0.22	0.10	0.12
	NA	0.02	-0.11	0.13
Harrington et al. (2025)	Total	0.81	0.60	0.21
	RN	0.55	0.42	0.13
	NA	0.77	0.63	0.14

Notes:

[1] Values are in HPRD and equal expected HPRD minus reported HPRD. A positive value indicates a staffing shortfall relative to the benchmark.

[2] The Difference column equals the Ensign gap minus the non-Ensign gap. A positive value indicates that Ensign SNFs had less staffing than non-Ensign SNFs.

[3] Values are unweighted means across facility-quarter observations.

[4] Nursing homes acquired by Ensign in 2024 or 2025 are excluded.

[5] CMS refers to its benchmark as "case-mix HPRD"; I refer to it as the "CMS expected staffing benchmark."

Source: CMS SNF Medicare Compare.

Both benchmarks suggest that Ensign's California SNFs have lower staffing relative to measured resident acuity than non-Ensign SNFs in California. In 2024-2025, Ensign SNFs reported total staffing averaging 0.09 HPRD (about 5 minutes per resident per day) above the CMS expected staffing benchmark, compared with 0.29 HPRD (about 17 minutes per resident per day) above the benchmark at non-Ensign SNFs. Relative to their respective CMS expected staffing benchmarks, Ensign SNFs therefore reported 0.20 HPRD (12 minutes per resident per day) less staffing than non-Ensign SNFs. In other words, while Ensign's California SNFs are staffed at acuity adjusted levels above the national average (which is what is used to calculate the CMS expected staffing benchmark), they are staffed at levels below that of other SNFs in California.[12]

Ensign SNFs also had a larger RN shortfall relative to the CMS benchmark: 0.22 HPRD (about 13 minutes per resident per day) compared with 0.10 HPRD (6 minutes per resident per day) at non-Ensign SNFs. Under the Harrington benchmark, both groups fell below the benchmark for total, RN, and NA staffing, but the Ensign gaps were larger by approximately 0.13 to 0.21 HPRD (about 8 to 13 minutes per resident per day).

Figures 2 through 7 present staffing gaps by quarter from 2024 Q1 to 2025 Q4 for Ensign and non-Ensign SNFs. The mean, median, first quartile, and third quartile of staffing gaps are also reported. In each quarter, the mean staffing gap at Ensign SNFs was larger than at non-Ensign SNFs for total, RN, and NA staffing under both benchmarks. **Figures 2A through 7A** are based on benchmarks in Harrington et al. (2025) and **Figures 2B through 7B** are based on CMS benchmarks.

[12] Many states do not establish their own SNF staffing requirements and therefore default to federal requirements. California sets its own SNF staffing requirements, which are tied as the fourth highest in the country. *See* "State-Policies-Related-to-Nursing-Facility-Staffing.xlsx," *Medicaid and CHIP Payment and Access Commission,* March 2022, available at https://www.macpac.gov/publication/state-policies-related-to-nursing-facility-staffing/.

The results indicate that Ensign SNFs report lower staffing relative to measured resident acuity than non-Ensign SNFs, with the clearest difference for RN staffing.

The benchmark analysis is not designed to determine compliance with California's minimum staffing law.[13]

C. Quarterly Historical Trends and Prior Acquisition Analysis

i. Data and CMS Methodology Change

I next constructed a quarterly panel dataset from CMS Nursing Home Care Compare Provider Information files covering 2017 Q4 through 2026 Q1. The panel contains one observation per SNF for each reported staffing quarter. There is no comparable observation for 2020 Q1 because CMS waived the PBJ submission requirement during that quarter and did not use Q1 data to calculate staffing measures or ratings.[14] There is no comparable staffing observation for 2023 Q4 because CMS froze staffing measures beginning in April 2024 while it implemented the new case-mix methodology.[15]

CMS changed the methodology it uses to adjust staffing for resident case mix beginning with staffing measured in 2024 Q1. Because the prior and new methods classify resident care needs differently, I do not interpret the change in the CMS expected staffing benchmark at that point as a change in resident acuity. **Figure 8B** shows this methodology break beginning in 2024 Q1.[16]

ii. Descriptive Trends

Figure 8A shows that reported HPRD is broadly similar at Ensign and non-Ensign SNFs over time.[17] However, this measure does not account for differences in resident case-mix across SNFs. **Figure 8B** shows the CMS expected staffing benchmark (CMS case-mix HPRD), which increases with a SNF's CMI. **Figure 8B** shows that CMS measures Ensign SNFs as having resident populations associated with greater nursing resource needs.

Both groups experienced an increase in reported HPRD during 2020, followed by a decline in 2021. The 2020 increase in HPRD may partly reflect the decline in nursing home census at the onset of

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[13] California law generally requires freestanding SNFs to provide at least 3.5 direct care service hours per patient day, including at least 2.4 hours per patient day provided by certified NAs, subject to statutory exclusions and waivers. The statute describes these requirements as minimum standards and directs SNFs to schedule additional staff as needed based on resident needs. Cal. Health & Safety Code § 1276.65(c)(1)(B)-(C), (d), available at https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=1276.65.

[14] QSO-20-34-NH, *CMS,* June 25, 2020, pp. 1-2, available at https://www.cms.gov/files/document/qso-20-34-nh.pdf.

[15] QSO-24-14-NH, *CMS,* July 1, 2024, p.2, available at https://www.cms.gov/files/document/qso-24-14-nh.pdf.

[16] The event study specification includes measurement quarter fixed effects, which account for changes common to SNFs in a given quarter. QSO-23-21-NH, *CMS,* September 20, 2023, p. 2, available at https://www.cms.gov/files/document/qso-23-21-nh.pdf.

[17] The Ensign facilities included in **Figures 8A**, **8B**, **8C** are those acquired between 2019 and 2023. Similar to my analysis of Ensign's past acquisitions in my original report, Valley of the Moon is excluded, as it is a hospital-based SNF.

the pandemic because HPRD divides staffing hours by resident days.[18] The subsequent decline in HPRD in 2021 is consistent with broader staffing strain; the U.S. Bureau of Labor Statistics reports that nursing and residential care facilities continued to lose employment during 2021.[19] The sharp increase in the CMS expected staffing benchmark beginning in 2024 Q1 reflects the 2024 CMS case-mix methodology change and should not be interpreted as a discrete increase in resident acuity. Adjusted HPRD remains relatively stable among non-Ensign SNFs around this transition. That stability suggests that the widening Ensign/non-Ensign difference is not solely an artifact of the methodology change. I nonetheless interpret comparisons across this methodology change with caution because CMS changed the case-mix methodology.

Figure 8C shows the reported case-mix adjusted HPRD measure. As a reminder, lower adjusted HPRD indicates fewer reported staffing hours relative to the staffing associated with the facility's measured case mix. Ensign SNFs have lower adjusted total HPRD than non-Ensign SNFs over most of the period, and the difference becomes larger beginning in 2024. Because the case-mix methodology changes in 2024, the level shift should be interpreted with caution. The continuing Ensign/non-Ensign difference after the 2024 methodology change, however, is consistent with the benchmark comparisons described in **Section III.B**.

iii. Event Study Methodology

I next conducted an event study regression approach that measures changes in staffing before and after Ensign acquisition. Specifically, the event study examines case-mix adjusted staffing HPRD by quarter relative to facility-specific acquisition dates provided by Ensign. Because the staffing measures cover a full calendar quarter, the quarter containing the acquisition date can include days before and after the acquisition. I therefore interpret estimates near quarter 0 with caution.

I use the following difference-in-differences ("DID") event study regression specification for retrospective analyses of Ensign's prior acquisitions:

$$Y_{it} = \alpha_i + \tau_t + \sum_l \beta^l D_{it}^l + \epsilon_{it},$$

where for each facility i in measurement quarter t, let Y_{it} be the metric of interest, α_i be the facility-specific fixed effect, τ_t be the measurement quarter fixed effect, D_{it}^l be an indicator that is equal to one if and only if facility i is l quarters from being acquired in quarter t. The coefficients on D_{it}^l are the effects of the acquisitions.

In practical terms, the DID specification compares the change in case-mix adjusted staffing at Ensign SNFs before and after the acquisition date with the change over the same quarters at comparison SNFs. As in **Section VIII.B** of my initial report, the comparison SNFs are non-Ensign California SNFs in counties with no more than one Ensign facility. Facility fixed effects account for time-invariant differences across SNFs, and measurement quarter fixed effects account for shocks common to SNFs in a quarter. The regression is weighted by number of beds, and the standard errors are clustered at the facility level.

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[18] Brazier et al., "Examination of Staffing Shortages at US Nursing Homes During the COVID-19 Pandemic," *JAMA Network Open*, 6(7), 2023.

[19] "Employment Recovery Continues in 2021, with Some Industries Reaching or Exceeding Their Prepandemic Employment Levels," *U.S. Bureau of Labor Statistics,* May 26, 2022, available at https://www.bls.gov/opub/mlr/2022/article/employment-recovery-continues-in-2021.htm.

The regressions use the natural logarithm of case-mix adjusted HPRD, a transformation that allows the coefficients to be interpreted approximately as percentage changes. I therefore interpret the coefficients in **Figures 9A** through **9D** as approximate percentage changes relative to the pre-acquisition reference period, after accounting for changes over the same quarters at comparison SNFs. For example, a plotted estimate of -5 corresponds to approximately 5 percent lower case-mix adjusted HPRD. The dotted lines in **Figures 9A** through **9D** show 95 percent confidence intervals; when an interval includes 0, the estimate is not statistically distinguishable from 0 at the 5 percent level.

iv. Event Study Findings

For RN staffing, the estimates are relatively flat after acquisition, and the confidence intervals are wide and overlap with 0, indicating a general lack of statistical significance at the 5 percent level. Although the estimates are negative in several post-acquisition quarters, there is no clear or persistent pattern following acquisition. The NA estimates are negative during much of the post-acquisition period, but they fluctuate and are imprecisely estimated. Taken together, the figures do not provide strong evidence of a systematic post-acquisition change in either RN or NA staffing.

In contrast, the LPN/LVN estimates show a more consistent pattern. In the later post-acquisition quarters, the estimates indicate approximately 5 to 7 percent lower case-mix adjusted HPRD relative to the pre-acquisition reference period, after accounting for changes over the same quarters at comparison SNFs. The confidence intervals remain wide and include zero, or come close to zero, in most quarters.

The total nursing staffing estimates show a similar pattern, but the estimated differences are smaller. In the later post-acquisition quarters, the estimates indicate approximately 3 to 5 percent lower case-mix adjusted HPRD relative to the pre-acquisition reference period, after accounting for changes over the same quarters at comparison SNFs. The confidence intervals are narrower than those for LPN/LVN staffing, and several estimates in the third year after the acquisition date are statistically significant.

Overall, the event study estimates show a persistent negative post-acquisition pattern in total case-mix adjusted staffing, with a similar pattern in LPN/LVN staffing. However, the pre-acquisition coefficients for LPN/LVN staffing show a trend before the acquisition date even after the model accounts for facility and measurement quarter fixed effects. This pre-trend indicates that time-varying, facility-specific factors may also contribute to the decline. I therefore do not interpret the post-acquisition estimates as establishing that Ensign control caused the observed decline.

IV. Assessment of Modified Conditions

In light of my additional findings showing that Ensign SNFs are generally staffed at lower levels than non-Ensign SNFs (when adjusting for acuity), OCAG may want to add conditions directed specifically at staffing relative to resident acuity and the mix of nursing staff, together with post-transaction monitoring.

- **Require St. Elizabeth to maintain adequate staffing levels**

  There is a risk that staffing at St. Elizabeth could decline following the proposed acquisition. My analysis of CMS data found that Ensign-acquired SNFs had some reduction in case-mix adjusted total and LPN/LVN staffing relative to the pre-control reference period. The analysis

does not show a clear or persistent post-control pattern for RN or NA staffing, and the pre-control trend limits a causal interpretation of the estimated decline. My initial report separately found evidence that Ensign shifted nursing hours from RNs and LPNs/LVNs toward NAs after prior California acquisitions.

OCAG may therefore want to consider requiring St. Elizabeth to maintain nursing staffing levels sufficient to meet the needs of its resident population, taking into account resident acuity.

For example, OCAG could require St. Elizabeth to maintain total nursing hours per resident day and licensed nurse (RN and LPN/LVN) staffing at or above specified benchmarks. Such benchmarks could be based on the CMS expected staffing benchmark for Ensign, the staffing levels implied by Harrington et al. (2025), or some alternative measure.

- **Monitor staffing levels following the acquisition**

  OCAG may also want to monitor whether staffing at St. Elizabeth deteriorates following the acquisition.

  For example, OCAG could require Ensign to periodically report St. Elizabeth's total nursing hours per resident day and staffing hours by nursing type, both as reported and adjusted for resident case mix. OCAG could compare these measures with the specified benchmarks and applicable California minimum staffing requirements.

  OCAG could require corrective action if St. Elizabeth's staffing falls materially below the benchmark for a specified period, absent a documented justification. If OCAG identifies a discrepancy or reason to question St. Elizabeth's reported staffing measures, it could also require St. Elizabeth to reconcile reported staffing hours with payroll and timekeeping records and correct inaccurate submissions.

  Such a condition could also require St. Elizabeth to increase staffing if its measured resident acuity increases.

- **Limit reductions in staffing expenditures resulting from related-party payments**

  As discussed in **Section IX** of my initial report, the proposed transaction would require St. Elizabeth to make payments to Ensign-affiliated entities for administrative services. There is a risk that these payments could reduce the funds available to St. Elizabeth for nursing staff and other patient care expenditures.

  This risk reinforces the importance of the safeguards concerning the rental agreement and services agreement that I discussed in my initial report.

  OCAG may therefore want to consider prohibiting Ensign from reducing St. Elizabeth's staffing or staffing expenditures to fund increased payments to affiliated entities. In addition, OCAG could require St. Elizabeth to report nursing labor expenditures, related-party payments, and staffing levels periodically so that OCAG can assess whether changes in related-party payments coincide with changes in staffing or staffing expenditures.

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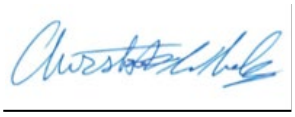


Date:

September 1, 2026

V. Appendix

Figure 1A
Average Nursing Home Acuity and Staffing
California, 2024
Based on Benchmark by Harrington et al. (2025)

	Variable	Ensign	Non-Ensign
	Case-Mix Index	1.48	1.44
	Total Nursing Staff:		
[i]	Expected HPRD per Harrington et al. (2025)	5.06	4.96
[ii]	Reported HPRD	4.20	4.32
	Staffing Gap = [i] - [ii]	0.86	0.64
	RN Staff:		
[iii]	Expected HPRD per Harrington et al. (2025)	1.05	1.03
[iv]	Reported HPRD	0.48	0.59
	Staffing Gap = [iii] - [iv]	0.58	0.44
	NA Staff:		
[v]	Expected HPRD per Harrington et al. (2025)	3.24	3.20
[vi]	Reported HPRD	2.44	2.54
	Staffing Gap = [v] - [vi]	0.80	0.66

Notes:

[1] HPRD is hours per resident day. Total nursing HPRD includes RN, LPN/LVN, and NA staffing.

[2] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample and 1,086 non-Ensign SNFs.

[3] Harrington et al. (2025) do not provide a formula for LPN/LVN HPRD.

[4] Positive staffing gap values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.

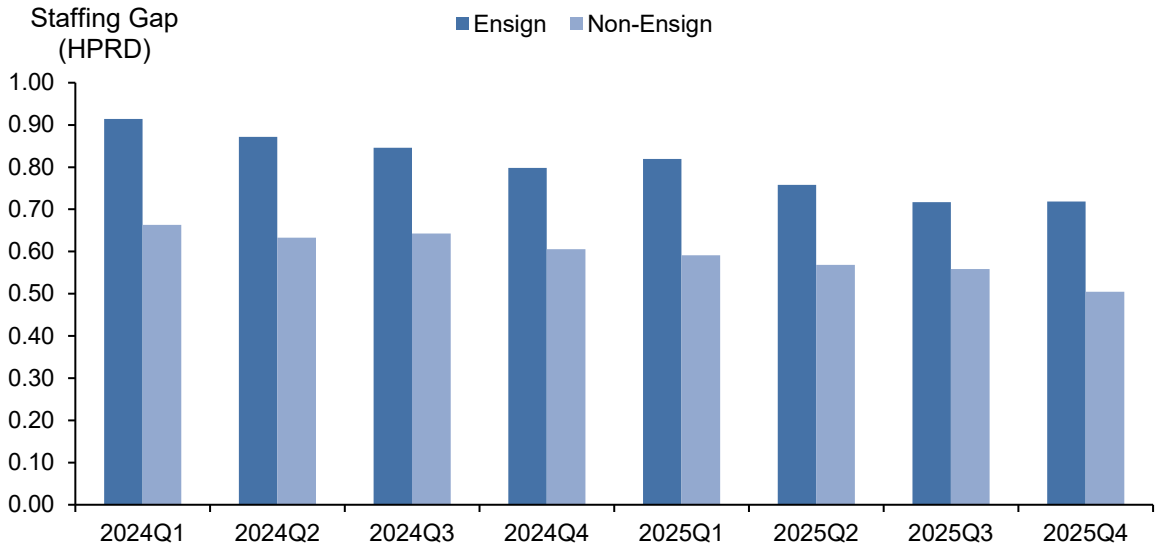
Source: CMS SNF Medicare Compare.

Figure 1B
Average Nursing Home Acuity and Staffing
California, 2024
Based on CMS Benchmark

	Variable	Ensign	Non-Ensign
	Case-Mix Index	1.48	1.44
	Total Nursing Staff:		
[i]	CMI HPRD	4.16	4.06
[ii]	Reported HPRD	4.20	4.32
	Staffing Gap = [i] - [ii]	-0.04	-0.26
	RN Staff:		
[iii]	CMI HPRD	0.72	0.71
[iv]	Reported HPRD	0.48	0.59
	Staffing Gap = [iii] - [iv]	0.25	0.11
	NA Staff:		
[v]	CMI HPRD	2.49	2.43
[vi]	Reported HPRD	2.44	2.54
	Staffing Gap = [v] - [vi]	0.05	-0.11

Notes:
[1] HPRD is hours per resident day.
[2] Case-Mix Index (CMI) HPRD is a staffing benchmark, calculated by the Centers for Medicare & Medicaid Services, that scales national average staffing up or down based on the nursing home's residents' acuity. Case-mix HPRD is the staffing a nursing home would be expected to have, given its residents' acuity, if it staffed like the average U.S. nursing home.
[3] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample and 1,086 non-Ensign SNFs.
[4] Positive staffing gap values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
Source: CMS SNF Medicare Compare.

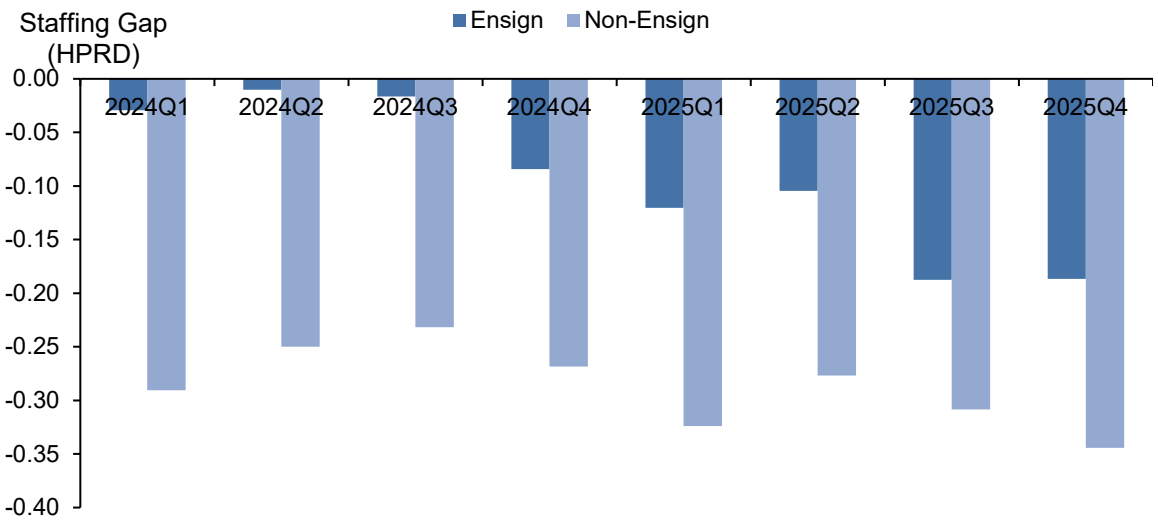
Figure 2A
Average Total Nursing Staffing Gap at California Nursing Homes Based on Benchmark by Harrington et al. (2025)



Notes:
[1] The staffing gap is for total nursing staff and is calculated as the HPRD that the Harrington et al. (2025) formula predicts given the nursing home's case-mix index, minus its reported HPRD. Positive staffing gap values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] The quarter corresponds to when staffing levels were measured, rather than when the data were published. Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample.

Source: CMS SNF Medicare Compare.

Figure 2B
Average Total Nursing Staffing Gap per Resident Day at California Nursing Homes Based on CMS Benchmark



Notes:
[1] Case-Mix Index (CMI) hours per resident day (HPRD is a staffing benchmark, calculated by the Centers for Medicare & Medicaid Services, that scales national average staffing up or down based on the nursing home's residents' acuity. Case-mix HPRD is the staffing a nursing home would be expected to have, given its residents' acuity, if it staffed like the average U.S. nursing home. The staffing gap is the CMI HPRD minus the reported HPRD. Positive staffing gap values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] Total nursing staffing includes RN, NA, and LPN/LVN staff.

Source: CMS SNF Medicare Compare.

Figure 3A
Total Nursing Staffing Gap for California Nursing Homes Based on Benchmark by Harrington et al. (2025)

	Ensign	Non-Ensign		
Period	Mean	First Quartile	Median	Third Quartile
2024Q1	0.91	0.45	0.88	1.14
2024Q2	0.87	0.47	0.85	1.13
2024Q3	0.85	0.44	0.84	1.10
2024Q4	0.80	0.42	0.83	1.08
2025Q1	0.82	0.42	0.82	1.08
2025Q2	0.76	0.40	0.79	1.06
2025Q3	0.72	0.38	0.79	1.04
2025Q4	0.72	0.11	0.74	1.02

Notes:
[1] Total nursing hours per resident day (HPRD) include RN, LPN/LVN, and NA staffing.

[2] The staffing gap is the HPRD predicted by the Harrington et al. (2025) formula, based on the nursing home's case-mix index, minus its reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.

[3] The period refers to the quarter in which staffing was measured, rather than the date the data were published.

[4] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample.

Source: CMS SNF Medicare Compare.

Figure 3B
Total Nursing Staffing Gap for California Nursing Homes Based on CMS Benchmark

	Ensign	Non-Ensign		
Period	Mean	First Quartile	Median	Third Quartile
2024Q1	-0.03	-0.62	-0.20	0.16
2024Q2	-0.01	-0.57	-0.15	0.20
2024Q3	-0.02	-0.56	-0.17	0.23
2024Q4	-0.08	-0.61	-0.18	0.19
2025Q1	-0.12	-0.65	-0.21	0.16
2025Q2	-0.10	-0.61	-0.18	0.19
2025Q3	-0.19	-0.64	-0.18	0.20
2025Q4	-0.19	-0.64	-0.20	0.07

Notes:

[1] Total nursing hours per resident day (HPRD) include RN, LPN/LVN, and NA staffing.

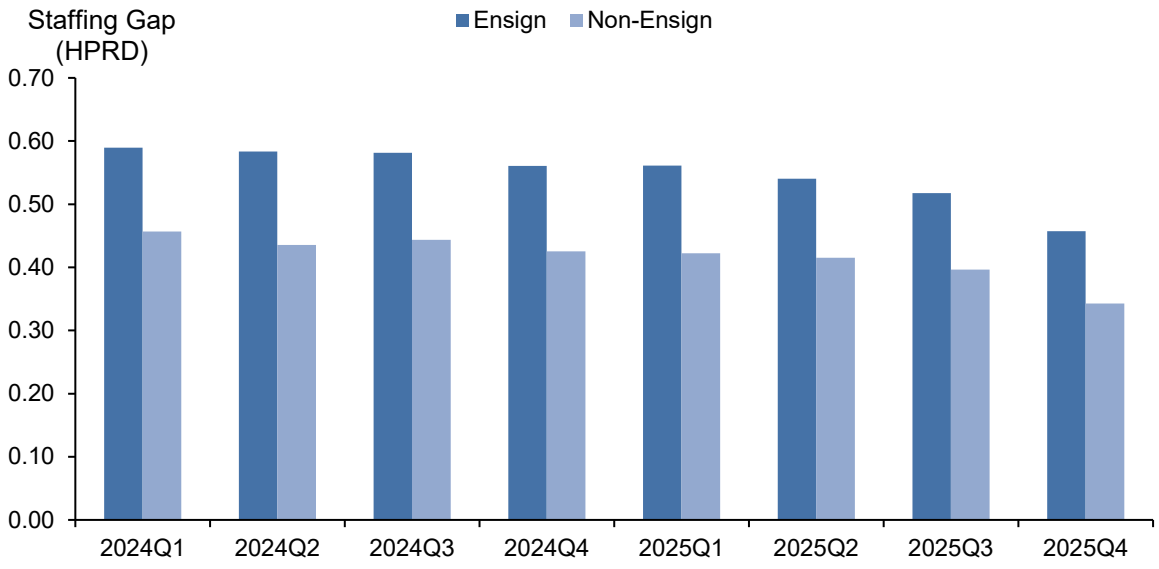
[2] Case-Mix Index (CMI) HPRD is a staffing benchmark, calculated by the Centers for Medicare & Medicaid Services, that scales national average staffing up or down based on the nursing home's residents' acuity. Case-mix HPRD is the staffing a nursing home would be expected to have, given its residents' acuity, if it staffed like the average U.S. nursing home. The staffing gap is the CMI HPRD minus the reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.

[3] The period refers to the quarter in which staffing was measured, rather than the date the data were published.

[4] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample.

Source: CMS SNF Medicare Compare.

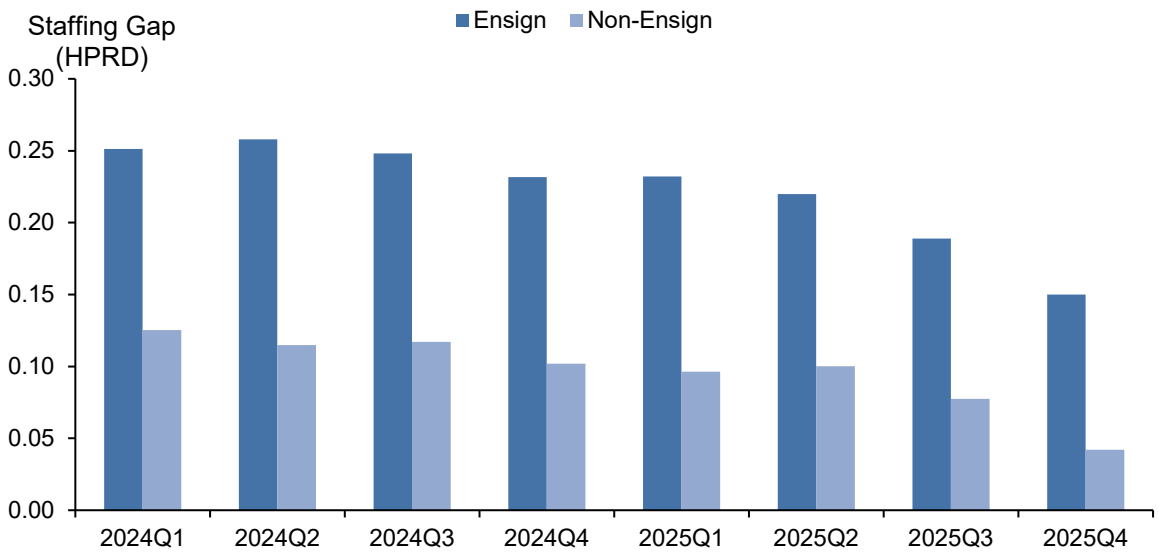
Figure 4A
Average RN Staffing Gap at California Nursing Homes
Based on Benchmark by Harrington et al. (2025)



Notes:
[1] The staffing gap is for RN nursing staff and is calculated as the HPRD that the Harrington et al. (2025) formula predicts given the nursing home's case-mix index, minus its reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] The quarter corresponds to when staffing levels were measured, rather than when the data were published.

Source: CMS SNF Medicare Compare.

Figure 4B
Average RN Staffing Gap per Resident Day at California Nursing Homes Based on CMS Benchmark



Notes:
[1] Case-Mix Index (CMI) hours per resident day (HPRD) is a staffing benchmark, calculated by the Centers for Medicare & Medicaid Services, that scales national average staffing up or down based on the nursing home's residents' acuity. Case-mix HPRD is the staffing a nursing home would be expected to have, given its residents' acuity, if it staffed like the average U.S. nursing home. The staffing gap is the CMI HPRD minus the reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.

Source: CMS SNF Medicare Compare.

Figure 5A
RN Staffing Gap for California Nursing Homes Based on Benchmark by Harrington et al. (2025)

	Ensign	Non-Ensign		
Period	Mean	First Quartile	Median	Third Quartile
2024Q1	0.59	0.39	0.58	0.71
2024Q2	0.58	0.38	0.58	0.70
2024Q3	0.58	0.37	0.57	0.70
2024Q4	0.56	0.35	0.56	0.69
2025Q1	0.56	0.35	0.57	0.69
2025Q2	0.54	0.33	0.55	0.68
2025Q3	0.52	0.31	0.55	0.67
2025Q4	0.46	0.14	0.50	0.65

Notes:
[1] The staffing gap is the HPRD predicted by the Harrington et al. (2025) formula, based on the nursing home's case-mix index, minus its reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] The period refers to the quarter in which staffing was measured, rather than the date the data were published.
[3] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample.

Source: CMS SNF Medicare Compare.

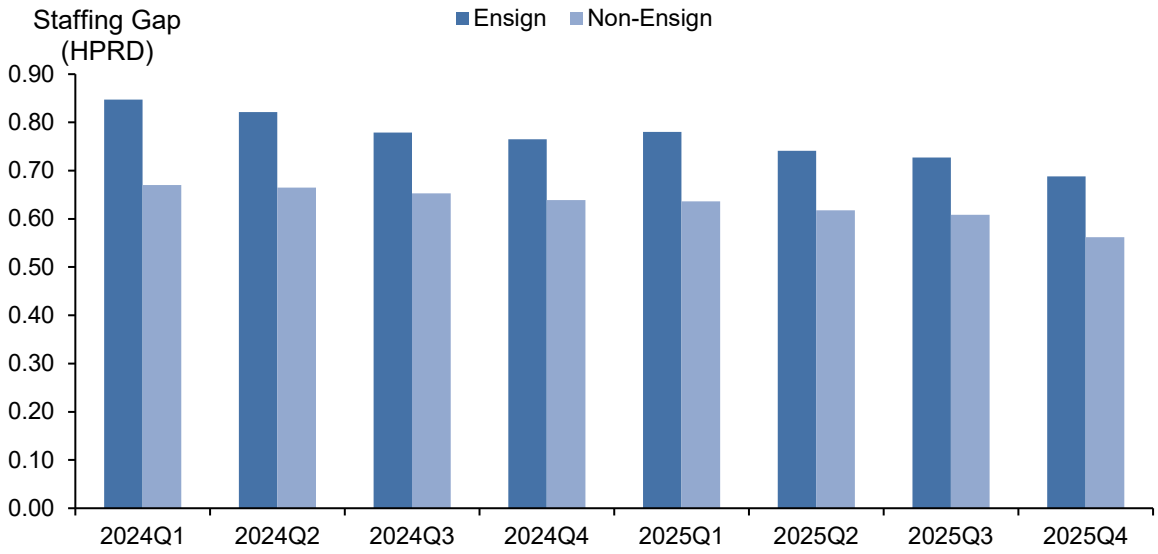
Figure 5B
RN Staffing Gap for California Nursing Homes Based on CMS Benchmark

	Ensign	Non-Ensign		
Period	Mean	First Quartile	Median	Third Quartile
2024Q1	0.25	0.06	0.25	0.37
2024Q2	0.26	0.06	0.25	0.38
2024Q3	0.25	0.04	0.24	0.36
2024Q4	0.23	0.03	0.24	0.36
2025Q1	0.23	0.03	0.24	0.36
2025Q2	0.22	0.02	0.24	0.36
2025Q3	0.19	0.00	0.23	0.34
2025Q4	0.15	0.00	0.17	0.31

Notes:
[1] Case-Mix Index (CMI) hours per resident day (HPRD) is a staffing benchmark, calculated by the Centers for Medicare & Medicaid Services, that scales national average staffing up or down based on the nursing home's residents' acuity. Case-mix HPRD is the staffing a nursing home would be expected to have, given its residents' acuity, if it staffed like the average U.S. nursing home. The staffing gap is the CMI HPRD minus the reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] The period refers to the quarter in which staffing was measured, rather than the date the data were published.
[3] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample.

Source: CMS SNF Medicare Compare.

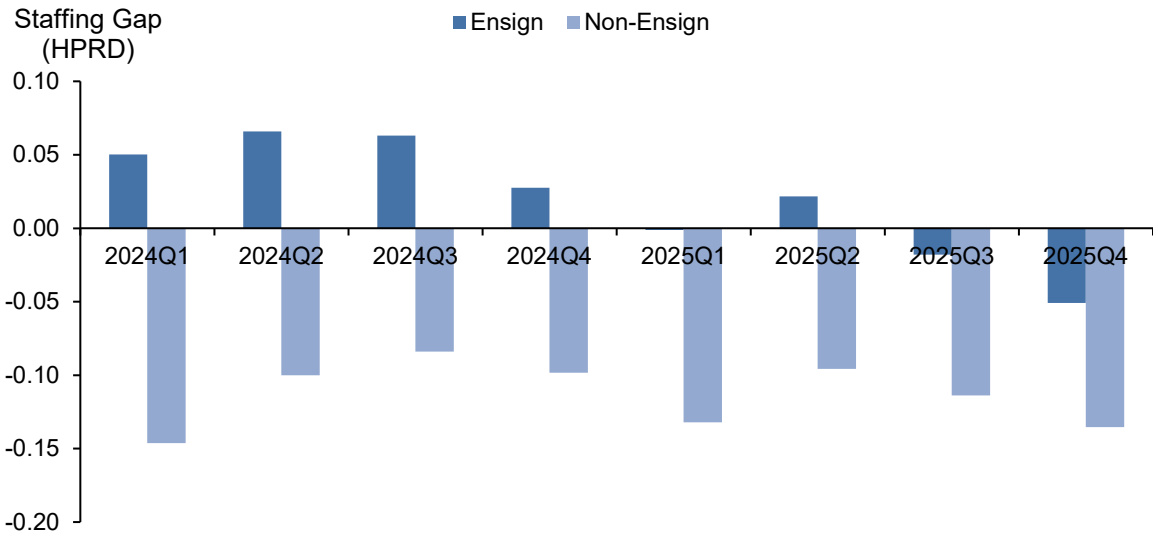
Figure 6A
Average NA Staffing Gap at California Nursing Homes Based on Benchmark by Harrington et al. (2025)



Notes:
[1] The staffing gap is for NA nursing staff and is calculated as the HPRD that the Harrington et al. (2025) formula predicts given the nursing home's case-mix index, minus its reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] The quarter corresponds to when staffing levels were measured, rather than when the data were published.

Source: CMS SNF Medicare Compare.

Figure 6B
Average NA Staffing Gap per Resident Day at California Nursing Homes Based on CMS Benchmark



Notes:
[1] Case-Mix Index (CMI) hours per resident day (HPRD) is a staffing benchmark, calculated by the Centers for Medicare & Medicaid Services, that scales national average staffing up or down based on the nursing home's residents' acuity. Case-mix HPRD is the staffing a nursing home would be expected to have, given its residents' acuity, if it staffed like the average U.S. nursing home. The staffing gap is the CMI HPRD minus the reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.

Source: CMS SNF Medicare Compare.

Figure 7A
NA Staffing Gap for California Nursing Homes Based on Benchmark by Harrington et al. (2025)

	Ensign	Non-Ensign		
Period	Mean	First Quartile	Median	Third Quartile
2024Q1	0.85	0.53	0.74	0.89
2024Q2	0.82	0.53	0.73	0.89
2024Q3	0.78	0.51	0.71	0.85
2024Q4	0.76	0.50	0.71	0.84
2025Q1	0.78	0.51	0.71	0.85
2025Q2	0.74	0.48	0.69	0.83
2025Q3	0.73	0.48	0.68	0.81
2025Q4	0.69	0.37	0.65	0.80

Notes:
[1] The staffing gap is the HPRD predicted by the Harrington et al. (2025) formula, based on the nursing home's case-mix index, minus its reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] The period refers to the quarter in which staffing was measured, rather than the date the data were published.
[3] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample.

Source: CMS SNF Medicare Compare.

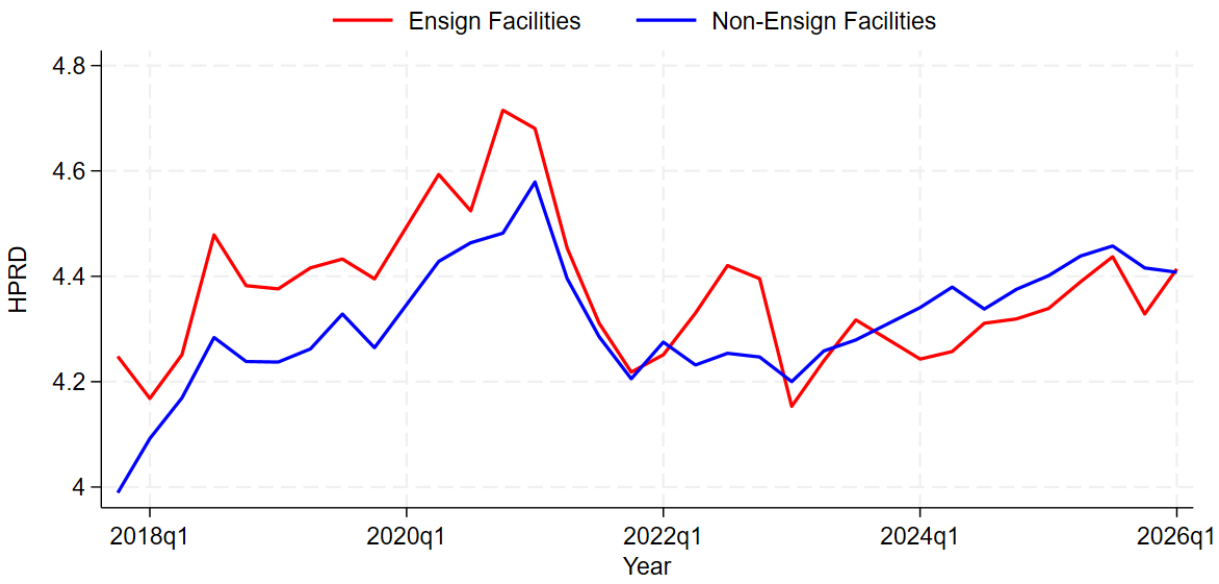
Figure 7B
NA Staffing Gap for California Nursing Homes Based on CMS Benchmark

	Ensign	Non-Ensign		
Period	Mean	First Quartile	Median	Third Quartile
2024Q1	0.05	-0.48	-0.20	0.09
2024Q2	0.07	-0.42	-0.15	0.13
2024Q3	0.06	-0.41	-0.15	0.17
2024Q4	0.03	-0.46	-0.15	0.14
2025Q1	0.00	-0.48	-0.19	0.11
2025Q2	0.02	-0.46	-0.16	0.15
2025Q3	-0.02	-0.47	-0.16	0.15
2025Q4	-0.05	-0.48	-0.15	0.04

Notes:
[1] Case-Mix Index (CMI) hours per resident day (HPRD) is a staffing benchmark, calculated by the Centers for Medicare & Medicaid Services, that scales national average staffing up or down based on the nursing home's residents' acuity. Case-mix HPRD is the staffing a nursing home would be expected to have, given its residents' acuity, if it staffed like the average U.S. nursing home. The staffing gap is the CMI HPRD minus the reported HPRD. Positive values indicate that reported HPRD are below the benchmark, while negative values indicate that reported HPRD are above the benchmark.
[2] The period refers to the quarter in which staffing was measured, rather than the date the data were published.
[3] Nursing homes acquired by Ensign in 2024 or 2025 are not included in the sample. There are 70 Ensign SNFs in the sample.

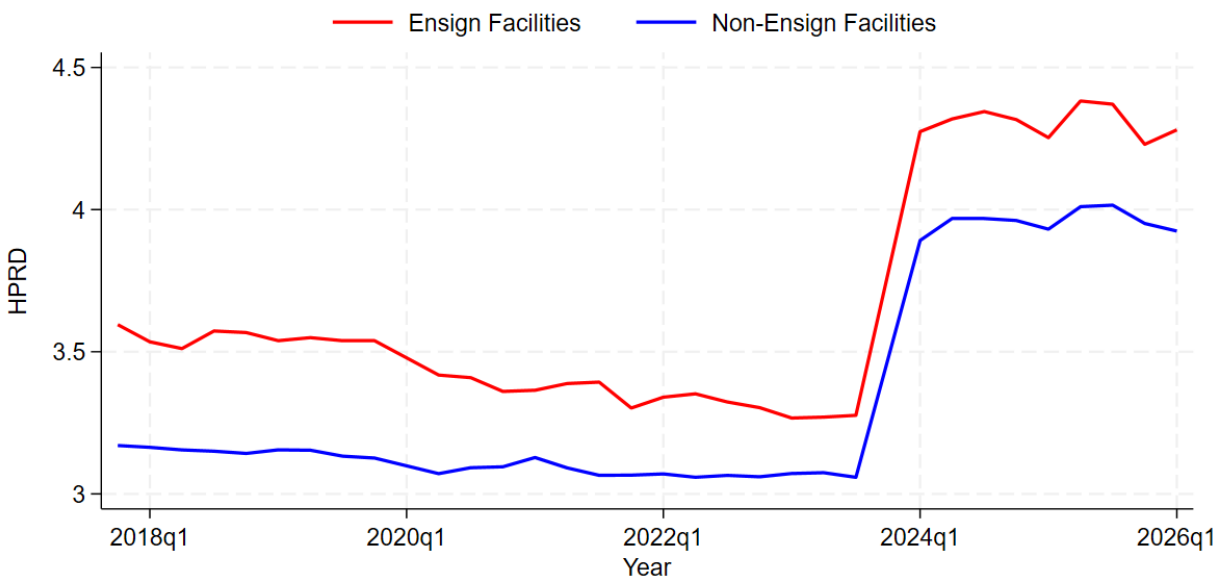
Source: CMS SNF Medicare Compare.

Figure 8A
Reported Nursing Hours per Resident Day over Time
Ensign SNFs vs. non-Ensign SNFs



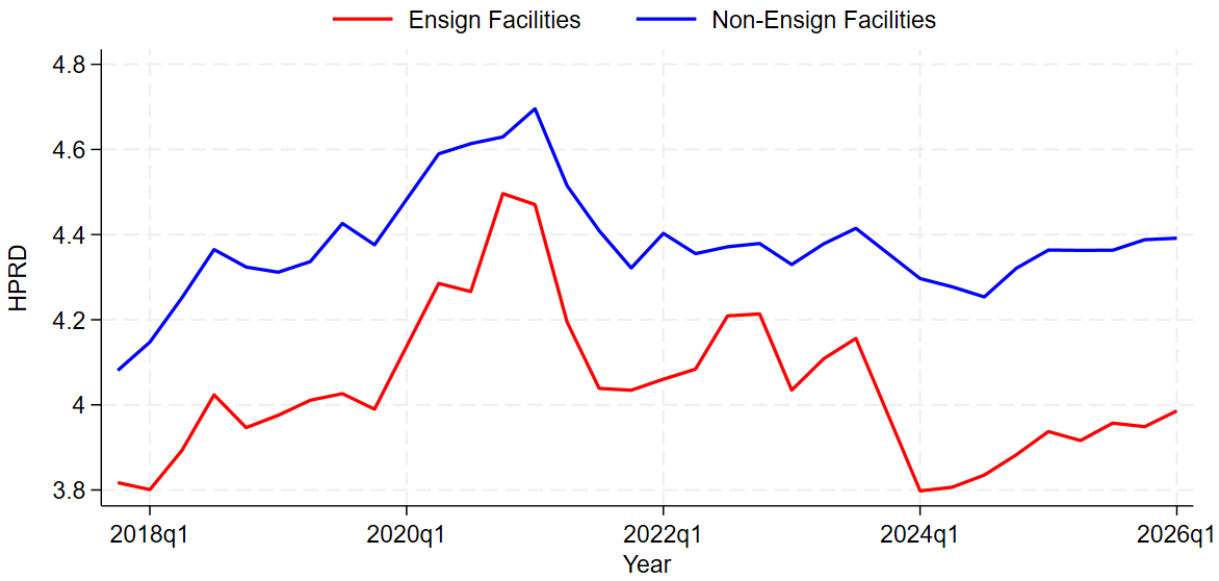
Source: CMS SNF Medicare Compare, 2017 Q4–2026 Q1.

Figure 8B
Expected Nursing Hours per Resident Day over Time
Ensign SNFs vs. non-Ensign SNFs



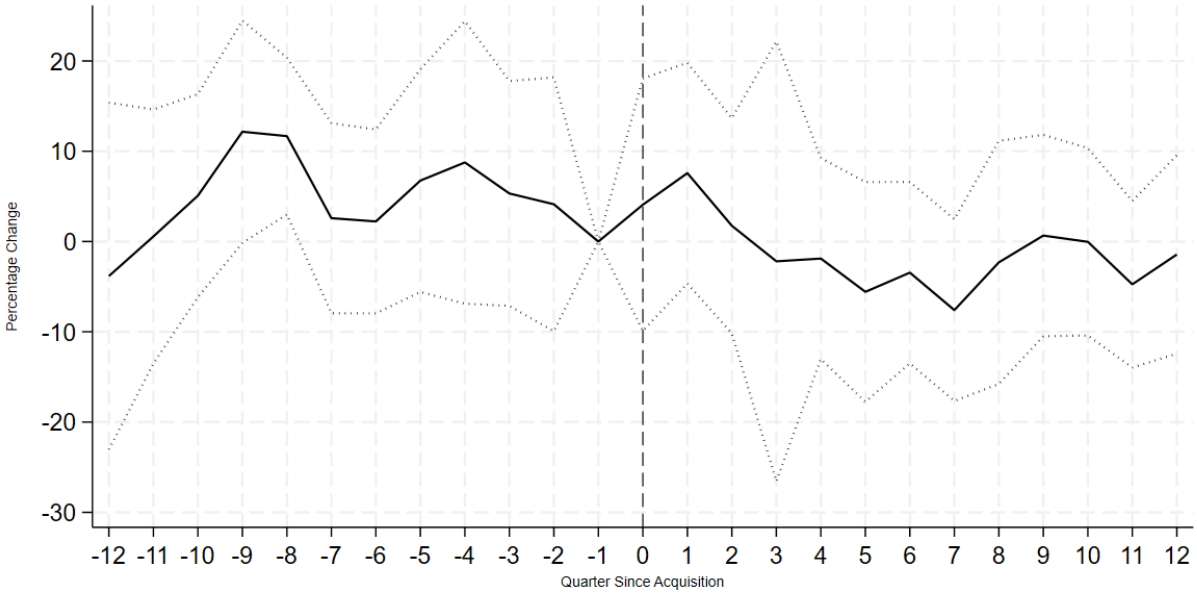
Source: CMS SNF Medicare Compare, 2017 Q4–2026 Q1.

Figure 8C
CMI Adjusted Nursing Hours per Resident Day over Time
Ensign SNFs vs. non-Ensign SNFs



Source: CMS SNF Medicare Compare, 2017 Q4–2026 Q1.

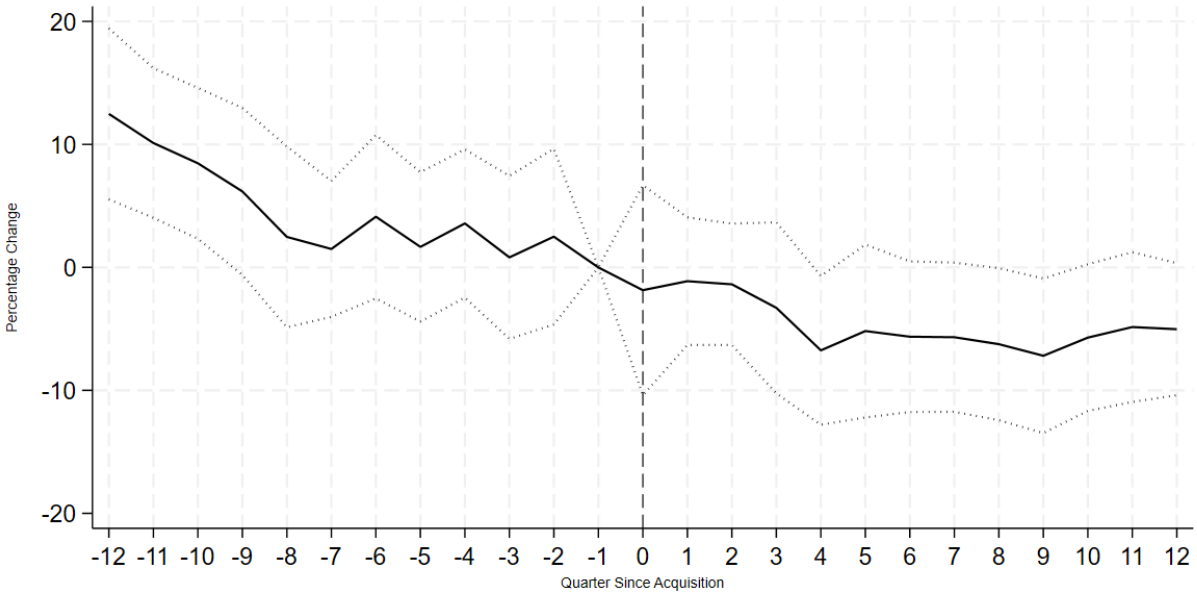
Figure 9A
Ensign Acquisitions
CMI Adjusted Nursing Hours per Resident Day – RNs



Notes:
[1] Dashed vertical line indicates the acquisition quarter.
[2] Analysis includes facility fixed effects and measurement quarter fixed effects. The solid line connects point estimates of the effect of the acquisitions, and the dotted lines show the 95 percent confidence interval for those coefficients, based upon standard errors that are clustered by facility. The measurement quarter before the acquisition is used as the pre-acquisition reference period.

Source: CMS SNF Medicare Compare, 2017 Q4–2026 Q1.

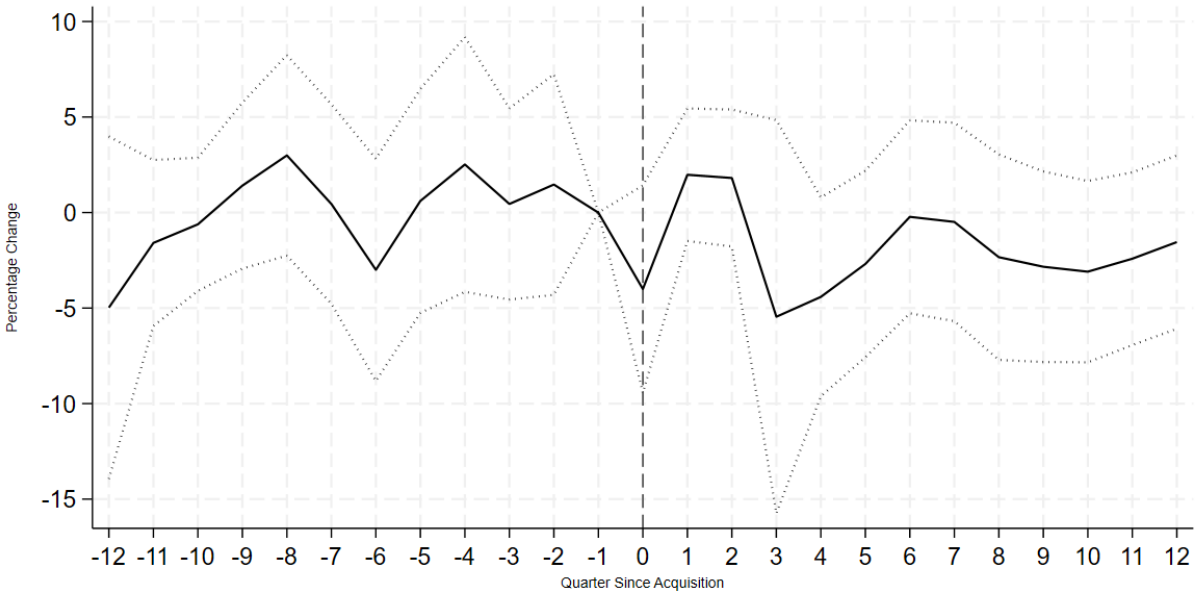
Figure 9B
Ensign Acquisitions
CMI Adjusted Nursing Hours per Resident Day – LPNs



Notes:
[1] Dashed vertical line indicates the acquisition quarter.
[2] Analysis includes facility fixed effects and measurement quarter fixed effects. The solid line connects point estimates of the effect of the acquisitions, and the dotted lines show the 95 percent confidence interval for those coefficients, based upon standard errors that are clustered by facility. The measurement quarter before the acquisition is used as the pre-acquisition reference period.

Source: CMS SNF Medicare Compare, 2017 Q4–2026 Q1.

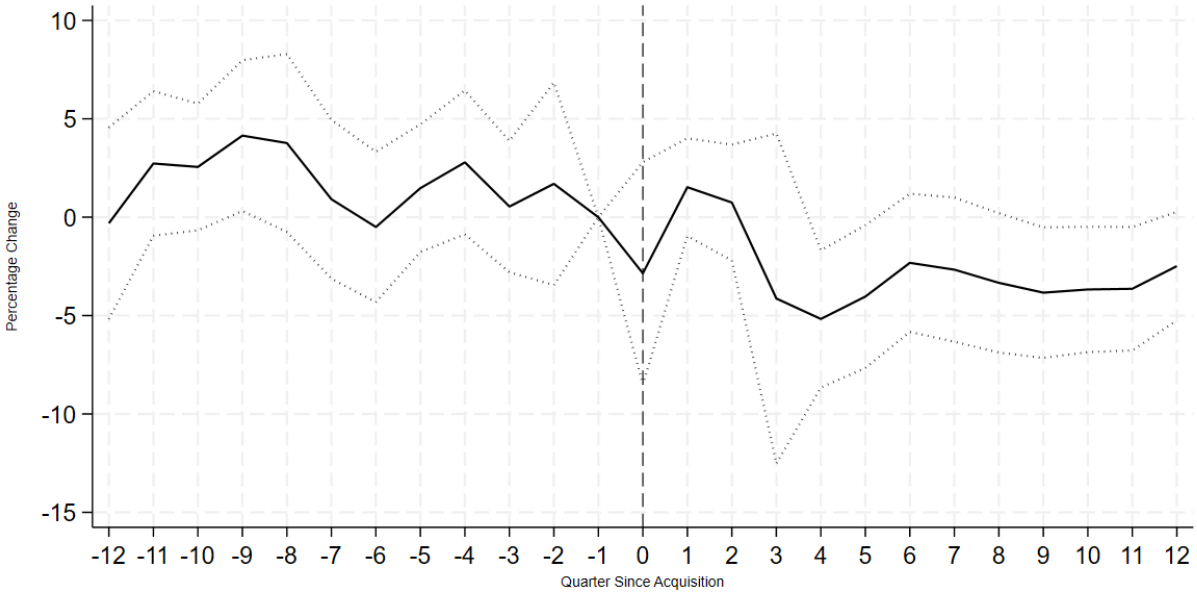
Figure 9C
Ensign Acquisitions
CMI Adjusted Nursing Hours per Resident Day – NAs



Notes:
[1] Dashed vertical line indicates the acquisition quarter.
[2] Analysis includes facility fixed effects and measurement quarter fixed effects. The solid line connects point estimates of the effect of the acquisitions, and the dotted lines show the 95 percent confidence interval for those coefficients, based upon standard errors that are clustered by facility. The measurement quarter before the acquisition is used as the pre-acquisition reference period.

Source: CMS SNF Medicare Compare, 2017 Q4–2026 Q1.

Figure 9D
Ensign Acquisitions
CMI Adjusted Nursing Hours per Resident Day – Total Nursing Staff



Notes:
[1] Dashed vertical line indicates the acquisition quarter.
[2] Analysis includes facility fixed effects and measurement quarter fixed effects. The solid line connects point estimates of the effect of the acquisitions, and the dotted lines show the 95 percent confidence interval for those coefficients, based upon standard errors that are clustered by facility. The measurement quarter before the acquisition is used as the pre-acquisition reference period.

Source: CMS SNF Medicare Compare, 2017 Q4–2026 Q1.