



June 5, 2023

Chiquita Brooks-LaSure  
Administrator  
Centers for Medicare & Medicaid Services  
Hubert H. Humphrey Building  
200 Independence Ave., SW  
Washington, D.C. 20201

***SUBJECT: Medicare Program; Prospective Payment System and Consolidated Billing for Skilled Nursing Facilities; Updates to the Quality Reporting Program and Value-Based Purchasing Program for Federal Fiscal Year 2024, Federal Register (Vol 88, No 68), April 10, 2023***

Dear Administrator Brooks-LaSure:

On behalf of our more than 400 member hospitals and health systems, including approximately 100 hospital-based skilled-nursing facilities (SNFs), the California Hospital Association (CHA) is pleased to submit comments on the Centers for Medicare & Medicaid Services (CMS) SNF prospective payment system (PPS) proposed rule for federal fiscal year (FFY) 2024.

California's hospitals, as well as hospital-based and freestanding SNFs, continue to face unprecedented financial pressure as a result of COVID-19's impact on the labor market and the health care supply chain. From 2019 to 2022, costs per adjusted discharge rose 25%<sup>1</sup> (driven by increases in salary costs +22%, supply expenses +18%, and pharmaceuticals +19%). However, base payment rates for Medicare have failed to keep pace with input price inflation as Medicare payments increased approximately 6% during that same time period.<sup>2</sup> Chronic underpayment by governmental payers — who comprise the majority of SNFs' payer mix<sup>3</sup> — is creating barriers to SNF care for Medicare beneficiaries in some communities. Over 450 SNFs have closed since the beginning of the COVID-19 pandemic, and — based on analysis by nationally renowned accounting firm Clifton Allen Larsen — in 2023 28% of SNF residents reside in facilities considered financially challenged.<sup>4</sup>

CHA is concerned that the proposed FFY 2024 SNF PPS proposed rule will only exacerbate these challenging circumstances for SNFs and their patients. The proposed net market basket update of +3.7% is inadequate relative to the input price inflation faced by SNFs and continues CMS' historic trend of

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<sup>1</sup> <https://www.kaufmanhall.com/insights/research-report/california-hospital-financial-impact-report-april-2023-update>

<sup>2</sup> CHA analysis of CMS market basket update data.

<sup>3</sup> [https://www.medpac.gov/wp-content/uploads/2023/03/Ch7\\_Mar23\\_MedPAC\\_Report\\_To\\_Congress\\_SEC.pdf](https://www.medpac.gov/wp-content/uploads/2023/03/Ch7_Mar23_MedPAC_Report_To_Congress_SEC.pdf)

<sup>4</sup> Economic State of Skilled Nursing Facility (SNF) Industry, Clifton, Allen, Larsen, February 2023

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proposing woefully inadequate payment updates. To ensure continued broad access to skilled-nursing services for Medicare patients, CHA offers the following comments on the FFY 2024 SNF PPS proposed rule:

- *Provide an Adequate Market Basket Update:* CHA respectfully asks that CMS use data that better reflect the input price inflation that SNFs have experienced and are projected to experience in 2024.
- *Eliminate Productive Adjustment for Years Covered Under the Public Health Emergency:* As in prior years, CHA respectfully asks CMS to use its authority to eliminate the unjustified reduction to the market basket update as a result of the Affordable Care Act (ACA)-mandated productivity adjustment for any year covered under the COVID-19 public health emergency (PHE).
- *Forecast Error Adjustment:* CHA thanks CMS for implementing a forecast error adjustment to correct for underestimating the market basket update in FFY 2022.
- *Conduct Additional Testing on Cross-Setting Discharge Function Score Measure:* CHA urges CMS to conduct additional testing on the proposed Discharge Function score measure. This would ensure it does not disincentivize facilities from taking on complex patients and delay the adoption of the measure in the SNF quality reporting program (QRP) until it has been endorsed by the consensus-based entity (CBE). Further, we oppose the inclusion of this measure in the SNF value-based purchasing (VBP) program until SNFs have had several years of experience with the measure under the SNF QRP.
- *SNF VBP Program Health Equity Adjustment:* CHA supports the proposed health equity adjustment (HEA) as a first step in rewarding facilities that provide excellent care to underserved populations, and we urge CMS to explore additional approaches to identify SNFs that care for high proportions of underserved patients. However, we caution the agency against using area-level indexes such as the Area Deprivation Index (ADI) or other similar indexes that rely on national benchmarks in value-based payment programs.

## Market Basket Update

CMS proposes a market basket increase for FY 2024 of 2.7%. The market basket update would be increased by 3.6% as a forecast error adjustment related to CMS' under-projection of the FFY 2022 final rule SNF update. This is then reduced by the -.2 percentage point productivity adjustment as required by the ACA and a reduction -2.3 percentage point budget neutrality adjustment for implementation of the Patient Driven Payment Model (PDPM) that CHA continues to believe is based on flawed analysis. The resulting, proposed market basket update is 3.7%.<sup>5</sup>

**CHA is deeply disappointed by the proposed 3.7% market basket update, as it is wholly inadequate relative to the input cost inflation experienced by SNFs.** Labor-related costs — based on CMS' own forecast of the Labor-Related Share in Table 7 of the proposed rule — make up 71.0% of SNF expenses in FFY 2024. **Analysis of SNF Medicare cost reports through 2022 shows that the average hourly nursing wage increased over 17% since 2019.<sup>6</sup> However, the Medicare market basket update has only increased per-stay payments by less than 6% during that same time period.<sup>7</sup>** This chronic underpayment has led to unsustainable margins for SNFs. In 2022 median margins were -.3% and are

<sup>5</sup> CMS uses a multiplicative formula to derive the 3.7% total percentage change with the parity adjustment. This formula is  $(1 + \text{Parity Adjustment Percentage}) * (1 + \text{Wage Index Update Percentage}) * (1 + \text{Payment Rate Update Percentage}) - 1$ . The total change figure is  $3.7\%$  or  $(1 - 2.3\%) * (1 + 0.0\%) * (1 + 6.1\%) - 1$ .

<sup>6</sup> Economic State of Skilled Nursing Facility (SNF) Industry, Clifton, Allen, Larsen, February 2023

<sup>7</sup> CHA analysis of Medicare market basket update data

projected to only improve modestly to .6% in 2023. As a result, 28% of SNF residents who currently reside in facilities are considered financially challenged, placing these individuals at risk of displacement. Further underlying the financial challenges facing SNFs, CHA notes that over 450 SNFs have closed since the beginning of the COVID-19 pandemic.

While CHA appreciates that CMS will refresh the market basket update in the final rule with more recent data, we are deeply concerned that the revised update will still be insufficient relative to input cost inflation as illustrated by the discrepancy between input costs and the market basket update in FFY 2022. Even before the application of the productivity adjustment (discussed further below), the methodology — based on IHS Global Insight (IGI) data — has failed to keep up with cost growth year-over-year. It is clear, based in particular on rapidly rising labor costs, that CMS' current methodology for updating the market basket is ill-suited to a highly inflationary environment. **Therefore, we ask CMS to consider other methods and data sources to calculate the final rule “base” (before additional adjustments) market basket update that better reflects the rapidly increasing input prices facing SNFs.** If CMS fails to provide an adequate market basket update, CHA is deeply concerned about access to skilled-nursing care for Medicare beneficiaries who are not ready to be discharged to their homes. This will delay patients' transfer to the next, appropriate care setting and negatively impact quality.

#### **Market Basket Update — Productivity Adjustment**

**As in prior years, CHA believes the assumptions underpinning the ACA-mandated productivity adjustment are fundamentally flawed. As such, we strongly disagree with the continuation of this policy — particularly during any fiscal year impacted by the PHE.** The productivity adjustment to the market basket update assumes that SNFs can increase overall productivity — producing more goods with the same or fewer units of labor — at the same rate as increases in the broader economy. However, providing skilled-nursing care to patients after an acute stay is highly labor-intensive as CMS' projection of the operating labor-related portion of the federal rate — 71.0% — implies in the FFY 2024 proposed rule.

This level of care must be provided on-site and has a high “hands-on” component. Therefore, SNFs cannot improve productivity using strategies like offshoring or automation that are commonly deployed in other sectors of the economy that produce goods (auto manufacturing) or services (restaurants that use automated ordering systems to reduce overall staffing count). Further, CHA notes that during the COVID-19 PHE, productivity fell<sup>8</sup> as a result of having to use temporary staffing resulting from high turnover rates of employed staff due to COVID-19 and the accompanying labor shortage.

**Given that CMS is required by statute to implement a productivity adjustment to the market basket update, CHA asks the agency to work with Congress to permanently eliminate this unjustified reduction to hospital payments. Further, we ask CMS to use its exceptions authority under section 1888(e)(3)(A) to remove the productivity adjustment for any fiscal year that was covered under PHE determination (i.e., 2020 (.4%), 2021 (.0%), 2022 (.7%), and 2023 (.3%)) from the calculation of market basket for FFY 2024 and any year thereafter.**

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<sup>8</sup> [https://www0.gsb.columbia.edu/faculty/abartel/papers/human\\_capital.pdf](https://www0.gsb.columbia.edu/faculty/abartel/papers/human_capital.pdf)

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### Market Basket Update — Forecast Error Correction

In the FFY 2024 rule, CMS proposes to make a positive 3.6% “forecast error correction” to the SNF market basket update. The error correction is related to FFY 2022’s market basket update of 2.7%. However, the CMS actuary found that the actual increase was 6.3%. **CHA thanks CMS for identifying the correction and strongly supports it.**

### Skilled-Nursing Facility Quality Reporting Program (SNF QRP)

CMS proposes several changes to the SNF QRP, including three new measures, the removal of three overlapping discharge function measures, and a modification to the existing COVID-19 Vaccination Coverage Among Health Care Personnel (HCP) measure.

### Proposed Modification to the COVID-19 Vaccination Coverage Among HCP Measure

CMS proposes to modify the current HCP COVID-19 vaccination measure beginning with the FFY 2025 SNF QRP, consistent with proposals across all Medicare QRPs. Specifically, CMS would replace the definition of “complete vaccination course” with a definition of “up to date” from the Centers for Disease Control and Prevention (CDC) recommended COVID-19 vaccines. The agency proposes this modification to incorporate evolving CDC guidance related to booster doses and their associated timeframes.

While the denominator of the current measure would not change — and is reflective of all HCP eligible to work in the facility for at least one day during the reporting period — the numerator of the measure would be changed to be the cumulative number of HCP in the denominator population who are considered up to date with the recommended COVID-19 vaccines as defined by the CDC<sup>9</sup> on the first day of the quarter. Compliance with the FFY 2025 SNF QRP requirements would be based on reporting of eligible HCP who are up to date beginning with quarter four of calendar year 2023. Beginning with the FFY 2026 SNF QRP, SNFs would be required to submit data for the entire calendar year.

CMS does not propose any changes to the data submission or reporting processes for the measure, and SNFs would continue to be required to collect data for at least one self-selected week during each month of the reporting quarter. That data must be submitted to the CDC National Healthcare Safety Network (NHSN) prior to the quarterly deadline.

**CHA strongly supports ongoing efforts to maintain high levels of up-to-date vaccination for COVID-19 among both HCPs and the communities they serve.** However, as we exit the PHE and enter an endemic phase of the disease, we are concerned that the data reporting requirements associated with the measure will divert already stretched resources from patient care to administrative processes. The CDC definition of “up to date” can change every quarter, and it is challenging for SNFs to collect and continuously assess the vaccination status of every single employee who works in the facility for a given reporting period. Further, the requirement that SNFs collect and report on this data for at least one week each month has strained the already stressed workforce.

In developing the measure, CMS relied heavily on the specifications and experience with the Influenza Vaccination Among HCP measure. The flu vaccine measure assesses vaccinations during “flu season” — defined as October through March — and is reported annually. While there are still questions about the seasonality of COVID-19, future vaccination schedules, and how often new versions of a COVID-19

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<sup>9</sup> <https://www.cdc.gov/nhsn/pdfs/hps/covidvax/uptodateguidance-508.pdf>

vaccine will be available, an annual data collection and reporting process is significantly less burdensome than reporting data for one week out of each month of the year. **We urge CMS to consider limiting the reporting requirements to at least one week for each quarter and work with the CDC to move toward a version of the measure that could be reported annually.**

In addition, we continue to have concerns that the lag in the timeline between reporting the data to NHSN and public reporting of the measure results in publicly reported data that are outdated and inconsistent with the public's understanding of vaccination rates in a given facility. As proposed, data for quarter four of 2023 would not be publicly reported until October 2024, at which point it is likely that the definition of "up to date" could be significantly different than when the data were collected, due to changes in recommended vaccination schedules or updated boosters. Finally, we remain concerned that the measure has not undergone rigorous testing for reliability and validity and has not been endorsed by the CBE.

### **Proposed Adoption of Discharge Function Score Measure and Removal of Overlapping Discharge Measures**

Beginning with the FFY 2025 SNF QRP, CMS proposes to adopt a new assessment-based outcome measure that estimates the percentage of SNF patients who meet or exceed an expected discharge score during the reporting period. In conjunction with this proposal, CMS would remove three current SNF QRP functional status measures that would overlap with the newly proposed measure.

The proposed discharge function score measure includes an observed discharge function score that is calculated by summing individual function item values from the SNF Minimum Data Set (MDS) at discharge. The expected discharge function score is calculated by risk-adjusting the observed score to control patient characteristics, including age, admission function score, and clinical conditions to establish how much functional improvement would be expected after their SNF stay. The measure uses a statistical imputation approach to account for missing MDS elements when codes demonstrate that an "activity was not attempted (ANA)." If an MDS item is coded as ANA, the imputation method inserts variables based on the values of other, non-missing items that are similar to the missing item to make assumptions about what the patient would have scored on that item if it had been attempted.

**CHA strongly supports the inclusion of functional status measures in the SNF QRP and across the post-acute care settings.** We appreciate the resources CMS has invested in developing this cross-setting measure, including the technical expert panel (TEP) that was convened in 2021 and 2022. We also appreciate that CMS will not increase reporting burdens by using established GG items from the MDS and by proposing to remove overlapping measures in conjunction with the adoption of the proposed measure. However, we urge the agency to delay finalizing the measure across the QRPs until it has received endorsement from the CBE. We offer several comments on considerations for possible refinements to the measure over time.

For example, we understand that the statistical imputation approach to addressing items coded as ANA was endorsed by the TEP as the method most likely to produce an unbiased estimate of the patient's function had the item been attempted. However, it is a very complex calculation and may be difficult to understand how performance is impacted by both SNFs and the public. We urge CMS to continuously evaluate this method, particularly to identify if it has differential impacts across the post-acute care

settings. In addition, we urge CMS to provide additional coding guidance for ANA use for the GG items to better standardize and reduce the use of ANA codes.

Our experience in California has demonstrated that, as compared to freestanding SNFs, hospital-based SNFs care for patients and residents of greater medical complexity and care needs. We urge CMS to consider additional factors for risk adjustment to help ensure that the measure does not disincentivize SNFs from taking on more complex patients. For example, CHA members have reported that post-acute care patients with complex co-morbidities such as a diagnosis or history of COVID-19 or Long COVID can take much longer to recover than other patients, and this could be a factor that may impact a patient's expected function score. Under the hospital readmissions reduction program and the hospital value-based purchasing program clinical outcomes domain, CMS includes a covariate risk adjustment on measures for patient history of COVID-19 within 12 months of admission. While it may be too early to understand the impact of COVID-19 on functional outcomes, we urge CMS to monitor its data for future measure refinements.

In addition, we urge the agency to consider how it could address the impact of social determinants of health (SDOH) on functional outcomes, including how data from the new SDOH elements in the MDS could contribute to this work.

#### **Proposed Adoption of Percent of Patients/Residents Who Are Up to Date with COVID-19 Vaccination Measure**

CMS proposes to adopt an assessment-based process measure that reports the percent of stays in which patients in an SNF are up to date on their COVID-19 vaccinations per the CDC's latest guidance, beginning with the FFY 2026 SNF QRP. The data would be collected via a yes/no question on the MDS, and the measure has no denominator exclusions and is not risk-adjusted.

**CHA strongly supports COVID-19 vaccination and we do not oppose the concept of a patient or resident vaccination measure.** However, as noted in our comments on the HCP vaccination measure, much remains unknown about the seasonality of COVID-19, future vaccination schedules, and how often new versions of a COVID-19 vaccine will be available. It is unclear whether most patients would have an understanding of the CDC's specific definition of "up to date" when answering a yes/no question for the patient assessment, leading to potentially inaccurate data. Further, we are concerned that the publicly reported data will not be reflective of any actionable activity by the facility, given the limited role of SNFs in vaccination efforts.

We note that during the pre-rulemaking process, the Measures Application Partnership (MAP) Coordinating Committee did not support the adoption of the measure, and urged CMS to reconsider exclusions for medical contraindications, complete reliability and validity measure testing, and seek endorsement from the CBE. We urge CMS to follow the recommendations of the MAP Coordinating Committee, and delay the adoption of such a measure until it has been thoroughly tested and endorsed by the CBE.

#### **Proposed Adoption of CoreQ: Short Stay Discharge Measure**

CMS proposes adopting a patient experience measure, the CoreQ: Short Stay Discharge measure, beginning with the FFY 2026 SNF QRP. This measure would calculate the percentage of individuals discharged from a SNF who report being satisfied with their stay on the CoreQ questionnaire within 100

days of admission. SNFs would be required to contract with an independent CMS-approved CoreQ survey vendor to administer the questionnaire and report the result to CMS on behalf of the SNF.

**CHA strongly supports the addition of patient experience measures in all QRPs, and we appreciate that CMS has identified a CBE-endorsed measure that was recommended for rulemaking by the MAP.** However, we have several questions about the usefulness of the measure, given that it only assesses the experience of short-stay residents, and has a significant number of exclusions. As CMS moves forward with the measure, we urge the agency to monitor response rates and performance to ensure that the measure can provide SNFs with actionable data to improve their performance over time.

### **Skilled-Nursing Facility Value-Based Purchasing Program (SNF VBP)**

CMS proposes several changes to the SNF VBP program, including the addition of four new measures, refinements to the readmissions measure that will replace the current SNF VBP measure, and a health equity adjustment intended to reward excellent care provided to underserved patients.

#### **Proposed Adoption of the Discharge Function Score Measure**

Beginning with the FFY 2027 program year (FFY 2025 performance year), CMS proposes to adopt the Discharge Function Score measure that is also being proposed in this rule for the SNF QRP. As noted in our comments on the SNF QRP, we support the inclusion of functional status measures in quality reporting programs, and we agree that improving the functional status of residents should be a priority for SNFs. However, we remain concerned that the measure's construction could incentivize SNFs to avoid caring for some of the most complex patients who may not easily achieve functional objectives or could penalize SNFs that do take on these patients. Further, we have urged CMS not to finalize this measure in the SNF QRP until it has been endorsed by the CBE, and we believe that SNFs should have several years of experience with this measure to understand how they can improve performance before it is included in the SNF VBP program. **We oppose the inclusion of this measure in the SNF VBP program at this time.**

#### **Proposed Replacement of 30-Day All-Cause Readmission Measure (SNFRM) with Updated Within Stay Potentially Preventable Readmissions (SNF WS PPR) Measure**

CMS proposes to replace the SNFRM with the SNF WS PPR measure beginning with the FFY 2028 program year. The SNFRM has been used in the SNF VBP program since its inception, but CMS was required by Congress to replace the measure with a measure assessing potentially preventable readmissions rather than all-cause readmissions.

CMS previously finalized a potentially preventable readmissions measure that evaluated certain readmissions that occurred 30 days following acute care hospital discharge. However, after conducting additional testing and measure development to align the measure's specifications with those defining other potentially preventable readmissions measures, CMS proposes refinements to the measure that would estimate the risk-standardized rate of unplanned, potentially preventable readmissions that occur at any time *during* the SNF stay. **CHA agrees that this measure is more reflective of actions the SNF can take to reduce readmissions than the previous version of the measure and we support CMS' proposal to adopt this modified measure to replace the SNFRM.**

### **Proposed Adoption of a Health Equity Adjustment (HEA)**

Beginning with the FFY 2027 program year, CMS proposes to apply an adjustment to the normalized sum of a SNF's measure points on SNF VBP program measures based on performance on program measures and the SNF's high proportion of residents with dual eligibility status (DES) for Medicaid and Medicare.

Specifically, CMS would first calculate a performance scaler by awarding SNFs in the top third percentile of measure performance 2 bonus points per measure. Next, CMS would calculate the SNF's underserved multiplier for SNFs with at least 20 percent of their patient population DES using a logistic exchange function to translate the proportion of residents with DES into a multiplier. The measure performance scaler would then be multiplied by the underserved multiplier, to establish the number of HEA bonus points added to the normalized sum of all points awarded for each quality measure to determine the SNFs final score. CMS also proposes to increase the overall payback percentage under the program to mitigate the impact that favorable HEA payment adjustments could have on SNFs that do not receive the HEA.

**CHA appreciates that CMS has proposed a policy that would reward SNFs achieving high levels of performance while overcoming challenges associated with caring for higher proportions of underserved residents. We support the proposed HEA as a first step toward incentivizing improved care for patient populations that experience health disparities.** We agree that DES can be a proxy for identifying underserved patients. However, we urge the agency to examine other factors that indicate a SNF provides care to underserved patients, such as caring for a high proportion of Medicaid patients.

**As CMS considers these additional factors, we caution the agency against using area-level indexes such as the ADI. CHA has significant concerns with using the ADI or other similar indexes that rely on national benchmarks.** The ADI contains a number of variables that are based on the national average. These include median family income, percentage of families below the federal poverty level, median home value, median monthly mortgage payment, and median gross rent. CHA is deeply concerned that given California's higher cost of living, facilities in California would be disadvantaged by any index that does not take into account the significant regional variation in wages and the cost of living. The table below illustrates the substantial difference in wages, rents, and home values (and, therefore, monthly mortgage payments) between the medians for each of these measures in the United States and California. A recent analysis of the relationship between ADI score and median home value has only exacerbated this concern.<sup>[1]</sup>

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<sup>[1]</sup> <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2022.01406?>



**Median Household Income,<sup>[2],[3]</sup> Home Value,<sup>[4],[5]</sup> and Monthly Rent<sup>[6]</sup>  
California Compared to the United States**

|                                | California | United States | Diff       | % Diff |
|--------------------------------|------------|---------------|------------|--------|
| Median Household Income (2020) | \$ 78,672  | \$ 67,521     | \$ 11,151  | 17%    |
| Median Home Value (2022)       | \$ 788,679 | \$ 440,300    | \$ 348,379 | 79%    |
| Median Monthly Rent (2020)     | \$ 747     | \$ 602        | \$ 145     | 24%    |

Further, research has shown that national and regional approaches to understanding area deprivation do not properly model the impact on health outcomes.<sup>[7]</sup> A study of over 61,000 Medicare beneficiaries found that the ADI was weakly correlated with self-reported social needs ( $r = 0.16\%$ ) and only explained .02% of the observed variation in spending.<sup>[8]</sup> Given these considerable flaws, CHA's members and others<sup>[9]</sup> believe that using a model like the ADI in value-based payment programs could paradoxically worsen<sup>[10]</sup> payment disparities, as CMS notes in its discussion of the proposed rule.

**Finally, CHA strongly supports CMS' proposal to increase the payback percentage and allow for it to vary such that SNFs that do receive the HEA would not experience a decrease in their value-based incentive payment amounts, to the greatest extent possible.** We urge CMS to continue to monitor the impact of the HEA to ensure that it provides opportunities for SNFs that care for high proportions of underserved patients but have lower levels of measure performance to maintain the resources needed to care for these more challenging populations.

CHA appreciates the opportunity to comment on the FFY 2024 SNF PPS proposed rule. If you have any questions, please contact me at [cmulvany@calhospital.org](mailto:cmulvany@calhospital.org) or (202) 270-2143, or my colleague Megan Howard at [mhoward@calhospital.org](mailto:mhoward@calhospital.org) or (202) 488-3742.

Sincerely,

/s/

Chad Mulvany  
Vice President, Federal Policy

<sup>[2]</sup> <https://www.census.gov/library/publications/2021/demo/p60-273.html#:~:text=Median%20household%20income%20was%20%2467%2C521,median%20household%20income%20since%202011.>

<sup>[3]</sup> <https://www.census.gov/quickfacts/fact/table/CA/BZA210220>

<sup>[4]</sup> <https://fred.stlouisfed.org/series/MSPUS>

<sup>[5]</sup> <https://fred.stlouisfed.org/series/MSPUS>

<sup>[6]</sup> <https://www2.census.gov/programs-surveys/decennial/tables/time-series/coh-grossrents/grossrents-unadj.txt>

<sup>[7]</sup> [https://www.cdc.gov/pcd/issues/2016/16\\_0221.htm#:~:text=An%20area%20deprivation%20index%20\(ADI\)%20is%20a%20multidimensional%20evaluation%20of,outcomes%20at%20various%20geographic%20levels.](https://www.cdc.gov/pcd/issues/2016/16_0221.htm#:~:text=An%20area%20deprivation%20index%20(ADI)%20is%20a%20multidimensional%20evaluation%20of,outcomes%20at%20various%20geographic%20levels.)

<sup>[8]</sup> <https://jamanetwork.com/journals/jama-health-forum/fullarticle/2803073?>

<sup>[9]</sup> <https://www.healthaffairs.org/content/forefront/aco-benchmarks-based-area-deprivation-index-mask-inequities?>

<sup>[10]</sup> <https://jamanetwork.com/journals/jama-health-forum/fullarticle/2803073?source=email>