LONG TERM CARE
COMMUNITY COALITION

*Advancing Quality, Dignity & Justice*

# Summary: Case Mix Index Methodology for Determining Expected Nursing Home Staffing Levels

Ensuring nursing home residents receive appropriate care requires a staffing approach that is directly tied to the specific needs of each facility's resident population. While tools like the Five-Star Rating System have historically helped provide high-level insights into nursing home quality, there remains a critical need for a more precise, evidence-based method to determine and evaluate staffing expectations.

This document outlines a methodology that uses resident acuity—measured through the Case Mix Index (CMI)—to establish meaningful staffing benchmarks, offering stakeholders a clearer, more actionable view of whether a facility's staffing levels are sufficient to meet resident needs.

This methodology was first published in the *Journal of the American Geriatrics Society* in May 2025.[1]

## Limitations of Current Staffing Metrics

Existing staffing evaluations, including those within the Five-Star Rating System, largely rely on comparative metrics that focus on national averages and peer group rankings. This approach has several limitations:

1. **Inadequate Reflection of Resident Needs:** Staffing levels are often judged without fully accounting for differences in resident acuity, leading to potential under- or overestimations of whether a facility is adequately staffed.
2. **Misleading Benchmarks:** Facilities are rated relative to one another rather than against an objective standard of care, which can allow facilities with inadequate staffing to appear well-staffed if they exceed peer performance.
3. **Limited Incentives for True Improvement:** Without clear alignment to resident needs, facilities may believe they are providing sufficient care even when staffing falls short of what is required to meet clinical and daily living needs.
4. **Reduced Transparency:** Consumers, advocates, and policymakers lack a straightforward way to determine whether staffing levels are appropriate for the acuity and complexity of a facility's resident population.

[1] Harrington, C, McLaughlin, R, Saliba, D, Halifax, E, Mollot, R., Romano, P., Tancredi, D., and Mukamel, D., "Nursing Home Guide to Adjusting Nurse Staffing for Resident Case-Mix," Journal of the American Geriatrics Society, May 2025. https://doi.org/10.1111/jgs.19501

Summary: Case Mix Index Methodology for Determining Expected Nursing Home Staffing Levels

## Proposed Resident-Centered Staffing Methodology

This new approach establishes expected staffing levels based on the specific care needs of residents, using CMI as a foundation for determining appropriate staffing expectations. Key components include:

- **Resident Acuity-Based Benchmarks:** Staffing standards are calculated based on the intensity and complexity of care residents require, rather than on national averages. It enables the assessment of nursing homes (both internal and external) on how well they meet these acuity-adjusted expectations.
- **Objective and Actionable Metrics:** Facilities are evaluated against transparent, evidence-based thresholds, providing a clear measure of staffing adequacy that is directly tied to resident needs.
- **Alignment with Minimum Staffing Standards:** The methodology complements CMS's evolving staffing regulations, ensuring facilities meet or exceed both regulatory requirements and clinical best practices.
- **Focus on Care Quality:** By tying staffing levels directly to resident needs, this approach promotes not only regulatory compliance but also higher-quality, person-centered care.

## Benefits of the Methodology

Implementing a staffing evaluation approach based on resident acuity will:

- **Empower Stakeholders:** Provide residents, families, facility operators, and regulators with clearer, more relevant information about staffing sufficiency.
- **Drive Improvements in Care:** Encourage facilities to prioritize appropriate staffing levels that truly reflect the needs of their residents, rather than aiming for average performance.
- **Increase Transparency and Accountability:** Make it easier for all stakeholders to understand and assess whether staffing levels are appropriate, fostering a more accountable care environment.
- **Support Regulatory and Quality Goals:** Enhance the alignment between staffing practices and the broader objectives of improving nursing home care quality and safety.

## Current Methodology and Its Flaws

CMS's current staffing rating system relies on Case-Mix Index (CMI) data, which measures resident acuity and calculates staffing expectations relative to national averages. Facilities are ranked based on "Adjusted Hours," derived from these metrics, and categorized into quintiles to assign star ratings. However, this methodology has several critical flaws:

1. **Misleading Comparisons:** The system compares raw staffing levels without adequately accounting for resident acuity, creating false impressions of care quality. Facilities with higher-acuity residents may appear sufficient despite inadequate staffing, while lower-acuity facilities may be unfairly perceived as substandard.

2. **False Assurance:** The quintile-based ranking system distributes ratings across fixed percentages, allowing facilities with objectively low staffing levels to receive high ratings if they outperform peers. This approach provides a misleading sense of adequacy, as even highly rated facilities may fail to meet residents' care needs.
3. **Failure to Incentivize Improvement:** Facilities are incentivized to meet average performance rather than strive for excellence. Many mistakenly believe their staffing levels are sufficient, even when they fall below the thresholds necessary to meet residents' needs. The system fails to hold facilities accountable for providing adequate, safe care.
4. **Lack of Transparency:** Consumers cannot easily determine whether a facility's staffing levels align with resident needs. The absence of direct measures of staffing sufficiency limits the system's ability to guide informed decision-making.

## Detailed Explanation of the Proposed Staffing Methodology

This methodology links staffing expectations directly to resident acuity, measured by the Case-Mix Index (CMI). It moves beyond national averages, providing a more tailored, data-driven approach that adjusts staffing based on the specific care needs of each facility's residents.

1. **Case-Mix Hours Calculation**:
   Case-Mix Hours represent the expected staffing hours for a facility, adjusted based on its weighted average CMI. The following formula calculates Case-Mix Hours:

$$Case\ Mix\ Hours = Minimum\ Staffing \times \left[1 + \beta \times \left(\left(\frac{Facility\ CMI}{Minimum\ CMI}\right) - 1\right)^{\gamma}\right]$$

Where:

- **Minimum Staffing** refers to the minimum safe staffing levels identified in the federal *Nursing Home Staffing Study* (3.48 Total HPRD and 0.55 RN HPRD).[2]
- **Facility CMI** is the facility's weighted average CMI, which reflects the overall acuity of its residents.
- **Minimum CMI** is the baseline CMI value (0.62), representing the lowest acuity level.
- **β (Scaling Factor)** and **γ (Exponent**) are used to adjust staffing levels proportionally and smoothly as resident acuity increases.

The specific values for β (0.381 for Total HPRD and 1.056 for RN HPRD) and γ (0.7 for both Total and RN HPRD) were mathematically determined to ensure that staffing hours increase in a proportional manner as the CMI rises. These values also ensure that the highest CMI (3.84)

[2] *See* Abt Associates, "New Research Informs Nursing Home Staffing Minimums in the United States," September 2024. https://www.abtglobal.com/insights/impact-briefs/new-research-informs-nursing-home-staffing-minimums-in-the-united

aligns with the corresponding staffing levels observed in the CMS Staff Time Measurement (STM) study.

2. **Application Across Acuity Levels:**
   This model scales Case-Mix Hours based on resident acuity, ensuring facilities with lower-acuity residents are expected to maintain minimum levels, while those with higher-acuity residents are expected to provide proportionally more staffing.

   - **Lowest-Acuity Residents:** Facilities with a CMI of 0.62, representing the lowest acuity level, are expected to meet the federal minimum staffing requirements of 3.48 Total HPRD and 0.55 RN HPRD.
   - **Highest-Acuity Residents**: Facilities with a CMI of 3.84, representing the highest acuity level, are guided by the STM study's staffing levels for licensed nurses and a simulation study of certified nursing assistant time by Schnelle and colleagues published in 2016 of 7.68 Total HPRD and 2.39 RN HPRD.
   - **Residents with Intermediate Acuity**: For facilities with CMI levels between 0.62 and 3.84, Case-Mix levels are scaled proportionally using the formula, ensuring that as the CMI increases, staffing expectations increase accordingly.

This proportional scaling means that as resident needs increase, Case-Mix levels rise accordingly, ensuring that the expected staffing is aligned with the actual care requirements across all acuity levels.

It is important to note that while these guidelines standardize staffing expectations, facilities are not capped at any specific level and are encouraged to staff above these thresholds when necessary to meet the needs of their resident population.

3. **Practical Application**:
   This methodology provides a clear, data-driven framework for facilities to meet staffing needs based on resident acuity. Facilities are required to meet baseline staffing (3.48 Total HPRD and 0.55 RN HPRD) and expected to adjust upward as their resident CMI increases.

This system offers facilities measurable benchmarks for improvement, ensuring that all facilities—whether serving low- or high-acuity residents—are assessed fairly. The framework reflects the actual needs of their resident population, providing a more accurate measure of staffing adequacy.