

Letter to the Editor

Authors' Reply: Interpreting Agreement in AI-Assisted American Society of Anesthesiologists (ASA) Classification

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We thank the author for the thoughtful comments [1] on our study [2]. We provide supplemental analyses to clarify American Society of Anesthesiologists (ASA) classification agreement and the incremental contribution of Taiwan National Health Insurance (NHI) data.

First, the original analysis used the unweighted Cohen κ to evaluate the exact agreement between AI-generated and clinician-assigned ASA classifications in routine preanesthetic documentation. This statistic treats any category mismatch as a disagreement while accounting for agreement expected by chance. We acknowledge that the absence of weighting should have been explicitly stated in the Methods.

Recognizing the ordinal nature of ASA classification, we additionally calculated the linearly weighted Cohen κ , which was 0.893 with NHI data and 0.560 without NHI data.

We also examined patient-level cross-tabulations. With NHI data, among 57 clinician-assigned ASA III patients, AI classified 50 as ASA III and 7 as ASA II; among 6 ASA IV patients, AI classified 4 as ASA IV and 2 as ASA III. Without NHI data, among clinician-assigned ASA III patients, AI classified 44 as ASA III, 12 as ASA II, and 1 as ASA IV;

among ASA IV patients, AI classified 2 as ASA IV, 3 as ASA III, and 1 as ASA II. Among these 63 patients, all 9 disagreements with NHI data involved adjacent categories. Without NHI data, 16 of 17 disagreements involved adjacent categories, and 1 ASA IV patient was classified as ASA II.

Second, we estimated uncertainty in the difference in unweighted κ using 10,000 patient-level paired bootstrap replicates. In each replicate, 600 patients were sampled with replacement, retaining each patient's clinician-assigned ASA classification and both AI classifications together. Both unweighted κ estimates and their differences were recalculated in each replicate, accounting for the dependence between conditions.

The published unweighted κ estimates remain 0.883 (95% CI 0.841-0.946) with NHI data and 0.518 (95% CI 0.412-0.691) without NHI data. The observed difference was $\Delta\kappa=0.365$, with a supplemental 95% percentile bootstrap CI of 0.292-0.440, derived from the 2.5th and 97.5th percentiles of the bootstrap distribution of paired differences. This interval quantifies the precision of the estimated increase and

excludes zero, supporting higher overall agreement when NHI data were included.

These supplemental results clarify both disagreement patterns and uncertainty in the NHI comparison. Nevertheless, adjacent-category discrepancies may still be clinically relevant. The predominance of ASA II patients and small ASA III to IV subgroups limit category-specific

interpretation; neither unweighted nor weighted κ establishes equivalent performance across ASA categories. Comparisons with previous interrater studies also require caution because of differences in rater design, clinical setting, case mix, and κ weighting. We appreciate the opportunity to clarify these findings.

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Generative AI tools, ChatGPT (GPT-5.6 Sol; OpenAI), were used to assist with language editing, manuscript formatting, and response-to-reviewer preparation. All scientific content, data interpretation, statistical results, and final manuscript decisions were reviewed and approved by the authors. No generative AI tool is listed as an author.

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Data Availability

The data analyzed in this study are not publicly available because they contain sensitive clinical information derived from hospital electronic medical records and Taiwan National Health Insurance cloud data. Deidentified aggregate results are presented in the manuscript. Requests for access to additional deidentified data may be considered by the corresponding author and Far Eastern Memorial Hospital, subject to institutional review board approval, institutional data governance policies, and applicable privacy regulations.

Authors' Contributions

Conceptualization: BHL, CSK

Formal analysis: BHL

Methodology: BHL

Writing – original draft: BHL, CSK

Writing – review & editing: BHL, CWL, ICH, TYL, CEL, CSK

Conflicts of Interest

None declared.

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Abbreviations

ASA: American Society of Anesthesiologists

NHI: National Health Insurance

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