RWD121

Temporal Trends in NorstellaLinQ ICD-10-CM Obesity Coding Accuracy, 2021–2025: Evidence from NorstellaLinQ Linked Claims and Electronic Health Records (EHR)

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Background

Diagnosis-based obesity identification is often assumed to improve over time as documentation practices and payer incentives evolve. Whether ICD-10-CM obesity coding accuracy has meaningfully changed across multiple years, and whether an apparent trend is stable across the underlying data sources comprising a linked claims-EHR database, has not been directly tested.

Objective

To evaluate whether ICD-10-CM obesity coding practices improved between 2021 and 2025 by comparing annual undercoding, sensitivity, specificity, PPV, and NPV against exact EHR-derived BMI as a reference standard.

Methods

Data Sources	NorstellaLinQ linked claims + EHR (capturing 600+ U.S. hospitals). Data sources analyzed include Open claims, closed claims, and structured EHR
Study Design	Retrospective cohort analysis · Adults ≥18 years with ≥1 recorded BMI, January 2021–December 2025
Population	Highest documented obesity severity per patient, per year, from exact height/weight fields · BMI≥30 population grows from 1,721,543 (2021) to 2,306,695 (2025)
Coding Assessment	ICD-10-CM status (E66.xx/Z68.xx) assessed within ±6 months of BMI measurement, calculated annually
Outcomes	Sensitivity, specificity, PPV, NPV, and undercoding calculated annually vs. exact BMI as reference standard · Growth in the confirmed-obesity population tracked over the same period

Results

Key Findings

Coding accuracy has remained essentially flat since 2021, even as the confirmed-obesity population it affects grew 34%.

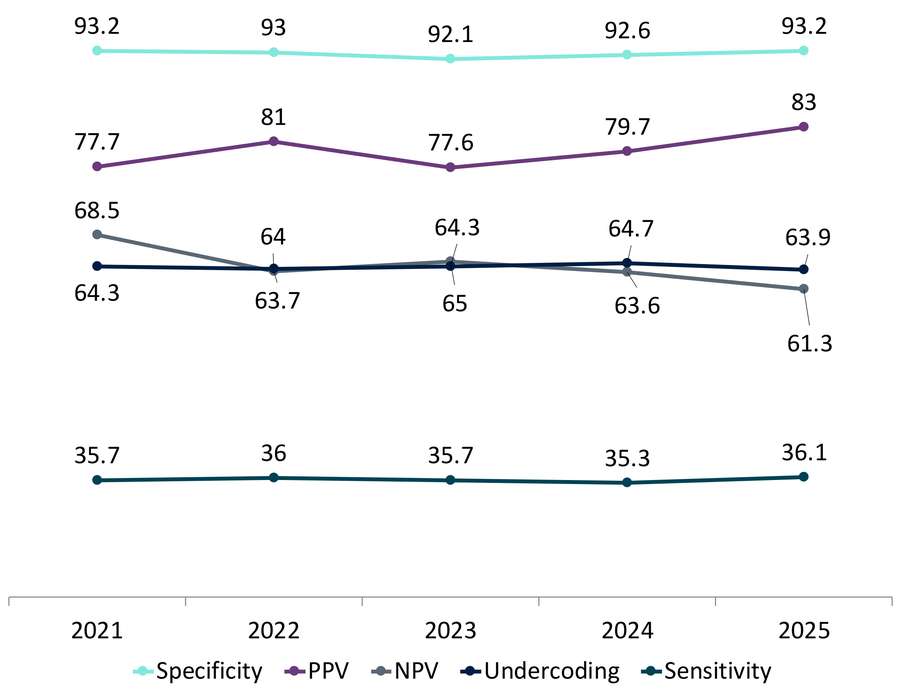
35.7% — **Sensitivity, 2021** — 2021 baseline

36.1% — **Sensitivity, 2025** — Δ = +0.4 pp (not significant)

64.3% — **Undercoding, 2021** — 2021 baseline

63.9% — **Undercoding, 2025** — 2025, unchanged from 2021

Annual Coding Accuracy Metrics, 2021–2025



Growth in the Confirmed-Obesity Population, 2021–2025

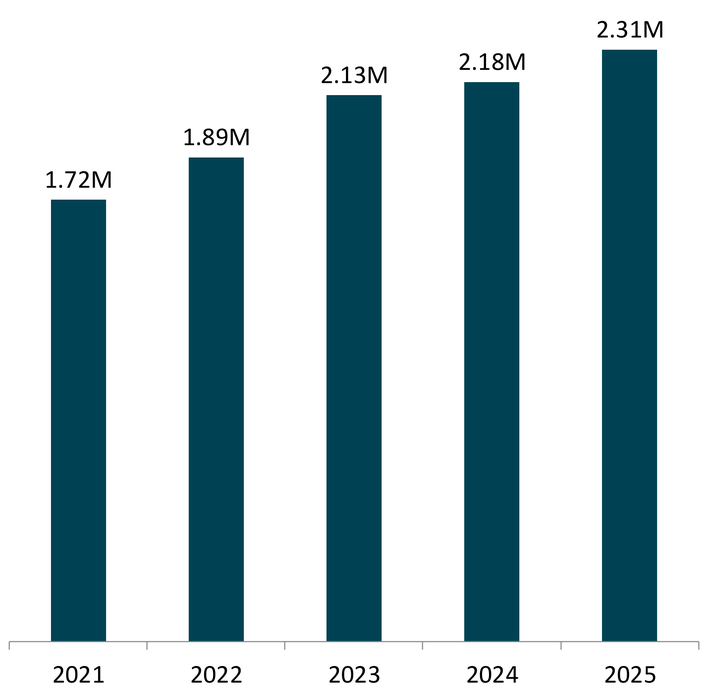


Table 3. Annual Metrics vs. Exact BMI Reference

Year	Sens.	Spec.	PPV	NPV	Under-coding
2021	35.7%	93.2%	77.7%	68.5%	64.3%
2022	36.0%	93.0%	81.0%	63.7%	64.0%
2023	35.7%	92.1%	77.6%	65.0%	64.3%
2024	35.3%	92.6%	79.7%	63.6%	64.7%
2025	36.1%	93.2%	83.0%	61.3%	63.9%

N (BMI≥30): 1,721,543 (2021) → 1,887,345 (2022) → 2,129,125 (2023) → 2,180,564 (2024) → 2,306,695 (2025).

Interpretation: every metric moves within a narrow band across all five years; no metric shows a sustained directional trend.

Key Insight

The confirmed-obesity population grew 34% over five years (1.72M→2.31M patients), while coding accuracy for that population remained essentially flat. A flat rate applied to a growing population means a larger absolute number of patients go undercoded each year; the burden of missed diagnoses is expanding even though the underlying gap in practice has not.

Conclusion

- ICD-10-CM obesity coding accuracy has not meaningfully changed between 2021 and 2025: sensitivity moved only 35.7%→36.1%, and undercoding held between 63.9% and 64.7% throughout.
- Because the confirmed-obesity population grew 34% over the same period (1.72M→2.31M patients), a flat rate translates into a growing absolute number of undercoded patients each year.
- Five years of rising GLP-1 utilization and clinical attention to obesity did not move coding accuracy; closing the diagnosis gap likely requires targeted documentation interventions rather than passive improvement over time.

Key Limitations

- Retrospective, descriptive design; annual metrics are not adjusted for shifts in patient mix, site of care, or payer composition over time.
- Annual population growth (1.72M→2.31M) may partly reflect increased claims/EHR linkage capture over time, not solely true growth in obesity prevalence.
- Coding status assessed within a ±6-month window of BMI measurement; may not reflect real-time clinical documentation timing.

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