

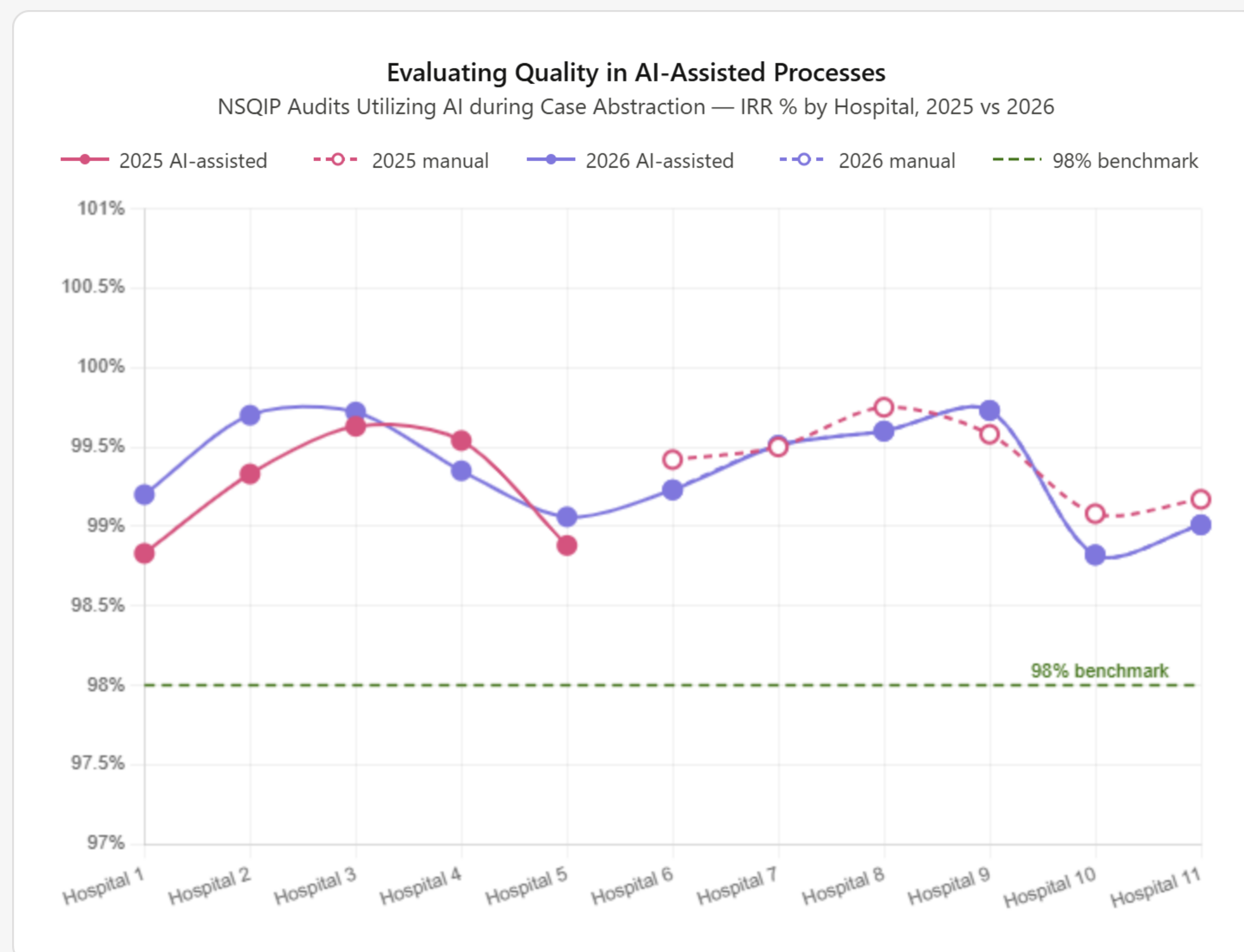
Evaluating Quality in AI-Assisted Processes: NSQIP Audits Utilizing AI during Case Abstraction

Beyond the Algorithm: Leveraging AI-Assisted IRR Audits as an Educational Tool in NSQIP Case Abstraction Revealed That the Greatest Quality Gains Come Not From Technology Alone, But From the Skilled Human Abstractors Who Learn, Collaborate, and Grow Alongside It

Targeted Education and Collaborative IRR Review Drive Measurable Improvement in AI-Assisted NSQIP Abstraction Accuracy

Improvements in abstraction accuracy and team collaboration occurred together, suggesting that when AI tools are integrated thoughtfully and education is prioritized, both quality outcomes and team engagement benefit.

The implementation of a structured, education-focused AI-assisted IRR audit process demonstrated meaningful improvement in data quality. By utilizing AI technology to support a 100% audit of all data metrics within the IQVIA workstation, we were able to identify abstraction trends and inaccuracies with greater efficiency and consistency than traditional manual review alone. Reframing the AI-assisted audit process as a learning opportunity rather than a punitive measure fostered a culture of continuous improvement, team collaboration, and abstractor engagement — underscoring that skilled human oversight, targeted education, and AI-driven quality tools work together as essential and complementary components of excellence in clinical data operations.



2025 AI avg

99.24%

2025 manual avg

99.42%

2026 AI avg

99.36%

2026 manual avg

99.32%

Overall performance

2025 AI-assisted average: 99.24% | 2025 manual average: 99.42%

2026 AI-assisted average: 99.36% | 2026 manual average: 99.32%

AI-assisted abstraction

In 2025, 2 of 11 hospitals used AI-assisted abstraction, meeting or exceeding the 98% benchmark

In 2026, we increased to 6 hospitals utilizing AI-assisted abstraction

Manual abstraction

In 2025, 9 of the 11 hospitals used manual abstraction, all at or above 98%

In 2026, 6 of 11 hospitals continued with manual abstraction

Year-over-year comparison

Performance remained remarkably stable from 2025 to 2026 across both methods — less than 0.2% difference in overall averages

The introduction of AI assistance at the previously manual hospitals did not negatively impact IRR scores; those sites maintained their high accuracy

No hospital showed a meaningful decline when transitioning to or continuing with AI-assisted abstraction — in fact, the IRR rates slightly improved over time with more AI use

Key takeaway

AI-assisted abstraction produces IRR results equivalent to manual abstraction, supporting its use as a reliable quality-maintaining tool. In fact- the more we utilize an AI-assisted process for IRR, the better IRR results we see!

- AI-assisted IRR auditing enabled a 100% review of all data metrics per cycle, providing a level of comprehensive oversight that strengthens the overall quality of NSQIP abstraction in ways that manual processes alone cannot consistently achieve.
- Leveraging AI to identify trends and patterns in IRR inaccuracies allowed education efforts to be targeted and data-driven, ensuring training addressed the most impactful abstraction gaps.
- AI-assisted processes are most effective when paired with human expertise — abstractors who understood the "why" behind flagged inaccuracies made more meaningful and lasting improvements than those simply correcting errors— shifting this dynamic improved both morale and abstraction motivation.
- Allowing abstractors to review and correct their own cases identified through the AI audit process reinforced learning and promoted individual accountability.
- Even with AI-assisted auditing and consistent education, natural human variation will persist — the goal is continuous improvement supported by technology, not perfection.