

Healthcare AI Data Quality Degradation and Its Impact

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Executive discussion paper | AI readiness, monitoring, patient safety and business impact

AI confidence is running ahead of data quality

Evidence Snapshot

The most recent study cited in this article is a 2025 qualitative study based on interviews conducted in 2024 with 16 radiologists across the U.S. and Europe. It found that AI monitoring remains relatively immature: manual retrospective comparison against radiology reports was common, while automated/statistical monitoring was much less common. (Springer)

Another study by Fivetran and Vanson Bourne, “AI in 2024,” surveyed 550 respondents in March 2024 and reported:

81%

of surveyed organizations say they trust their AI/ML outputs despite fundamental data inefficiencies.

42%

reported experiencing generative-AI data hallucinations.

50%

of the time, organizations in the U.S. using LLMs reported data inaccuracies or hallucinations.

\$406M

average annual global revenue impact (6% of revenue) caused by underperforming AI built on inaccurate data.

- 81% of surveyed organizations said they trust their AI/ML outputs despite fundamental data inefficiencies.
- 42% reported experiencing generative-AI data hallucinations.
- In the U.S., organizations using LLMs reported data inaccuracies or hallucinations 50% of the time.

- Underperforming AI models built on inaccurate or low-quality data were reported to impact 6% of annual global revenue — \$406M on average.

Key challenge: post-deployment AI monitoring

The most common method of monitoring involved a manual process of retrospectively comparing the AI results against the radiology report. Automated and statistical methods of monitoring were much less common. The biggest challenges are a lack of resources to support AI monitoring and uncertainty about how to create a robust and scalable process of monitoring the breadth and variety of radiology AI applications available.

Impact - Not monitoring data after model deployment & scaled usage

1 Errors multiply.

Bad data doesn't stay in one place. A wrong diagnosis code or duplicate patient record feeds the risk model, which drives an Assist alert, which becomes a note, which becomes training data for the next model. With more AI tools connected, one error reaches many more workflows.

2 Models drift and get worse over time.

Clinical guidelines, coding rules and patient populations keep changing. Without fresh, correctly labeled data, a model that worked at launch slowly becomes less accurate, often without anyone noticing until outcomes slip.

3 AI starts learning from its own mistakes.

As AI-generated content grows (ambient notes, summaries, suggested codes), it flows back into the records. If no one checks it, future models train on earlier models' errors, and quality declines with each cycle.

4 Physicians stop trusting it.

Doctors forgive the first few bad suggestions. After that they tune out alerts, which is alert fatigue, and adoption drops. At that point the AI investment stops paying back, even though the software still works.

5 Financial and compliance exposure.

In value-based care, inaccurate risk scores or care-gap flags mean missed quality measures and lost shared savings. Unsupported coding can also trigger payer audits and clawbacks. Stale or wrong data in the EHR also creates HIPAA and patient-safety risk.

6 Fixing it later costs far more.

Cleaning data before it goes into a model is cheap. Finding and correcting errors after they've spread across several models, records and payer submissions is slow and expensive.

What does the future look like?

2024

Proving AI works in clinical and hospital operations.

2026

Scaling AI deployments across enterprise workflows.

2028

Proving it is accurate, safe, auditable & compliant.

Physician use will likely reach **90% or more**, and AI note-taking will become a standard EHR feature rather than a separate purchase.

As per a different study, **91% of machine learning models lose accuracy over time** (*Scientific Reports*, 2022). Gartner found that **63% of organizations don't have**, or aren't sure they have, the right data management practices for AI. It predicts that through 2026, **organizations will abandon 60% of AI projects** that lack AI-ready data.

Recommendation

Healthcare organizations which are using AI Models across the globe should breathe easy for about 3 to 6 months and focus on improving the underlying AI generated healthcare data. They should look for inhouse, insource or outsource agencies who specialize in healthcare data and have the requisite domain expertise and AI/ML technical experts. Else be ready for missed or delayed diagnosis, incorrect treatment or clinical recommendations, health inequity, complete abandoning of AI solutions out of perceived risks which was not resolved though solutions and methods are available.

■ EXECUTIVE TAKEAWAY

AI scale without data quality, post-deployment monitoring and accountable governance can amplify operational, financial, compliance and patient-safety risks.