Proactive and Reactive Strategies for Reliable Data Quality in Healthcare

According to an Arcadia/HIMSS survey, healthcare leaders prioritise improving data quality, with 76% recognising its importance and 81% considering it essential for data analytics platforms. Good data is crucial for enhancing care quality, productivity, cost-saving, and care management. The biggest opportunities lie in cross-team collaboration (62%) and enhanced data literacy (58%). Data platforms are critical, especially for large organisations, with 44% of those with over 15,000 employees planning significant analytics improvements to keep up with AI innovations. Key features for analytics platforms include data quality improvement (81%), comprehensive enterprise solutions (65%), productivity enhancement (61%), and data consolidation (60%). AI/ML integration (84%) and aggregation of non-traditional (56%) and unstructured data (55%) are also prioritised.

Preparing for and Responding to Disruptive Events in Healthcare Systems

In the same survey, 81 per cent of healthcare leaders stated that improving data quality is essential for any data analytics platform they would consider. This is understandable, especially since poor data can cause systems to come to a complete halt. The term "boom," borrowed from military and cybersecurity contexts, refers to a significant, disruptive event — such as the accidental entry of bad data into a system. The military uses a framework to categorise strategies for preparing for and responding to these events, known as left of boom and right of boom. Left-of-boom strategies focus on prevention, while right-of-boom strategies deal with system responses to major data issues. Applying these tactics to your data quality operations can help your teams maintain their commitment to delivering quality healthcare, even in the event of a "boom."

Proactive Strategies for Data Quality: Preventing Errors and Building Resilient Systems

Healthcare leaders can employ left-of-boom strategies to build more resilient systems with fewer errors. One key strategy is to prevent human error by automating repeated tasks, such as using secure file transfer protocol (SFTP) for file delivery instead of manual uploads. When automation isn't feasible, clear documentation and checklists should be created to ensure consistency and accuracy in data activities.

Understanding expected data patterns is also crucial. Healthcare organisations need to clarify expected input and output, including volume, latency, and context (such as immunisation records with CPT codes), to build reliable systems. It's essential to ensure transparency regarding data changes by communicating any changes to file formatting or content in advance, allowing leadership to assess and prepare for their impact.

Designing systems that fail gracefully involves implementing clear criteria to reject bad data at the system's entry point, preventing it from loading. Automation can help isolate and correct problematic rows without blocking entire files, using tools that attempt formatting corrections and retry file ingestion.

By implementing these proactive strategies, healthcare organisations can better manage data quality and maintain system integrity, even when facing potential disruptions.

Effective Responses to Data Incidents: Minimising Impact and Restoring Systems

When a significant data issue occurs despite preventive measures, swift detection and response are crucial to minimising impact and maintaining user trust.

Detection is the first step. By closely monitoring incoming and outgoing data, analysts can identify anomalies early. Using historical trends to define what constitutes "good" data allows automated processes to compare and detect deviations quickly.

Containment follows detection. Implementing mechanisms, or "data seatbelts," can halt the flow of bad data, protecting downstream users from its effects. This containment minimises the issue's overall impact.

Restoration is the next critical step. This involves backtracking to correct the bad data and replaying data through the system to resume normal operations. For instance, if a monthly claims package was missing critical codes, the corrected file should be requested and reloaded into the system. Investing in a hub-and-spoke architecture facilitates this process, allowing rapid data replays since all components are connected to a central model.

A healthcare system depends on accurate data to function effectively. While data quality issues can severely disrupt operations, having a robust strategy for both prevention and response ensures that such incidents do not escalate into crises. This detailed approach helps maintain trust and reliability, enabling the organisation to use data to support healthier lives and more efficient care delivery.

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