
Transforming Data Management in Healthcare: From Insights to Impact



In the modern healthcare landscape, data management is becoming more than just a technological necessity—it's a cultural shift. Healthcare organisations are rethinking their policies and structures to improve data accessibility, leveraging data to enhance care delivery, streamline processes, and drive innovation. Leaders like Children's Hospital Colorado and the University of Miami Health System are at the forefront of this movement, demonstrating how effective data utilisation can transform patient care. This article explores the journey of these organisations as they evolve from being data-rich to truly information-driven.

Empowering Clinicians with Data

The Children's Hospital Colorado Approach Children's Hospital Colorado has been a leader in using data to improve paediatric care, fostering a culture that values data accessibility and utility. Under the leadership of Kerri Webster, Vice President and Chief Analytics Officer, the hospital transitioned from a "transactional analytics" model to a more strategic approach. This involved shifting from traditional data warehousing, where data had to be extracted, transformed, and then analysed, to a more efficient data virtualisation system. By allowing data to remain at rest and bringing together various sources on demand, the hospital significantly reduced technical debt and improved data accessibility.

The key to success for Children's Hospital Colorado has been empowering its clinicians with real-time, actionable data. Webster's team developed over 50 curated datasets, accessible through self-service dashboards integrated with the hospital's electronic health records (EHR) system. These tools enable emergency room physicians to assess sepsis risk and help nurse managers monitor central lines in real time. Despite the challenges of managing analytics requests from thousands of users, the hospital has cultivated a "data-hungry" culture, where every request for data brings opportunities for improved patient care.

Improving Data Accessibility in Healthcare

The healthcare industry generates a staggering 30% of the world's data, but historically, much of this data has been underutilised. One of the biggest challenges is the unstructured and non-standardised nature of healthcare data, making it difficult to convert into actionable insights. Although electronic health records have made clinical data more abundant, their complexity often hinders real-time application at the point of care.

Some health systems, however, are making strides in addressing these challenges. UHealth, the University of Miami Health System, is a prime example. The organisation uses advanced platforms like Snowflake and Amazon Web Services to make data more accessible, collaborating with university researchers to combine traditional health data with real-world inputs, such as environmental data and information from Internet of Things (IoT) devices. By enriching their datasets with such information, UHealth can create deeper patient insights. These insights improve patient care and support drug discovery and genomics research, paving the way for more personalised treatments.

Moving From Data-Rich to Data-Driven

CHRISTUS Health's Transformation CHRISTUS Health, a Texas-based health system, manages hundreds of terabytes of data but has only scratched the surface of its potential applications. Like many healthcare organisations, CHRISTUS collects clinical data through its EHR system, which provides best-practice advisories for clinicians based on patient records. Yet, the system's real potential lies in data governance and stewardship.

Data stewardship plays a critical role in ensuring information accuracy, directly impacting clinical decision-making. For example, a busy clinician administering a medication must record the precise time to ensure proper scheduling of subsequent doses. This attention to data integrity ensures that decision support systems can make accurate recommendations.

CHRISTUS Health also recognises the potential of emerging technologies, such as predictive analytics and generative artificial intelligence (AI), to further improve patient outcomes. With better tools and more computing power, the healthcare industry is finally at an inflexion point, moving from being data-rich but information-starved to a place where data can directly drive better clinical outcomes.

Conclusion

The healthcare industry is undergoing a transformative shift in how it manages and uses data. From Children's Hospital Colorado's innovative approach to UHealth's real-world data integration and CHRISTUS Health's advancements in data stewardship, the future of healthcare lies in making data not only accessible but actionable. By leveraging cutting-edge technology and fostering a data-driven culture, these organisations are setting the stage for more personalised, efficient, and effective patient care. The journey from being data-rich to truly data-driven is complex. Still, as healthcare organisations continue to refine their approach, patients stand to benefit the most from this exciting evolution.

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