Unlocking the Potential in Healthcare Data: How AI can Optimise a Powerful Strategic Asset

ORION HEALTH
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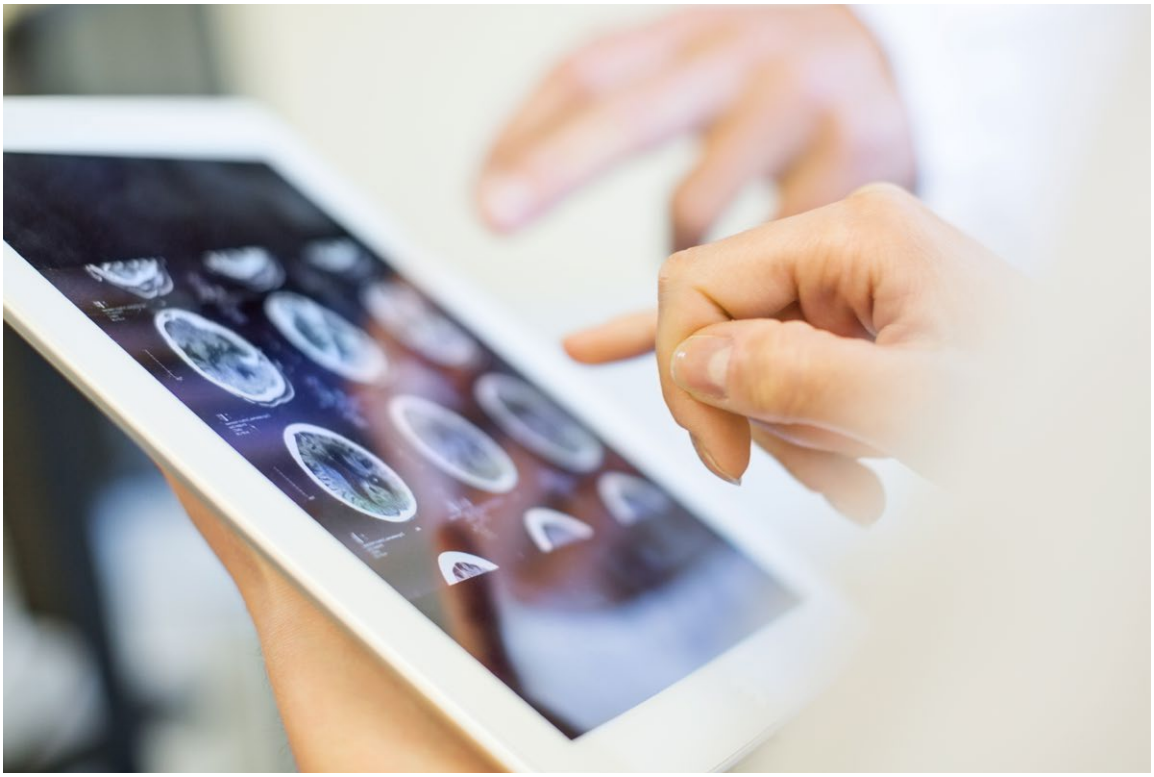
Introduction



Data is a company's most significant strategic asset in today's healthcare landscape. From electronic health records and diagnostic imaging to wearable devices and patient-generated data, the industry produces an unprecedented volume of information that provides significant benefits and efficiencies for providers and patients, provided it is harnessed effectively.

With the amount of health data generated increasing at a rate of 47 percent per year[1] (according to the American Hospital Association Leveraging Data for Health Care Innovation 2021 report), the challenge lies in translating vast volumes of siloed information into meaningful actions. Central to this is integrating the data flow from multiple sources spanning the care continuum, and unifying it into a standardised platform.

This whitepaper explores exciting recent innovations in data management and AI that are driving the evolution towards emerging models and frameworks for healthcare integration and delivery, such as value-based care (VBC). It explains the indispensable need for a health-specific trusted platform to harmonise disparate sources, and the potential of AI in managing and utilising information for insights. It also demonstrates how adaptable data systems can support VBC by facilitating the delivery of higher-quality care, while mitigating the burden of soaring healthcare costs.

Healthcare is Ready for Data-led Disruption

The last few decades have seen countless industries disrupted as organisations discovered how improved access to prodigious amounts of data could transform their offering. Companies like Uber, Starbucks, and Amazon have built unassailable competitive advantages by using data to deliver better service and create efficiencies. Healthcare is poised to experience the same transformation, provided organisations are prepared to employ the tools required to harness and interrogate the information at their fingertips.

Multiple data sources, most of it underutilised

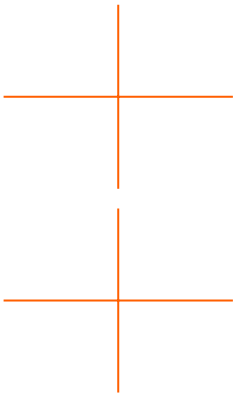
Today healthcare organisations manage an overwhelming volume of data sources, with new types constantly emerging. These are often siloed, making it challenging for organisations to extract meaningful value. Hospitals produce around 50 petabytes of data per year, comprising clinical notes, lab tests, medical images, sensor readings, genomics, operational and financial data, and more. Currently, approximately 97 percent of the data goes unused, and at what cost?[2] Fortunately, this is changing as technology companies develop tools and strategies to assist with healthcare data integration and management, and interoperability between different departments and electronic systems within hospitals, and in exchange with other healthcare providers. In many cases, the volume of data is so great and the systems so disparate that the first step towards a solution is merely understanding and mapping out the complexity of their specific data requirements.

Challenges become opportunities

The potential for information overload for individuals and organisations is profound, as are crucial questions of data management, quality, privacy, and security. Ensuring data's accuracy and integrity is a pressing concern, as is safeguarding it against breaches and unauthorised access.

A further challenge is the diversity of data types, including structured, semi-structured and unstructured, that must first be ingested appropriately in order to generate insights. This includes video from online consultations, audio from specialist calls, trend data from health apps, social determinants of health, and medical device data, just to name a few. As a constantly evolving industry with emerging therapies, drugs and observations, the speed with which new and important data types are generated is accelerating.

Herein lies the opportunity. A recent article in HealthTech magazine predicted that organisations that are able to sift through their vast volumes of data while delivering critical insights to clinicians will lead the worldwide transition to value-based care.[3] This ability to develop personalised treatment plans, ease workflows and use predictive analytics to drive research will revolutionise the patient experience through enhanced clinical decision-making, trend identification, and streamlined care delivery – and with the recent breakthroughs in AI, the stage is now set for a revolution in healthcare.



The central role of data

Clinicians frequently make diagnosis, treatment, and resource allocation decisions based on available information. If data is inaccurate or misunderstood, then at best we are working blind, at worst we can be carefully making the wrong decisions. Data is even more fundamental in policy and research, used to discover, define and justify best practice. Data can also be highly sensitive, linking a person to a label, a problem, or a cost. Health data could be used to perpetuate harm - compromising opportunities for employment and insurance coverage, changing the priority of access to services, or perpetuating stigma and embarrassment.

The Importance of a Trusted Partner

Multiple platforms offer various solutions; however, the complexity and sheer abundance of healthcare data, and the patient and carer dynamic, are highly unique. **Technology partners should be chosen with care, not just for their technical expertise but for their deep understanding of clinician workflows, and patient behavior - the 'human' factor.**

The best platforms are able to quickly adapt to new information, evolving standards and the ongoing advancement and proliferation of AI. However, experimental tools are not appropriate for the healthcare industry, another reason it is vital that data agility is delivered by a trusted health-specific platform.

Traditional data warehouses can't keep up

Technically, a chosen platform needs to be adaptable and able to meet an organisation at any stage of their data migration journey, whether connecting and utilising legacy data silos, or keeping up with the deluge of new data being generated daily. Traditional static data warehouses are not recommended, as they are often outpaced by rapidly changing technology and business requirements; by the time the solution is ready, the need has already changed.

Data Lakehouses and Data Platforms are the next evolution

Data lakehouses are a new development in data storage, able to use metadata to manage both structured (i.e. Medicaid data), semi-structured, and unstructured (ie video or audio files) data. They offer a scalable, organised, easily manageable solution with automated procedures, and can be rapidly deployed with proper data governance in place. This enables the creation of highly useful subsets, allowing for data 'cleaning', sorting and comparison - highly useful tools for population and cohort management.

Careful management ensures the highest quality

Data lakehouses also offer the ability to flag when data quality is lacking in metadata, running the risk of the data lake devolving into a "data swamp," a mass of disorganised information that is faulty, outdated and irrelevant, unable to be optimised fully. Employing a data lakehouse will vastly improve the quantity and quality of data an organisation can utilise.

50 petabytes

of health data is produced by hospitals per year. It is comprised of clinical notes, lab tests, medical images, sensor readings, genomics, operational and financial data, and more.

47%

rate of increase annually in health data generation.

~97%

of health data is currently unused.

70%

of health systems believe the evolution of AI provides a tipping point, only 6% have a strategy to support it.

$200-300b

or 5-10% annual reductions in healthcare costs if AI is widely used within the next five years.

Data Platforms: The Synergy of Data and AI

Data Platforms are the next step again in the evolution of healthcare, a wrap-around solution combining a data lakehouse with AI algorithms and machine learning capabilities and offering opportunities for accelerated advancement in precision medicine, predictive healthcare, and personalised treatment plans. AI will fundamentally alter the healthcare landscape by deploying sophisticated algorithms and cutting-edge technologies to sift through and analyze immense datasets with unprecedented efficiency and speed. Having properly leveraged their data, healthcare providers can now unearth hidden patterns, detect anomalies, and make data-informed decisions about patient care, simultaneously optimising resources, streamlining operational processes, and reducing costs. Data Platforms exist on the market today, and some offer a scaleable solution with a low-impact, staged roll-out that can integrate into a provider's current EMR services. They are currently the strongest available way to set an organisation up for success in an AI-integrated future and ensuring that business and care insights will evolve, staying abreast of the latest medical advancements. However, whilst 70% of health systems believe the evolution of AI provides a tipping point, only 6% have a strategy to support it. [4]

Leverage AI or get left behind

The past decade has seen image-processing AI outperform clinicians, and natural language processing algorithms automate the structuring of clinical text, increasing the breadth and accuracy of risk models. More recently, the rise of generative AI and large language models has prompted a more general buy-in for human-friendly interactions with technology.

Given the various systems and vast quantities of information in question, it's difficult to put a value on the potential increase in successful patient outcomes if all healthcare organisations committed to data-driven insights. According to The Financial Cost of AI in Healthcare – A Comprehensive Guide for 2023, if AI is widely used within the next five years with current technology, healthcare costs might be reduced by 5% to 10%, or $200 to $300 billion annually, making it clear that organisations that thrive will be using data to deliver more efficient, personal, cost-effective care, becoming a preferred health care provider as a result.[5]

Top performers need the ability to ingest the same data as their competitors so that when patients seek a second clinical opinion or pursue care alternatives, none is lost. As the patient experience becomes a key competitive advantage, they will not accept poor communication across their care teams.

Why such slow AI uptake?

It comes down to two factors. Firstly, many health systems are uncomfortable from a regulatory and safety perspective, as most consumer-facing AI tech relies on a complete lack of privacy. Nothing we tell ChatGPT is confidential, any control over information is lost the second we hit enter. The second factor is the sheer scale of the opportunity, and wrapping our heads around the technology. The vast majority of central governance boards are not fully equipped to understand and oversee decisions concerning the models and algorithms that are produced through data science research. Most health systems have multiple stand alone data warehouses that cannot be connected and therefore have limited potential to leverage their data using AI. **More generally AI expertise, especially in health, is in extremely short supply.**

Patients are pushing for Value-Based Care

The Centers for Medicare & Medicaid Services describe value-based care (VBC) as health care designed to focus on quality of care, provider performance and the patient experience.[6] The "value" refers to what an individual values most. CMS aims to have all Medicare beneficiaries and most Medicaid beneficiaries enrolled in accountable care programs by 2030. Successful healthcare organisations will help patients from their first skinned knee to their hip replacement - engaging digitally and building lifelong relationships across all care settings. We have gotten used to transactional healthcare over the last few decades in the US, but healthcare organisations of the future will champion the return of relationship-based healthcare and be rewarded with the loyalty that comes with it. As healthcare organisations continue to adopt AI technologies and integrate them into their workflows, they will be positioned to succeed in value-based care models, where the focus is on the efficient delivery of high-quality care and improved patient experiences.

AI will be pivotal in delivering value-based care by enhancing care quality through data-driven decision-making,reducing costs, improving patient outcomes, and enabling proactive and patient-centered healthcare.

Four Takeaways to Future-proof for AI

Orion Health has several predictions for the path to uniting data for AI and Innovation rolling out over the next several years:

1. **Universal data collection and utilisation, supporting emerging models like Value Based Care:** With a trusted platform and application of AI, healthcare organisations will collect all the data they can into one consolidated data store, and be hungry for more. This will turn into personalised care that builds customer loyalty.
2. **A rich data layer with AI on top** Organisations will have their data structure sorted with the optimal balance of structure and flexibility, enabling them to use AI and advanced tools to process their sea of data. AI will become a foundational pillar of innovation in healthcare, influencing every facet of patient care, from diagnostics to treatment plans and beyond. Integrating AI-driven technologies will enhance the accuracy and efficiency of healthcare processes, leading to more personalised, effective, and timely interventions.
3. **Health native platforms optimising for healthcare** Organisations will need to be on health native platforms to deploy fast, take advantage of innovation and control for risk.
4. **Enhanced Population Health Management:** AI will revolutionise population health management by analyzing vast datasets to identify trends and assess risk across entire patient populations. This will allow healthcare organisations to proactively address the health needs of specific groups, leading to improved outcomes and cost savings in value-based care models.

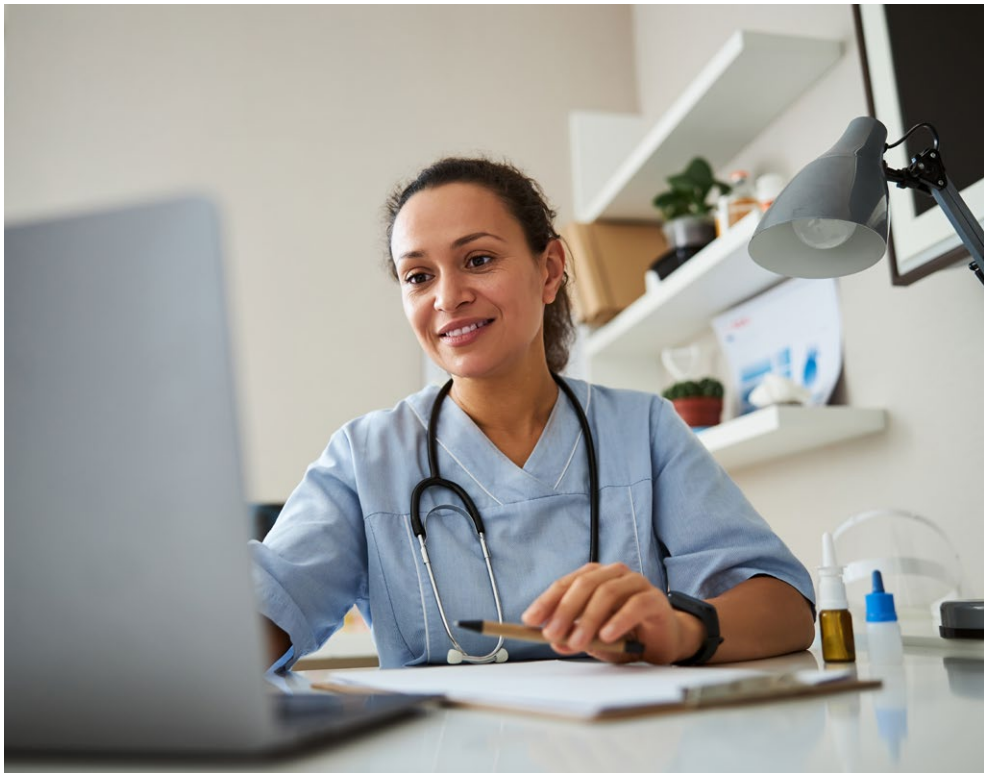
Conclusion

Small problems left alone, become big ones.

Data platform change management can seem overwhelming, but the time to act is now. Slow adopters will be overlooked by patients searching for a better, more personalised experience. Organisations already set up to leverage their data and embrace the AI advantage will begin to dominate healthcare in the same way that Amazon, AirBnB and Uber did previously. Data is the lifeblood of value-based healthcare, and the importance of understanding and managing it will only increase with its accelerated proliferation.

Many companies in the market offer various data services, but choosing a trusted, health-specialist platform that focuses on data unification and futureproofing, such as **Orion Health's Orchestral Health Intelligence Platform,** is crucial. The ideal partners will be able to help care providers best manage their data, apply AI to glean insights, experience efficiencies, and front-foot future evolutions within the industry.

Because the revolution has already started.



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