



Evolution of Enterprise Data Management in Health



This large Australian State Health System has over 200 hospitals and over 150,000 employees delivering healthcare to millions of citizens. Each of the Local Health Districts within the state provides a range of services from community care in remote locations to acute care in metropolitan, tertiary centres, including specialist networks focused on paediatric services, custodial health, forensic mental health, and associated agencies. The State Health System aims to keep people healthy by providing world-class clinical care via an integrated and connected health service.

Challenge

Each Local Health District within the state aggregated their patient level data from multiple hospitals. This data included demographic, diagnostic, procedural and billing data for millions of episodes of patient care. State and national Activity Based Funding (ABF) and contract payment rules needed to be applied to these large datasets in order for the health systems to be paid correctly and for public health statistics to be gathered promptly and accurately.

In the past, this had been a costly, slow, heavily manual process requiring the messaging of data files back and forth on a regular basis. The State Health System would experience a lag before it could aggregate all the datasets for a state-wide view. Both public health and system management improvement required a more modern and efficient mechanism that could give up to date insights into the health system status across each Local Health District and across the state.



Solution

The State Health System chose Fujitsu to design, build and maintain a Health Information Exchange (HIE) platform for financial and clinical reporting assets. The addition of this platform was highly important for the State Health System as it became its core repository of financial and clinical data for both internal and external reporting. It was used to consolidate clinical information across all patient and hospital systems, providing a consistent view of performance across the state. It also supported national reporting and funding linked to ABF.

Initially, Fujitsu released a small-scale Proof of Concept of the HIE, then issued a second release that included additional Finance and Workforce functionality, before completing a state-wide rollout. Subsequently, Fujitsu has continued to provide support and periodic releases including regular updates to ICD-10-AM, ACHI and AR-DRG clinical code sets and IHPA ABF models.

As technology demands quickly evolved, Fujitsu was selected to design and build an Enterprise Data Warehouse (EDW) to meet increasing data analytic needs that surpassed the scope of the original solution. The EDW and HIE were run simultaneously by Fujitsu providing the required support and releases for both until the recent retirement of the original HIE.

Unlike the federated HIE, the EDW is a single instance deployment for all the Local Health Districts to sustain an ecosystem that manages all data relating to approximately 3 million visits to the Emergency Department and 1.8 million admitted patient care episodes per annum.

Outcomes

The creation of the EDW and HIE has meant that the non-clinical workforce such as staff in Finance, Administration and Performance departments have seen dramatic improvements in efficiency and productivity through faster workflows and decreased manual handling of datasets. Ultimately this led to cost-savings which were re-invested in other areas of critical, clinical care. With the recent decommissioning of the HIE after years of use, the newer EDW is providing enhanced day-to-day functions for the workforce.

The evolution of real-time reporting in recent years has meant that State Health System executives and public health clinicians are better able to visualise a state-wide view of rapidly changing healthcare priorities and respond in a timelier and more cost-effective manner to public health crises ranging from bushfires and floods to pandemics. The program was completed successfully, delivered within budget, achieved the agreed scope and realised the intended benefits.



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Next steps

Inevitably, as the pace of change in technology accelerates, Fujitsu is committed to pursuing the rapid adoption of innovative technologies such as neural networks on dedicated GPU architectures with proliferating algorithms interrogating cloud hosted, structured and unstructured data lakes to predict, report and digitally visualise future states in close to real time.

Health systems are already rapidly devouring artificial intelligence technologies and the availability of dedicated environments from specialist, super-computing, system integrators will be critical to the delivery of safe, high quality population health.

Fujitsu - a trusted Health Industry transformation partner, focussed on systems that deliver improved health service outcomes.

