SickKids®
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emrchiver

CASE STUDY

The Hospital for Sick Children

emrchiver - ENABLING ARCHIVED ICU DATA

"TEKStack Health successfully extracted the critical care data locked in the legacy systems of multiple ICUs and migrated that data into a customized and easy-to-use platform."

About the Hospital

Affiliated with the University of Toronto, The Hospital for Sick Children (SickKids) is Canada's most research-intensive hospital and largest centre dedicated to the improvement of children's health in the country. By staffing professionals from all disciplines within both health care and research, SickKids provides the best in complex and specialized care through creating scientific and clinical advancements, sharing knowledge and expertise, as well as championing the development of accessible, comprehensive and sustainable child health systems.

Key Details

Organized and imported 15 billion medical observations for easy web access with sub-second searching.

Standardized and automated the data mapping from dozens of sources, and ran **over 40 asynchronous jobs simultaneously.**

Created an **easy-to-use flowsheet dashboard** with improved searching speed, with emphasis on incorporating user feedback.

Implemented **state-of-the-art analytics tools and machine learning capabilities** for obtaining relevant data insights used by the hospital's research institute.

The Challenge

SickKids decommissioned an electronic medical chart application (CIMS) which ran in the Neonatal, Pediatric and Cardiac Intensive Care Units since 1999. The hospital required the migration of billions of records from CIMS to a new system allowing administrators and researchers to find, export and analyze this data. The new application likewise needed to centralize historical information from multiple ICUs in the form that would be easier to use by hospital staff. In addition to the migration effort, the hospital was seeking data scientists capable of implementing relevant data analytics and machine learning algorithms in an attempt to pull novel insights from the historical data that was otherwise out of reach from the institution's researchers.

Why TEKStack Health

Given the scope and the complexity of the task, TEKStack Health was the preferred vendor in identifying and executing the range of requirements required by the hospital. Using TEKStack Health's **emrchiver**, the hospital's decommissioning challenge was easily resolved and the technical achievement can be summarized by the following stages:

1 | Mapping

TEKStack Health consultants comprehensively mapped out the entire system in 40+ excel import files and automation scripts that combined layouts, labels and groups from a flat file, complex cross functional lookups between text files as well as database lookups. These import files were the basis for system import.

2 | Importing

TEKStack Health engineers created asynchronous importers that were executed for durations of up to 30 hours. The importer used the mappings and database data dump from the old system to construct documents with instantaneous search capabilities.

3 | Testing

Careful and robust testing was done by the TEKStack Health team to ensure matching of the old system with the newly-created system.

4 | Searching and Analytics

Advanced searching tools were incorporated into the new system, enabling historical patient records for various data lookups.

In addition to implementing state-of-the-art search capabilities into the improved system, intuitive data-visualization tools eased interpretation of the newly-accessible data libraries.

The Benefits

With the implementation of **emrchiver**, a user-friendly archive solution was successfully executed within the Hospital for Sick Children's intensive care units. Based on the hospital's unique research needs, the new platform is both easier to use, and includes industry-leading data analytics and search technologies, based on the data transformation, mapping and migration of billions of chart inputs from a legacy electronic medical chart application.

The novel system now enables ICU administrators and researchers to not only have access to 20+ years of historical patient data with sub-second searching, analytics, and reporting, but also unlocks the potential for identifying new research discoveries within a previously overlooked asset within the hospital's intensive care units.