



# HIMSS Analytics Stage 7 Case Study

St. Joseph's Healthcare Hamilton



## Profile

St. Joseph's Healthcare Hamilton (SJHH) is a multi-site, values-based, academic and research healthcare organization located in Hamilton, Ontario, Canada. SJHH is affiliated with both McMaster University and Mohawk College, and is a member of the St. Joseph's Health System serving the Hamilton, Niagara, Haldimand, and Brant communities. It employs more than 6,500 staff, physicians, volunteers, residents and learners who conduct clinical care, research, and teaching across our three primary campuses with 470 acute care and 310 non-acute care beds, as well as 36 bassinets. St. Joe's specializes in the delivery of Respiratory Care, Kidney Urinary Care, Mental Health and Addictions, Women's and Infants' Care, and Surgical Care, and is the home to the Centre for Minimal Access Surgery.

Date Stage 7 was achieved: November 30, 2021

## The Challenge

Prior to the implementation of our current HIS, SJHH was heavily reliant upon a paper health record including inpatient medication management, clinical documentation, and most order sets, resulting in high volumes of chart scanning, and had a HIMSS EMRAM rating of 1.209. Our lab orders and results; diagnostic imaging orders and results had transitioned to electronic systems, however the hospital's previous state of a hybrid paper/electronic patient record resulted in both inefficiencies and potential risks to deliver patient care both safely and effectively. Furthermore, a decentralized data collection/management process made it difficult to access and utilize clinical and research data for informed decision-making purposes.

As part of the hospital's Benefits Realization for our HIS implementation, the project sought to achieve the following:

- **Patients, Caregivers and Families** have easy access to hospital and health information, discharge or transition instructions, and electronic tools that help guide health decisions and help manage disease.
- **Clinical Documentation Compliance** improvement for hospital key performance indicators and initiatives to help deliver better care, improve clinician decision making and achieve excellent outcomes and safety. This includes implementation of barcode medication administration and computerized physician order entry.
- **Quality of Care** improvements and compliance monitoring to support the reduction in the most common complications of hospitalization. This includes centralization of clinical and non-clinical data to reliably source information more easily, investigate theories and problems through the merging of data, and be able to generate reports on compliance and progress towards the hospital's goals

## Implementation Overview

Implementing a new HIS system at SJHH was a complex undertaking, as the hospital has three major sites along with many other satellite clinical spaces. St. Joe's chose to brand our HIS implementation project and system as Dovetale, in order to align with our mission of joining compassionate care with leading healthcare technology. On December 2<sup>nd</sup>, 2017, St. Joseph's Healthcare Hamilton went live with Dovetale in a "big bang" approach across the Inpatient Medicine, Mental Health and Addictions, Women's and Infants' Programs; Surgical Services, Diagnostic Imaging, Emergency Medicine & Urgent Care, and a subset of our Ambulatory Programs. This effectively asked the organization to put down their pens at one moment in time to switch to a digital health record system across St. Joe's. Since then, the vast majority of the Ambulatory Programs at St. Joe's have also been onboarded to Dovetale to continue to streamline the patient and provider experience. The Dovetale Go-Live involved the core EpicCare Inpatient and Ambulatory, Ancillary and Specialty, Access and Revenue Cycle, and Analytics and Population Health modules.

The "big bang" approach required a 13-month intensive implementation process to adapt the new solution to the organization's specific needs and Canadian context, in addition to a previous requirements gathering and RFP process to choose the right system. Following an in-depth review of organizational needs, Epic was selected as the new HIS system through an exhaustive RFP process.

The ambitious Dovetale Project was an overwhelming success, with Dovetale being implemented on budget, on time, and within scope, while maintaining high-quality, safe patient care, and staff and patient satisfaction through effective change management and meaningful communication. As a result, the Dovetale Project was awarded the 2018 Canadian Health Informatics Project Implementation of the Year Award.

Key Dovetale Project statistics included:

- 400+ stakeholders engaged in the RFP evaluation
- 4,000+ Clinical and Business requirements used to select Epic as our vendor during the RFP
- 80 Epic-certified team members who built Dovetale to meet the needs of our patients and staff
- 30+ clinical departments engaged and over 200 clinical validation sessions completed
- 475 unique clinical workflows captured and documented during project initiation
- 7,000 clinical and support staff trained to use Dovetale in their daily workflows
- 6,000 medications for over 750 patients, 20,000 DI appointments, and 60,000 outpatient clinic appointments were cutover from legacy systems into Dovetale

## Resulting Value / ROI

SJHH is still only beginning to realize the potential impact that Dovetale can have on the care that we are honoured to provide to our community. Data captured in Dovetale allows us to align ourselves with strategy by providing us both a birds-eye view and a granular level of insight into the challenges we face in an increasingly complex healthcare environment. Embracing the data that we capture from Dovetale, whether good or bad, allows us to strive towards providing the best patient care possible.

During the implementation of Dovetale, SJHH established a Benefits Realization Framework to evaluate whether our investment in Epic was a clinical, business, and technical success for the organization. This framework helped to establish early Key Performance Indicators for organizational decision-making. Benefits metrics were defined in alignment with SJHH’s strategic priorities, Canadian Quality Priority Indicators, Epic’s Key Performing Indicators, and relevant Canadian literature. Benefits measures were defined in the following areas: Quality of Care; Communication, Coordination, Access to Care; Efficiency; Patient Experience; and Staff Experience.

Benefit Measure	Target	Pre-Dovetale	Post-Dovetale				Change
			2018	2019	2020	2021	
Barcode scanning (BCMA, etc.)	95%	N/A	78%	92%	95%	95%	N/A
BPMH completion	90%	73%	88%	97%	97%	98%	↑ 25%
CPOE	95%	N/A	95%	95%	95%	95%	N/A
VTE prophylaxis	90%	81%	97%	98%	98%	98%	↑ 17%
Antibiotic timeliness for sepsis in ED	120 min	165 min	145 min	137 min	130 min	146 min	↓ 19 min
VAST completion within 24 hours of ED presentation	90%	40%	73%	73%	71%	67%	↑ 27%
Drug-allergy events tracked	N/A	N/A	3,604	3,668	3,044	3,498	N/A
Discharge summary completion within 48 hours	90%	65%	78%	84%	85%	85%	↑ 22%
Percentage of inpatients who received a printed AVS	90%	N/A	86%	91%	92%	93%	N/A
Bed turnaround time	90 min	95 min	80 min	87 min	94 min	83 min	↓ 12 min

Dovetale has proven to be instrumental in supporting organizational priority improvements and benefits realization measures. St. Joe’s has been able to improve medication safety, attributing to our quality of care benefit measures in several ways. St. Joe’s is now collecting the best possible medication history (BPMH) for 98% of admissions, a 25% improvement from pre-Dovetale. By having an accurate list of our patients' home medications, potential medication discrepancies and patient harm are avoided, and the team is better able to make important treatment decisions. We have also seen a nearly 30% reduction in medication-related errors with high compliance in barcode-enabled medication administration workflows. Other clinical decision support tools have also helped improve quality of care by improving antibiotic timeliness for sepsis, as on average SJHH is treating ED patients with sepsis 20 minutes faster than pre-Dovetale. The hospital has also seen a reduction in the occurrence of venous thromboembolism (VTE) by completing VTE prophylaxis 98% of the time with Dovetale (an improvement of 17% from pre-Dovetale).

Communication and coordination with providers in the community, as well as access to care for patients, has been improved through Dovetale. St. Joe's has been able to improve transitions by completing and sending discharge summaries within 48 hours of discharge for 85% of our patients, representing a 20% increase from pre-Dovetale. We have also been able to improve access by reducing the 90<sup>th</sup> percentile bed turnaround time by 13% or 12 minutes from pre-Dovetale with improved communication and response times between Environmental Services, Transporters, and Clinical staff. In June 2018, St. Joe's launched MyDovetale, a secure online patient portal that helps patients and their loved ones take a more active role in managing their care and monitoring their health. MyDovetale provides a secure access point that connects patients to Dovetale, where they are able to connect with their care teams via messaging and virtual care appointments, and review meaningful health information. We have almost 130,000 patients actively using MyDovetale and have leveraged the platform to conduct more than 40% of ambulatory care virtually throughout 2021.

Dovetale has also helped provide improved hospital operational efficiencies. One such example is the improved documentation workflows for intraoperative documentation of implants and surgical supplies used within surgical cases. Data is now more accurate, and readily available and has provided the Surgical Program with the ability to reallocate implant funding or provide additional surgical cases to be completed within our operating rooms. Decision making from this data allowed SJHH to perform 27 additional Prostatectomy surgical cases within the existing budget in fiscal year 2021/2022.

With Dovetale, St. Joe's has also become a leader in HIS implementations and operations, and is able to continue to expand both Dovetale functionality and our ability to integrate and share information with key community systems. Some key achievements include:

- 2019: 1<sup>st</sup> Hospital in Ontario to deliver virtual care to patients outside of OTN Hub (Partner Video Project)
- 2020: 1<sup>st</sup> Hospital in Ontario to exchange health information between Hospital & Long-Term Care facilities
- 2020: 1<sup>st</sup> Canadian Hospital to implement Cognitive Computing algorithms & Epic's SlicerDicer self-service tool
- 2021: 1<sup>st</sup> Hospital in Ontario to integrate with the Ocean eReferral solution

## Lessons Learned

1. Strong governance is key to maintaining focus on the right aspects of the project to minimize scope creep and was critical to project success. One key governance principle was that all decision making related to scope, timelines and budget rested with the Executive Steering Committee. This streamlined accountability, helped focus efforts and catalyzed decision making. Decision making was supported by clear mechanisms to escalate issues from working groups through the levels of project governance to the Executive Steering Committee.
2. Create a culture of change by developing the organization's "story". For example, Dovetale implementation was framed as a cultural transformation project, not an IT project. Before introducing the project to staff and physicians in a significant way, considerable effort was placed into creating a unique story that SJHH could use to explain why this change was important. The Epic system was branded with the Dovetale name and story reflective of SJHH's culture, mission, and history, from which staff could draw meaning and recognition.
3. With the introduction of an electronic health record after being primarily paper-based, St. Joe's began collecting significant amounts of valuable clinical, financial, and research data that was not previously available, but can now be leveraged to improve patient care, increase efficiency of healthcare delivery, develop organizational capacity, and allow St. Joe's to be a research and innovation leader. Leaders quickly started to realize the value that the data collected from documentation in Dovetale could bring to their programs. However, as our teams were still focusing most of their efforts on stabilizing and optimizing workflows and tools within Dovetale, there were less opportunities available to provide robust education on data literacy and the self-service reporting tools available to clinicians and hospital leaders. While organizational data literacy has improved over time at St. Joe's and we have reached Business Intelligence maturity levels of Advanced Analytics and Intelligent Process Automation, it would be beneficial to provide a larger focus on Data Governance, analytics development and organizational data literacy training, early on as part of implementation.
4. It is extremely important to have a defined scope of implementation, transition to operations plan and post go-live issue resolution and governance strategy in place to effectively address system configuration, workflow optimization, enhancement and upgrade cycles. Since the implementation of our state-of-the-art digital HIS, we

have continued our journey with continuous implementation of enhancements, including bi-annual large-scale upgrades, with the intent of increasing the scope of Dovetale and its integration with other technological systems across our hospital and community.

**Quote from organization executive:** “The St. Joseph’s Healthcare Hamilton team is committed to making a difference in people’s lives and the future of our community through integrated services, and internationally recognized clinical and research programs. We were driven to implement a state-of-the-art EHR system by the need for tools to support both the hospital’s future academic and research missions, and the desire to enhance the quality and safety of patient care.”

Tara Coxon, Vice President and Chief Information Officer, St. Joseph’s Healthcare Hamilton

**One sentence that encapsulates the experience as a whole:** Our HIS implementation team continues to seek the joining of compassion with technology by collectively adopting a patient-centred information solution - by being innovative and progressive, we are redefining what it means to provide smart care.

