Reducing Readmissions, Length of Stay, and ED Visits for Patients Undergoing Spine Surgery

Key Results:

↓ 3.4 days LOS

↓ 56.5% Readmissions

↓ 35.8% ED visits

"After seeing the success of launching SeamlessMD for our Hip and Knee patients, we were excited to collaborate once again, and create a custom Digital Care Plan for our Spine patients.

The feedback from our patients has been largely positive, with patients expressing their satisfaction with the user-friendly platform.

Ultimately, SeamlessMD has truly helped improve clinical outcomes and strengthen the discharge process for our Spine patients."

Caroline Fanti,
Director of Regional Surgical Services, TBRHSC

Thunder Bay Regional Health Sciences Centre (TBRHSC) is a 375-bed acute care hospital that serves approximately 230,000 residents across Thunder Bay and Northwestern Ontario. The patient demographic is spread out over a large geographical area the size of France and patients have fewer options to receive in-person pre- and post-surgical care. Therefore, the TBRHSC team sought to leverage SeamlessMD to enhance pre- and post-op care to minimize patient travel.

Having achieved excellent outcomes using SeamlessMD for various surgical pathways including Total Hip and Knee surgery, the care team was confident they could achieve similar outcomes by implementing the technology for its Spine surgery program. Specifically, their goals were to reduce post-discharge Emergency Department (ED) visits, length of stay (LOS) and readmissions.

A Technology-Driven Solution Led by Clinical Teams to Elevate Patient Care

TBRHSC partnered with SeamlessMD, a leading Digital Patient Engagement platform, to more effectively engage and monitor patients undergoing Spine surgery at the Regional Joint Assessment Centre (RAC).

SeamlessMD collaborated with the interdisciplinary team to customize protocols and content on the platform, which enabled the care team to:

• Engage patients with a mobile and web-enabled, virtual companion – guiding them from pre-op preparation through post-op recovery;

• Deliver evidence-based surgery-specific pathways in the form of multimedia education, reminders and tasks;

• Remind patients to perform their daily exercises, which are crucial in their recovery;

• Encourage safe, earlier discharge by enabling providers to monitor patient compliance, symptoms and recovery progress (e.g. spinal fluid leakages, nerve pain and signs of weakness, pain levels, incision photos, etc.);

• Automate patient self-care guidance via smart algorithms and workflows (e.g. education for how to manage low-risk issues or when to escalate to a provider); and

• Receive alerts and monitor dashboards to identify when a patient's health status changes, enabling the care team to intervene sooner.

A Vehicle to Promote Standardized Care Delivery

> "SeamlessMD has really advanced the efficiency of our provider workflow, giving Spine surgery patients the tools to be able to effectively self-manage from home. As a large proportion of our patient demographic often have to travel considerable distances for hospital visits, SeamlessMD's innovative platform has demonstrated the value of offering virtual services to reduce in-person visits."
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> **Travis Marion, MD**
> *Orthopaedic Surgeon*
> *TBRHSC*

Spine surgery often requires collaboration between Orthopaedic surgeons and Neurosurgeons. Prior to implementing SeamlessMD, there was some variation in care between these two disciplines. In order to resolve these differences, the team created a Digital Care Plan via SeamlessMD that standardized practices and protocols for Spine surgery. For example, this process motivated both groups to align on the use of monocryl sutures for final skin closure, eliminating the need for the two week follow-up wound check.
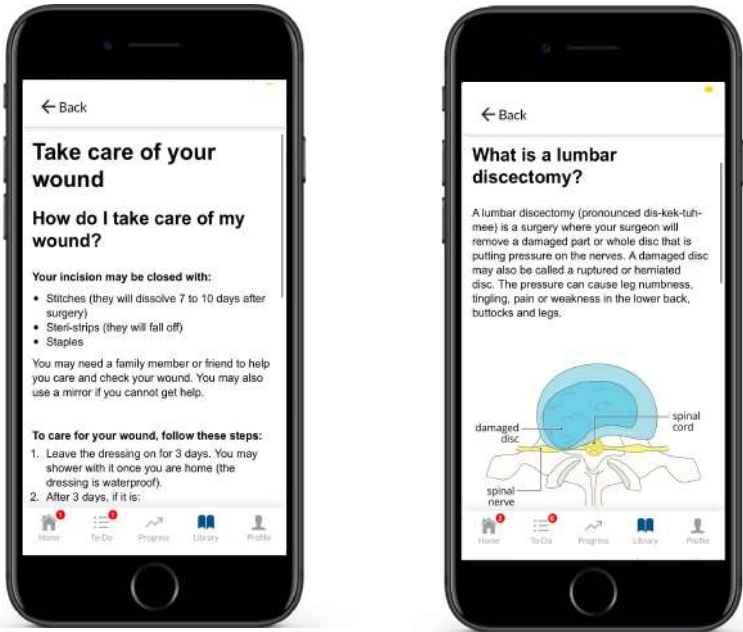
Education to facilitate patient self-management

Remote Monitoring to Encourage Safe, Early Discharge and Comfortable, At-Home Recovery

As part of the hospital's strategy to tackle the COVID-19 surgery backlog, knowing that SeamlessMD would create a safety net for patients after discharge gave both patients and providers the confidence for earlier discharge. Remote monitoring supported patients with a safer at-home recovery, reduced length of stay via early discharge and subsequently increased surgical throughput at the hospital.

Moreover, prior to SeamlessMD, Spine surgery patients would often travel inconvenient distances for follow up, such as wound checks care. With SeamlessMD, patients can now digitally upload their post-op incision photos from the convenience of their own home and avoid in-person follow up visits.

> "Really enjoyed this program, it's so useful in so many ways, it's hard to pick just one thing I liked most! The daily health check helped me feel secure that if something was wrong I would get immediate follow up from the nurse/doctor. Also, ease of access to information all about my procedure & aftercare."
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> **Spine Surgery Patient**
> *TBRHSC*
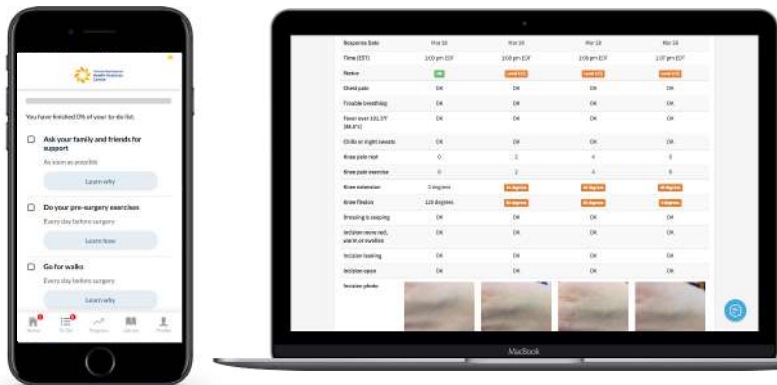
Daily health reminders, alerts & dashboards

SeamlessMD   www.seamless.md   info@seamless.md

Clinical Outcomes Improved with SeamlessMD

Outcomes analysis on patients that underwent Spine surgery
(laminectomy, discectomy, simple and complex fusions)
between comparable time periods

	SeamlessMD (June 30 - Oct 12, 2021)	Control (June 30,- Oct 12, 2019)	Relative change
Sample size	58	63	--
Avg Length of Stay	1.6 days	5.0 days	↓ 3.4 days
30-day Readmissions (%)	3.5%	7.9%	↓ 56.5%
30-day ED Visits (%)	22.4%	34.9%	↓ 35.8%

Expansion to Other Surgical Service Lines

TBRHSC first implemented SeamlessMD for its Hip and Knee surgery program. After seeing success, the hospital expanded the use of SeamlessMD across Spine, Shoulder, Bariatric, Urology, Colorectal, and Breast Cancer surgery programs. Given the ongoing success in these programs, including Spine surgery, TBRHSC is now actively implementing SeamlessMD in its Cardiac, Oncology, and Maternity care programs.

"I like the fact that the patient is able to speak up about pain, or other complaints and someone on the other end will call back and explain if my problems are normal or I should go to emergency. It makes the patient feel less alone while recuperating from the operation knowing someone is listening."
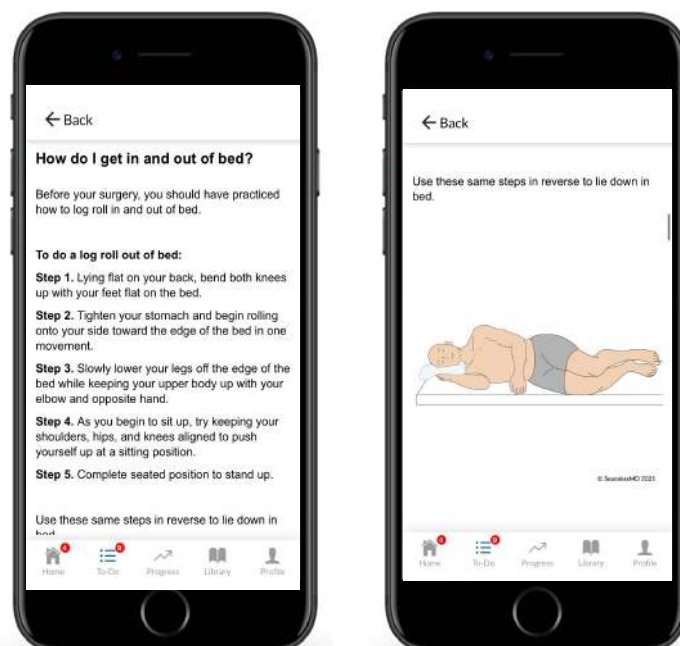
Spine Surgery Patient
TBRHSC

"This program helps me feel more confident in healing and recovery at home. It provides me quick access to information about my procedure and the healing process, as well as support if needed. The daily health check also helps me feel supported by knowing that my responses are being monitored daily.

Spine Surgery Patient
TBHRSC

Example of pre-surgical exercise guidance