



The Surgical Wait time Information Management System was designed and developed at UHN.

PHOTOGRAPHY: TIM FRASER (KELLY LANE, TERRI STUART-MCEWAN, DR. SHAF KESHAVJEE), REGINA GARCIA (DR. TOM WADDELL), COURTESY OF UHN (OPERATING ROOM)

All systems go

Thanks to a new UHN-built data-powered surgery management platform, even a pandemic can't stop Sprott Surgery from running world-class operating rooms.

By Anna Sharratt

In late 2019, the Sprott Department of Surgery built and launched a revolutionary data-centred surgery management system to help run its operating rooms (ORs) more efficiently. The technology couldn't have come at a better time. A few months later the world locked down and countless surgeries had to be postponed. That was a nightmare for most hospitals, but less so for Sprott Surgery, which had a secret weapon.

Managing the steady stream of surgeries is challenging for every medical centre, but especially for one of the best hospitals in the world – number four according to *Newsweek*. Sprott Surgery deals with highly complex cases that involve a lot of moving parts and coordination. While there are scheduled operations – 35,000 in a typical year – emergency procedures can bump previously slotted-in surgeries to another day, which can then create a backlog of operations. It's even harder to manage all of this during a pandemic, when normal surgical routines are completely upended.

Fortunately, Sprott Surgery had the new Surgical Wait-time Information Management System (SWIMS®). This one-of-a-kind innovative system, which was designed and developed at University Health Network (UHN) by the Techna Institute and Sprott Surgery, uses data analytics to support the surgical team's decision-making when determining how many surgeries

can get done and in what order of priority.

It allowed clinicians to have a much better idea of how COVID-19 was impacting their operations than they otherwise would. "Other centres just don't have this," says Dr. Shaf Keshavjee, Sprott Surgery's Surgeon-in-Chief and the James Wallace McCutcheon Chair in Surgery, who adds that there's no product on the market that can create a more consistent surgery flow – called smoothing – and manage the surgical backlog at UHN's size and scale. "This critical information enabled our teams to have much better coordination and let us more optimally and efficiently use the resources we have."

Key to this was Sprott Surgery's commitment to adopting and adapting surgical optimization – a system rooted in three key pieces. There's the Institute for Healthcare Optimization (IHO)-UHN surgical planning methodology, which is based on operations management tools and processes. Sprott Surgery took pieces of IHO's methodology and built a personalized system for its own patients. It lets Sprott Surgery's teams know exactly how many ORs are operational versus sitting idle, and what health resources are needed to get through different cases. Implementing this piece required UHN to undergo a comprehensive change management program.

The second is a UHN surgical backlog calculator. It lets everyone see how many cases need to be completed, which is typically hard to determine. Then, SWIMS reveals the types of cases that are in the queue and scores them based on urgency, helping clinicians prioritize which ones to tackle first. "Without this approach, about 20 per cent more patients would be at risk for not having their surgery in a timely manner," explains Dr. Tom Waddell, thoracic surgeon and Clinical Lead for Pandemic Recovery Planning at Sprott Surgery and the Richard and Heather Thomson Chair in Thoracic Translational Research.

All of this enabled Sprott Surgery to dramatically reduce the number of operations it postpones or cancels – because of this system, dedicated ORs are set aside for emergencies – while everyone and everything, including staff time, surgical beds and OR space, is now running at a more optimal and efficient level. That's been critical during COVID-19. "This system removes many of the factors that create uncertainty," says Kelly Lane, Project Director at the Techna Institute at UHN. "We can be far more proactive and have fewer surprises on surgery day."

Going forward, this innovative system will allow surgical teams to ensure that every patient gets the care they need when they need it. "It's taking accountability for all of our patients and their care needs," explains Terri Stuart-McEwan, Executive Director of Surgical Services at Sprott Surgery. "It has been very powerful." ■



Kelly Lane
Project Director, Techna Institute at University Health Network



Terri Stuart-McEwan
Executive Director, Surgical Services at Sprott Surgery



Dr. Shaf Keshavjee
Sprott Surgery's Surgeon-in-Chief



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