Proactive, Measured Approach to Growth

A Case Study of Markham Stouffville Hospital's Partnership with Oculys Health Informatics

THE CHALLENGE

In 2009-2010, MSH became a participating hospital in the province's Pay-for-Performance (P4R) incentives program focused on reduced Length of Stay (LOS) and improved patient satisfaction, with measurement and funding allocations based on relative performance among all participants. Over the next few years, the community population supported by MSH became one of the fastest growing in Canada. As a high-volume hospital in the highly competitive Central Ontario LHIN (Local Health Integration Network), MSH was struggling with the impact of growth on patient flow.

By 2013, MSH ranked 43rd of 73 participants for performance, and 29th for funding. While the goal was to rank in the top ten, all P4R metrics indicated significant room for improvement. MSH took on the challenge of improving their results by proactively identifying and addressing barriers to flow; by entrenching a culture of strategic measurement; and by engaging technology to help streamline the process and improve communication, all in the midst of budget and resource constraints impacting hospitals across the province.

Markham Stouffville Hospital (MSH) is a progressive, two-site community hospital serving almost 400,000 residents in the rapidly growing population of Markham, Stouffville and Uxbridge, Ontario. The centre
of local healthcare, MSH programs and services include leading diagnostic services and patient care programs in acute care medicine and surgery, addictions and mental health, maternal and child, oncology, palliative, rehabilitation and transitional care.
The original MSH site opened in Markham in 1990, with Uxbridge Cottage Hospital becoming a partner site in 2004. In 2010, a multi-year expansion and renovation of the original site got underway, featuring a new building of 350,000 square feet, a new Emergency Department that was triple the size of the original, 100 new in-patient beds, and significantly expanded patient care program areas. A new main entrance marked completion of the $50 million project in 2014. With the building project and a broad range of internal initiatives, MSH was physically and strategically preparing itself for the phenomenal growth witnessed at other high-volume hospitals across the province in the last decade.
Clint Atendido is Patient Care Director, Surgical & Ambulatory Services, Access and Flow and Interim Director of Medicine Program at MSH. Atendido describes the hospital's management approach as extremely proactive, strategic and accountable. "Growth creates constant challenges to flow. There's no magic bullet, so we run our hospital very much as a business, with clear documentation and assessment of metrics. Our performance achievements today are the cumulative result of strategic measurement and accountability across multiple initiatives," says Atendido.

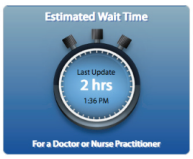
OCULYS AT MSH

"No other company offered products like Oculys. We saw the opportunity for MSH to become more proactive and transparent as an organization," says Atendido.

ED Wait Time Clock

PrEDict, the real-time, online broadcast of estimated patient wait-time to see a physician in the ED, went live at MSH in January 2015, and quickly became the hospital's most visited web page. Over 90% of patients see a physician within prEDict's estimate. The accuracy reduces the frustration of not knowing how long it will take, for both patients and staff.

In addition, prEDict allows patients to make an informed choice about where they receive treatment, including the option to seek care for non-urgent medical issues at a doctor's office or health clinic, rather than at the MSH ED. Critically ill patients are not deterred by the wait-time as they recognize the need for ED care, but patients with less serious issues (e.g. coughs, colds, minor sports injuries etc.) find out they can be treated faster outside the ED.



"The wait-time clock allows medical staff to understand the current state of the ED, enabling physicians to adjust shift start-times, and gain a snapshot understanding on the functional state of the ED, from anywhere, at any time. For front-line staff, it provides reliable wait-time information to pass on the patients. For people in our community, who can also access the information from anywhere at any time, it helps them to make educated decisions about where to seek care, and if they choose the ED, to manage their expectations about wait- time, before they arrive and throughout their visit."

Dr. Andrew Arcand, Chief of Emergency, MSH

Operational Visibility Board

Eight months following the launch of prEDict, MSH took on Performance, the core of the Oculys solution suite, offering real-time decision support. The comprehensive visual display provides an accurate pulse check of all departments, and replaces the cumbersome paper and phone based communication approach of traditional hospital environments with actionable intelligence.

Elizabeth Price is the Manager of Access and Flow at MSH. Price says that previously, MSH staff spent a lot of time making phone calls, searching for information in different systems, and frequently having to reset priorities as new information became available. "With Performance, we have an accurate, real-time visual that we use to proactively support patient flow planning, and reduce departmental bottlenecks by taking advantage of efficiencies in other areas of the hospital. It has entrenched a proactive pull instead of a push mentality at MSH," said Price.

Housekeeping

Building on the transparency and flow benefits of prEDict and Performance, MSH next evaluated the merits of KeepNTouch, a real-time mobile tool that brings housekeeping into the fold of proactive patient flow planning. KeepNTouch communicates discharge cleaning requirements, tracks cleaning status, cues jobs, and pushes notification of room readiness to Performance.

"We've made considerable progress in other areas, and with KeepNTouch extending transparency to housekeeping our goal is to reduce bed turnaround time," says Atendido.
MSH will launch KeepNTouch in July 2017.

LOC	LOS (hh:mm)	PATIENT	CTAS	ALRT	CHIEF COMPLAINT	PHYS	STEP	ELAPSED (hh:mm)
YELLOW-MAINWRY	5:55	M, 89	2	-	-	Sylvia Smith	1 2 3 Disposition Wait	4:43
YELLOW-MAINWRY	5:31	M, 82	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	4:20
YELLOW-MAINWRY	5:01	F, 38	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	3:06
YELLOW-MAINWRY	4:50	F, 79	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	2:46
YELLOW-MAINWRY	4:49	F, 25	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	2:46
YELLOW-MAINWRY	4:41	F, 27	2	-	-	Sylvia Smith	1 2 3 Disposition Wait	2:46
YELLOW-MAINWRY	4:33	F, 74	2	-	-	Sylvia Smith	1 2 3 Disposition Wait	2:32
YELLOW-MAINWRY	4:06	F, 61	3	-	-	Sylvia Smith	2 3 Disposition Wait	0:05
YELLOW-MAINWRY	4:00	F, 38	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	1:46
YELLOW-MAINWRY	3:55	F, 26	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	2:03
YELLOW-MAINWRY	3:02	M, 76	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	1:07
YELLOW-MAINWRY	2:45	M, 60	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:43
YELLOW-MAINWRY	2:35	F, 23	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:42
YELLOW-MAINWRY	2:15	F, 88	2	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:43
YELLOW-MAINWRY	1:59	F, 8	4	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:29
YELLOW-MAINWRY	1:54	M, 32	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:18
YELLOW-MAINWRY	1:50	F, 85	2	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:11
YELLOW-MAINWRY	1:42	F, 52	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:12
YELLOW-MAINWRY	1:33	F, 20	3	-	-	Sylvia Smith	1 2 3 Disposition Wait	0:03
YELLOW-MAINWRY	1:27	F, 16	3	-	-	Sylvia Smith	1 2 3	1:27

RESULTS

The proof is in the performance. MSH began its partnership with Oculys in 2014. By 2016, key P4R metrics showed significant improvement:

Performance ↑ 20 places from 35th to 15th

Funding ↑ 11 places from 18th to 7th

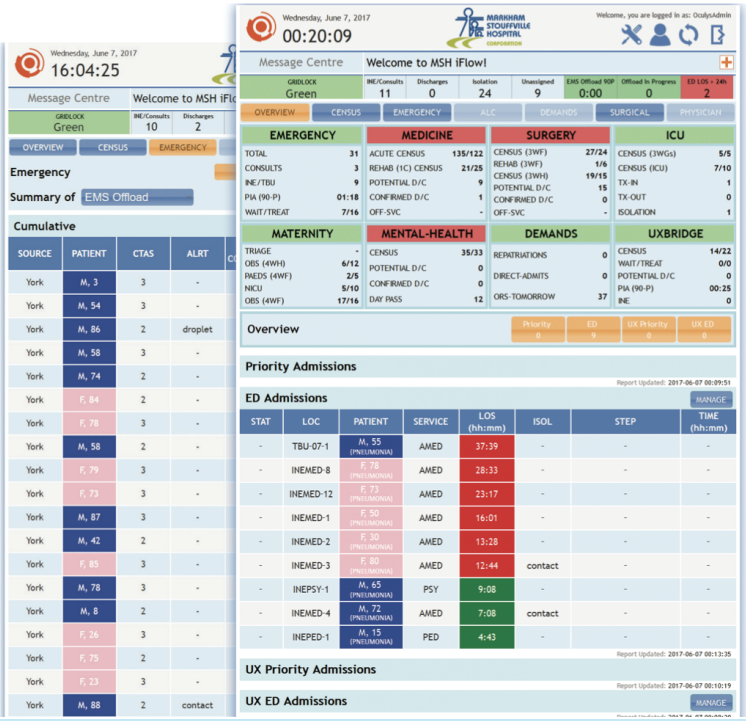
ED Visits ↑ 14% from 6390 t0 7271 per month

METRIC	IMPROVEMENT	2014	2016
Left Without Being Seen	38%	1.6%	1%
Time to Inpatient Bed	29%	28.5 hours	20.3 hours
ED LOS Admitted	24%	34.8 hours	26.4 hours
Ambulance Offload Time	22%	51 hours/month	26.4 hours
Time to Physician Initial Assessment	5%	2.2 hours	2.1 hours
ED LOS Non-Admitted, High Acuity	4%	5.5 hours	5.3 hours
ED LOS Non-Admitted, Low Acuity	3%	3.5 hours	3.4 hours

"We believe we must be accountable."

Improvement in P4R metrics has significantly contributed to the capacity of MSH to deliver safe, high quality care, and to provide an exemplary patient experience. Accountability is among the hospital's core beliefs, which it accomplishes by:

- Achieving efficiencies through a continuous focus on process improvement and collaborative partnerships
- Promoting robust information which will be the basis for benchmarking and decision-making
- Treating each other with respect and communicating openly with patients, staff, physicians and the broader community
- Being fiscally responsible and contributing to the long-term sustainability of the health care system



MSH BY THE NUMBERS

27 years in operation
265 beds
2000 staff
450 physicians, including 28 surgeons
17 midwives
3100 babies
400 000+ resident population
88 000 annual ED visits
1 600 000 annual diagnostic tests
316 000 patients seen annually

"The most frequently asked question of clinicians when patients arrive at the ED is: 'How long is the wait to see a doctor?' The wait-time clock provides current information prior to patient arrival, or as they arrive. It also includes projections for the busiest times in the ED over the next six hours, as well as a list of health care alternatives, enabling patients in our community to be well-informed about their options."

Heidi Pedersen, Clinical Manager, Emergency Services, MSH

"One of our strategic objectives is to be a trusted provider of quality patient care and also be a leading hospital in the provision of an outstanding patient experience. We see the benefit in having up to date wait time information available for patients in our waiting room, to augment personal communication from our dedicated staff and volunteers on what to expect."

Lynn Campkin, Director, Diagnostic, Laboratory & Emergency Services, MSH

"Hospital-wide transparency allows everything to flow more efficiently. As a proactive, incentive-driven hospital, we're focused on achieving the performance targets that enhance our financial position while providing exemplary patient care. The organization- wide visibility provided by Oculys is helping us to achieve these goals."

Barbara Steed, Executive Vice President Patient Services & Chief Practice Officer, MSH

OCULYS HEALTH INFOMATICS

Oculys Health Informatics provides a suite of unique real-time solutions aimed at addressing the challenges of healthcare leaders, physicians, clinicians and patients, in an accurate and accessible visual format. By enabling a comprehensive view of total operations from any device at any time, Oculys provides hospital management teams with game changing decision-support.

ED Wait Time Clock

Commonly known as the "wait-time clock," prEDict is an online communication tool that broadcasts the estimated wait-time to see a physician in the ED, to the entire community, on the most visited page of each hospital's website. Estimates are accurate to 90%, and updated in real-time.

- Patients and their families can commence a hospital journey with their most asked question, "When will I see a physician?", answered up front. For those with less serious health events, alternative health care resource information is provided.
- Physicians can adjust shift times with a clear view of the functional state of the ED.
- Clinicians (and volunteers) can relay accurate wait-time estimates, enabling an improved overall ED experience.

Operational Visibility Board

A powerful, real-time visual display of all operational data, accessible at any time, from any device, enabling informed, proactive patient flow planning.

- Hospital-wide transparency
- Harmonized, real-time, accurate data
- Instant visual status for leaders, management teams and clinicians
- Optional surge alerts, configurable views, notification push
- Direct integration with current IT

Unit Whiteboard

An interactive communication tool that tracks the patient journey from admittance to discharge, ensuring transparency on patient status, requirements (e.g. isolation, fluid restriction), and discharge considerations (e.g. requires community-based support, designated Alternative Level of Care). The real-time visual display that can be viewed and updated by all members of the allied health team, at any time.

- Real-time, accurate visual display of each admitted patient's status, accessible on any device
- Clearer, more accurate and more robust information than traditional whiteboard summaries of daily bullet round or unit huddle meetings
- Push notification to allied health team members when status information is updated
- Optional inclusion of related health resources (e.g. stroke rehab centers) to enable timely, well-informed patient "pulls"
- Capacity for discharge even when physicians and allied health team members are off-site or on weekends

Housekeeping

Recognizing the important role of non-medical services in the patient journey, KeepNTouch is an application that effectively engages housekeeping in proactive flow planning.

- Real-time communication with housekeeping
- Automatically updates Performance for real-time awareness of bed status in real time
- Helps achieve improved bed-turnaround time