

As Markham Stouffville Hospital (MSH) prepared to double in size, the hospital proactively standardized and optimized its entire fleet of output devices with Lexmark MFPs and outsourced management of the environment with Lexmark managed print services. At the same time, MSH leveraged the new Lexmark MFPs to automate physician order routing with Perceptive Content from Perceptive Software.

## Markham Stouffville Hospital prepares for growth with managed print services and solutions from Lexmark

### The Organization

Markham Stouffville Hospital (MSH) is a two-site community hospital in Ontario offering leading diagnostic services and clinical programs in acute care medicine and surgery, addictions and mental health, and maternal and child health. The hospital's 330 physicians and 1,800 staff serve the city of Markham and the towns of Stouffville and Uxbridge. MSH is an award-winning hospital and has earned an advanced 5.1+ EMR Adoption ModelSM score. Developed by HIMSS Analytics, the EMR Adoption Model identifies and scores hospitals using an eight-step scale that charts the path to a fully paperless environment.

### The Challenge

Built in 1990, Markham Stouffville Hospital's original Markham facility was designed to serve the region's 100,000 residents. As the city's expanding population was expected to pass 300,000 residents, the hospital embarked on major project to double its overall size in anticipation of demand. Part of planning for that growth, was an examination of MSH's administrative systems and equipment, including its document output infrastructure and its physician order process.

"With our existing printer fleet, we did not have a good understanding of what we were printing or how much we were spending," said Tim Pemberton, MSH's Director, Information Technology & Communications. "Some of our printers were approaching a decade in age and we were not actively managing the fleet."

Specifically, MSH wanted a "printing as a service" approach and wanted to step away from the day-to-day handling of devices, paper, consumables and maintenance that had become an operational burden and a productivity drain on employees and the hospital's budget. The hospital also knew there was an opportunity to reduce the amount of printing overall by automating paper-based processes using scanning and routing technology.

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To gauge potential savings, MSH engaged Lexmark to perform an assessment and generate a detailed snapshot of the existing printing infrastructure. The assessment revealed that MSH had 256 devices, representing 68 distinct models from seven manufacturers. 78% of the devices were at least five years old and only 60% of the devices were connected to the MSH network. MSH was printing 6.5 million pages annually. The devices in the MSH fleet were primarily single function monochrome printers that were under-utilized.

“We could clearly see that there was a significant cost savings and cost avoidance opportunity for us,” said Pemberton. “With our growth plans, we could also predict that these metrics were going to trend in the wrong direction, unless we took action.” Taking a holistic and proactive approach, MSH knew it could significantly reduce and avoid costs and create a more effective and efficient approach that would benefit employees and patients alike.

At the same time as MSH began moving to services model, the Lexmark team analyzed the hospital's physician order routing process. Physician orders were written and placed in a bin at each nursing unit and picked up on a schedule by a porter and delivered to the pharmacy, where they were processed, filled and then administered to patients. This approach was prone to delays and orders could not be tracked by the nursing staff.

MSH sought a faster, more efficient, trackable approach to physician orders that could leverage the scanners on the new Lexmark MFPs it would be deploying and that would integrate with Meditech, its electronic management records system. The new approach had to be easy for nurses and provide value back to MSH's patients.

### The Solution

MSH selected Lexmark as its managed print services provider and embarked on a path to standardize and optimize its entire output infrastructure, even before the opening of the new facility.

With MSH staff, the Lexmark team established a set of deployment principles that would guide the overall implementation. Non-networked,

single-function and inkjet devices would be consolidated to MFPs. All devices would be connected to the MSH network. Users would not have to walk more than 40 feet to a device and those devices would be selected, by department, to meet the unique requirements of those employees and their patients. The number of device models and manufacturers would be reduced, devices more than four years old would be replaced and all devices would be set to duplex automatically to reduce paper consumption. All of the principles were created in support of the hospital's goals of reduced cost, increased productivity and reduced printing overall.

“Lexmark impressed us by not replacing every device with a Lexmark product,” said Pemberton. “If an installed product from another vendor met users' needs and was operating properly, Lexmark advised us to keep it and put it on an asset management schedule, along with the Lexmark models.”

To eliminate the waste of abandoned print jobs and further reduce printing overall, MSH deployed the Lexmark Print Release solution. This solution queues print jobs and releases them only when job owners authenticate themselves at selected Lexmark devices connected to the network. It also eliminates the time gap between printing and pickup, ensuring that forgotten print jobs do not pile up. After a set interval, print jobs are deleted automatically from the print queue and thereby never printed at all.

With managed print services, Lexmark proactively monitors the entire fleet of devices at MSH, tracking device alerts and conditions. Lexmark technicians perform remote diagnostics and dispatch field engineers when necessary. Lexmark printers and MFPs automatically trigger new toner cartridges to be ordered and shipped directly to that device's precise location, ensuring that no printer runs out of toner and avoiding the stock piling of costly cartridge inventories in each location.

Lexmark also collects valuable information about the fleet of devices, providing MSH with data that can be used to make fact-based business decisions. For example, under-utilized devices can be moved to higher-demand areas. Devices removed from the network can be spotted right away. Spikes in output volume can be investigated to see if there is a better, more cost effective way to accomplish that unique business or patient-related requirement.

Processing of physicians' orders was also modernized at the same time. Instead of the delay-prone process of routing paper forms by a porter, which was costly and inefficient, MSH chose to automate the process

using the Lexmark MFPs and Perceptive Content software from Perceptive Software. Now, clinicians scan written medication orders using Lexmark MFPs located in the nursing units, creating a digital image of the order that is automatically barcoded, linked to patient records, and sent to the pharmacy through Perceptive Content. Prescription orders are relayed to the pharmacy instantaneously, avoiding delays.

“Automating medication orders allows us to leverage our Lexmark MFPs and speed the delivery of patient care,” said Pemberton. “With paper, our nurses couldn’t track the orders and there was always the possibility of an order getting misplaced. Now we track everything electronically.”

## The Results

MSH is seeing widespread benefits from its migration to a managed print services model and by automating its physician order process. MSH has consolidated its fleet of devices, which now represents 13 models from Lexmark. 58% of those devices are MFPs and 100% are connected to the network and visible to Lexmark’s systems and tools.

MSH has reduced its overall print volumes by 18% year over year - the equivalent of 243 cases of paper - as a result of duplexing in some areas and from the benefits of Lexmark Print Release. The powerful data that Lexmark has collected from the devices has revealed ongoing opportunities for savings as well. While just 2% of its volume was faxes, 68 devices had analog fax lines. MSH eliminated many of those fax lines for an additional savings of more than \$6,000 annually.

Pemberton believes however, that the primary cost benefits of the managed print services approach, are those costs that the hospital has avoided – such as devices that otherwise would have been purchased or replaced, maintenance and energy costs that would have been spent on older devices, and toner that would have been purchased in advance and stored.

The hospital no longer purchases printers, removing a significant cost from its capitalization budget. Lexmark provides all fleet management services, freeing IT personnel for other tasks. Lexmark performs remote diagnostics in response to alert messages and dispatches onsite service when necessary. Through Lexmark Proactive Consumables Management, a printer’s low-toner alert triggers the automatic shipment of a

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replacement toner cartridge, eliminating the costly practice of maintaining an onsite inventory.

Instead of IT paying for printers and user departments picking up maintenance expenditures, all costs are now consolidated within IT and charged back to each department based on usage metrics.

Every month, Lexmark meets with MSH to present and discuss detailed usage reports. With these metrics, MSH better understands its usage and costs and is identifying opportunities for additional improvements. For example, data from the fleet revealed that 99% of MSH’s printed pages are letter size, with only 1% printed tabloid or legal. Further, 67% of its pages are only one page and just 11% are more than five pages in length.

“The data Lexmark provides us in these reviews is extremely valuable in helping us to target areas for additional improvements,” said Pemberton.

With its improved physician orders process, MSH has supported its patient care goals and given the hospital an audit-ready process that tracks every step from order to pharmacy to fulfillment.

Through its partnership with Lexmark, Markham Stouffville Hospital has established a holistic output strategy that is primed for growth. With managed print services, MSH has avoided significant capital and operational costs. Furthermore, MSH has a complete view of its entire fleet that is being monitored by systems and tools at Lexmark that give back valuable data upon which MSH can make future business decisions about its operations and patient care. “What we value most about working with Lexmark is its commitment to helping us achieve our goals,” said Pemberton. “Together, we have truly made a difference that will continue to yield benefits for MSH and its patients for years to come.”

