

The *Drummond Report* recently revealed a number of facts about Ontario's public institutions, presenting a view of a province with serious economic hurdles to overcome. Even as media and analysts across the country begin to come to terms with Drummond's findings, it is clear dramatic changes must be made to create sustainable economic future for the province.

Among Drummond's most-discussed findings are its revelations related to Ontario's healthcare system. From 2010 to 2011, Ontario spent \$44.77 billion on healthcare, which represents 40.3 percent of the province's overall spending. This number might be less shocking if it weren't for the fact the province also ran a deficit of \$14 billion the same fiscal year.

Drummond's recommendation for the future of Ontario's healthcare is clear: *"a shift towards health promotion rather than after-the-fact treatment; a system centered on patients rather than hospitals; more attention to chronic care; co-ordination across a broad continuum of care rather than independent silos that allow too many people to fall between the cracks; and new ways of dealing with the small minority of patients who require intensive care."*

Healthcare is never an easy task and its complexities are compounded by the very nature of our advanced medical system; in Canada

we have some of the best healthcare in the world, with specialists for every ailment and the ability to treat illness with the most advanced technology available.

However, despite all of our world-class treatment options, problems with Ontario's current system revolve around management and implementation. Put simply, Ontario's system of healthcare institutions is currently too disjointed, functioning as a series of services that fail to work as cohesively as they could.

Data, data everywhere

Healthcare produces more sensitive data than perhaps any other public sector institution. This data, properly managed and analyzed, represents great potential for the province, but admittedly how to do so is a complex problem to solve. To grasp the nature of the issue we need only imagine the scope

of the data: more than 13 million people being treated by nearly 24,000 physicians. A single patient can produce massive data sets across a variety of health service providers.

From this data though, there is great potential in using amalgamated and 'anonymized' patient data to predict future healthcare needs.

A technological solution built on a foundation of intelligent data analytics is capable of helping health providers and bureaucrats gain insights into the future. By analyzing geographic, demographic, and a variety of other trends, predictive analytics can help us better prepare for the costs of health care down the road.

For example, predictive analytics can delve into resource allocation. Certain medical procedures may see cost savings if they are consolidated. Rather than many hospitals performing a small volume of a given procedure, fewer hospitals would perform a higher volume of the same procedure.

Predictive analytics can also help track, plan and project the needs of Ontarians.

Data stores can be leveraged across provincial and federal departments to plan for healthcare costs and predict what

resources will be needed in the decades to come. Milton is currently the fastest growing municipality in Canada. This geographic and demographic fact has implications for the municipality and surrounding areas. In just one possible scenario among many, more young couples means more children. In this instance perhaps a specialized children's hospital would be in order. Hamilton's McMaster Children's Hospital recently approached this very subject.

The simple fact is that infrastructure projects, such as hospitals, take years to plan, build and become fully operational. Leveraging existing data and using technology to better coordinate and find insights within this data will be essential as the province's population continues to grow.

Cancer Care Ontario

At SAS we work with health providers around the world as they



come to terms with the data stores in their possession and how they can use this information to better treat patients.

A salient example close to home is the work being done with Cancer Care Ontario. CCO's goals are similar to Drummond's recommendations. They include:

- reducing the incidence of cancer;
- reducing the impact of cancer through effective screening and earlier detection;
- ensuring timely access to effective diagnosis and high-quality cancer care;
- improving the patient experience along every step of the cancer journey; and
- improving the performance of Ontario's cancer system.

Data analytics technology provided CCO with the tools to better achieve their goals of an integrated system for the treatment of Ontario's cancer patients. Working with predictive modeling tools and analytics capable of tracking patients across a variety of service providers, CCO has been able to increase efficiency. They are now better equipped to help Ontarians beat cancer.

The individual

In the current system, Drummond also rightly points out that inefficiencies arise from the 'siloed' nature of practitioners, specialists and services that make up Ontario's healthcare system and this, in turn, can impact patient treatment.

The fact that data produced by the system isn't always easily accessible means many physicians aren't able to access a complete picture of their patients' history and treatment across all providers. The system is also not optimized to use amalgamated, anonymized data to help identify possible medical issues at the individual level.

Today, procedures such as colonoscopies and mammograms are recommended for persons of a certain age or medical history. What if we could be even more granular looking at all the health-related issues for an individual and look to predict the likelihood or risk of almost any disease happening to that individual based also on health information gleaned from millions of others? This would go a long way toward dealing with Drummond's recommendation of *a shift towards health promotion rather than after-the-problem treatment*.


Deeper insight at both the patient and province-wide level would allow us to better predict the likelihood of an individual possibly being affected by a specific ailment, while also helping us consider the resources that will have to be in place to treat them.

By using data analytics technology to look at a patient's overall state of health – rather than focusing on an ailment by ailment basis – Ontarians would receive better treatment

when they are ill, and have better preventative resources at hand when they are not.

The possibilities

Ultimately, despite a number of inefficiencies, Ontario's healthcare system remains world class. While the Drummond report's findings on healthcare may be viewed by some as an attack on one the province's most important and cherished institutions, it may be more valuable if we focus our efforts on the opportunities the report presents.

The possibility of improvement without increasing costs is the goal of every physician, politician and Ontarian. The province and country is now aware that, while changes are necessary, we live in a time where technological solutions can help improve healthcare at all levels, while continuing to provide the healthcare that Ontarians have come to expect. 

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Drummond's recommendation for the future of Ontario's healthcare is clear:

“a shift towards health promotion rather than after-the-problem treatment; a system centered on patients rather than hospitals; more attention to chronic care; co-ordination across a broad continuum of care rather than independent silos that allow too many people to fall between the cracks; and new ways of dealing with the small minority of patients who require intensive care.”