

# Evaluating Outcomes in Ontario's Wait Time Strategy: Part 4

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**T**he goal of Ontario's Wait Time Strategy – launched in November 2004 – was to improve access to healthcare services in the public system by reducing the time that adult Ontarians wait for services in five areas by December 2006: cancer surgery, cardiac revascularization procedures, cataract surgery, hip and knee total joint replacements and magnetic resonance imaging (MRI) and computed tomography (CT) scans. The Ministry of Health and Long-Term Care set out to shift a system where no one really knew how long the majority of people waited for most healthcare procedures to one where people waited less time from the decision to receive a procedure to actually receiving the procedure. Systems, structures and processes had to be established within two years to measure and monitor what appeared to be fairly simple wait times in five well-defined areas (Trypuc et al. 2006b). In addition, accountability structures, incentive systems and a public forum to communicate wait times needed to be developed, and – most importantly – surgeons, radiologists and supporting clinicians had to perform more procedures.

It is widely recognized that Ontario's Wait Time Strategy is a significant change management initiative. Indeed, it has been noted that “in a relatively short period of time, Ontario has moved from being a laggard to being a leader in the field

of wait time management” (Collins-Nakai et al. 2006). But the key question remains: Has the province achieved the goal that it set out for itself in November 2004? This article answers this question, beginning with a brief overview of the major inputs or foundational building blocks of the strategy, followed by a detailed analysis of the major outputs or outcomes of the strategy to date (Figure 1).

## Overview of Inputs

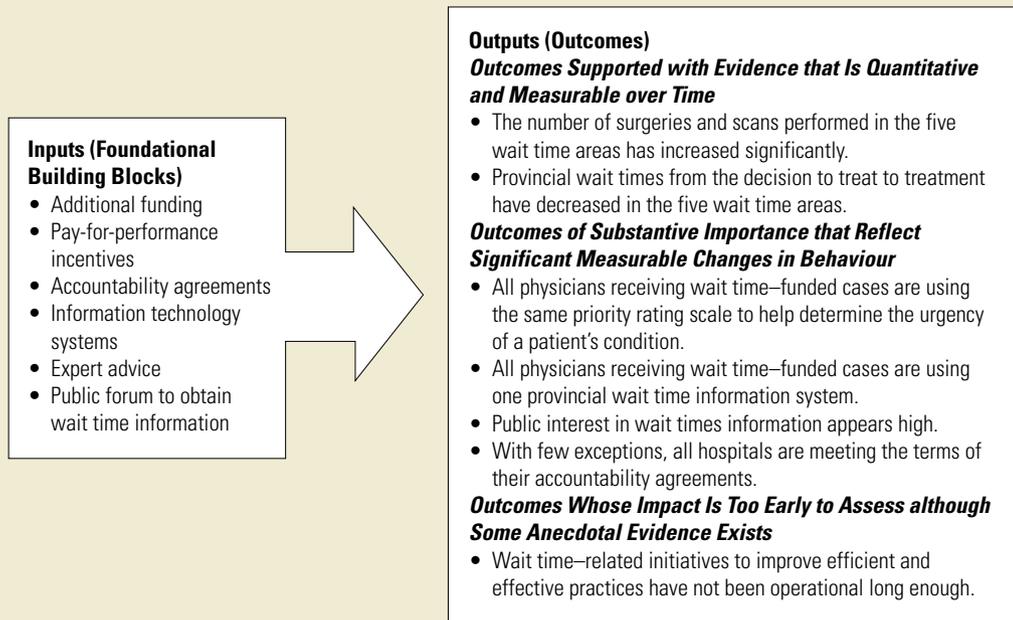
Six major inputs are the foundational building blocks of the Wait Time Strategy. (For detailed information on these inputs, see Trypuc et al. 2006a, 2006b, 2006c, 2006d; and [www.ontariowaittimes.com](http://www.ontariowaittimes.com) for the seven Wait Time Updates released from December 2004 to December 2006.)

## Additional Funding

Since November 2004, almost \$1 billion in additional funding – about \$986 million – has been invested to support Ontario's Wait Time Strategy. These funds have paid for more medical procedures in the five areas, new and updated equipment, initiatives to improve efficient and effective practices and wait time information technology:

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For Parts 1, 2 and 3 of “Ontario's Wait Time Strategy,” see Trypuc et al. 2006a, 2006b and 2006c. <http://www.longwoods.com/product.php?productid=18227&cat=443&page=1>, <http://www.longwoods.com/product.php?productid=18101>, <http://www.longwoods.com/product.php?productid=18404&cat=450&page=1>

**Figure 1. Ontario's Wait Time Strategy: inputs and outputs**

- **Medical procedures.** Hospitals were asked for the number of additional procedures they could perform over and above the cases they were already performing with their base budgets. After consulting with hospitals and the Joint Policy and Planning Committee (an Ontario Hospital Association–Ministry of Health and Long-Term Care collaboration), final case costs were determined in each of the five service areas. Since the price paid for each medical procedure reflected full operational case funding, the view was that this additional funding should not negatively affect hospitals' other activities. From November 2004 to March 31, 2007, \$611 million in new funding (of the \$986 million) was invested to fund 738,200 additional cancer, cardiac, cataract and hip and knee joint replacement surgeries and MRI and CT scans.
- **New and updated equipment.** Older, lower-quality diagnostic imaging equipment can be slower and less efficient and produce poorer images that may need to be redone. Over 30 hospitals purchased new and replaced aging MRI and CT scanners and diagnostic cardiac catheterization imaging units. All units were replaced through bulk purchasing, which resulted in standardized equipment across hospitals, lower administrative costs, a negotiated best price and service package and substantial savings off the list price for the purchase of the MRI and CT scanners.
- **Initiatives to improve efficient and effective practices.** A broad range of initiatives has been funded to improve efficient and effective practices. For example, Innovation and Education

Grants supported 54 projects aimed at educating staff about efficient practices and supporting hospital innovations. Peri-operative Improvement Expert Coaching Teams – made up of clinical and administrative leaders with experience in effective management of peri-operative resources – have visited about 40 hospitals thus far to evaluate and improve peri-operative efficiencies. Similarly, Critical Care Improvement Coaching Teams have assessed critical care services in 40 hospitals. A Surgical Efficiencies Program has developed standard provincial performance targets to assess surgical processes in all hospitals receiving wait time funding. Finally, a number of innovative care initiatives have been or are being developed to improve access and reduce wait times (Table 1). Examples include the Champlain Local Health Integration Network's (LHIN) Regional Cancer Program, which uses one referral point for the full range of cancer services; the Toronto Central LHIN's Kensington Eye Institute, a not-for-profit independent health facility that performs routine cataract surgeries; and the Toronto Central LHIN's Joint Health and Disease Management Program, which focuses on improving access across the continuum from primary care for joints to post-operative rehabilitation.

- **Wait time information technology.** Funding was provided to develop a single provincial Wait Time Information System (WTIS). In addition to provincial funding, Canada Health Infoway provided full funding to implement the Ontario Enterprise Master Patient Index/client registry, which is

**Table 1. Innovative care initiatives**

<b>Cancer</b>
Regional Cancer Program (Champlain LHIN)
<b>Cataract</b>
Cataract Centre of Excellence (Central LHIN)
Cataract Surgery Centre (South East LHIN)
Kensington Eye Institute (Toronto Central LHIN)
Reducing Cataract Wait Times in the Central East LHIN (Central East LHIN)
Regional Eye Medicine and Eye Surgery Centre (Hamilton, Niagara, Haldimand Brant LHIN)
<b>Hip and knee</b>
Fast Track Arthroplasty Initiative (South West LHIN)
Integrated Model of Care for Total Joint Disease (North Simcoe Muskoka LHIN)
Joint Health and Disease Management Program (Toronto Central LHIN)
Total Joint Assessment Centre (Central LHIN)
Total Joint Replacement Program (Hamilton, Niagara, Haldimand Brant LHIN)

LHIN = Local Health Integration Network.

being developed along with the WTIS (see “Information Technology Systems” below).

**Pay-for-Performance Incentives**

Hospitals are expected to meet a series of conditions to obtain funding for wait time cases. If hospitals do not meet these conditions, funding is withdrawn. Over the past two years, performance conditions have increased from being relatively simple (e.g., maintain the base volume of cases, perform additional funded procedures, submit select information on wait times and quality) to more complex (e.g., link funding with conditions that promote system and process improvements such as efficiency, safety and quality).

**Accountability Agreements**

Prior to November 2004, no one in Ontario was accountable for making sure that patients had appropriate access to services, for measuring or monitoring wait times in hospitals or for making sure that patients with the same clinical needs were

treated in a similar time frame. The Wait Time Strategy makes hospital boards accountable for equitable access to services in their organizations. Boards are required to sign accountability agreements with government that hospitals will meet the conditions of funding and use wait time information to govern their organization’s access management strategy and assess their hospital’s performance compared with others in the province. Hospital chief executive officers are expected to use this information to manage access, waits and patient flow within their organizations. Surgeons are expected to provide the necessary patient information to hospitals so that surgeries can be booked, waiting times tracked and potential problems addressed.

**Information Technology Systems**

The WTIS is a single electronic provincial information system that is linked to all hospitals participating in the strategy (i.e., those receiving wait time-funded volumes). Wait time information – entered electronically by surgeons and hospitals – is transferred directly to the data centre housed at Cancer Care Ontario and posted on the public website at regular intervals. Government is not involved in this process. The WTIS is being used to manage wait times locally and to monitor access locally, within LHINs and provincially, and is part of the ministry’s overall information management plan. The WTIS is being developed along with the Enterprise Master Patient Index (EMPI) or client registry. Linking the WTIS to the EMPI enables patients who are on more than one wait list to be tracked. Ontario’s EMPI is the largest in Canada. It includes 48 source systems from 90 sites (including Ontario’s Registered Person Database or Ontario Health Insurance Plan) and 43 million records. The strategy’s information technology systems are also being expanded to support other major access-to-care initiatives, including the provincial Critical Care Performance Measurement and Surgical Information Systems, and the Toronto Central LHIN Joint Health and Disease Management Information System.

**Expert Advice**

Expert advice from clinicians and local communities continues to guide the development of the strategy, create momentum for widespread change and impact on the policies and decisions related to this initiative (Trypuc et al. 2006a). Expert panels – composed of clinicians, administrators and researchers, all of whom volunteer their time – provide ongoing advice on allocations and system improvements. The expert panels in the five service areas developed standard clinical assessment criteria and four priority levels ranging from emergency (priority 1) to least urgent (priority 4). In addition to these five expert panels, other wait time-related expert panels have been created to advise on access and wait time issues (Table 2). Expert advice has also been obtained during frequent site visits in communities throughout Ontario.

### Public Forum to Obtain Wait Time Information

The strategy's website serves as the public forum where wait time information can be obtained. Launched in December 2004, the website initially included general educational information on wait time issues and an update on the strategy's progress. On October 24, 2005 – for the first time in Ontario – the website provided the public with wait time information for the five service areas in those hospitals that received additional wait time cases. These waits reflected the length of time patients had to wait from the decision to have the procedure to actually receiving the procedure. By June 2007, hospitals will be providing near real-time information on the number of patients who are waiting for a procedure. This information will be made publicly available on the website.

### Analysis of Outputs

The major outputs or outcomes of the Wait Time Strategy are analyzed using three broad categories:

1. Outcomes supported with evidence that is quantitative and measurable over time
2. Outcomes of substantive importance that reflect significant measurable changes in behaviour
3. Outcomes whose impact is too early to assess although some anecdotal evidence exists

### Outcomes Supported with Evidence that Is Quantitative and Measurable over Time

The number of surgeries and scans performed in the five wait time areas increased significantly from November 2004 to the present. From the time the Wait Time Strategy was announced in November 2004 to March 31, 2007, healthcare providers and hospitals in Ontario performed significantly more wait time surgeries and MRI and CT scans (Table 3).

Using fiscal 2003–2004 as the baseline year, in Ontario the number of cancer surgeries increased by 11%, cardiac procedures by 27%, cataract surgeries by 38%, hip and knee joint replacement surgeries by 50%, CT scans by 15% and MRI scans by 78%.

### Provincial wait times from the decision to treat to treatment decreased in the five areas from

August/September 2005 to October/November 2006. Wait time data for the five service areas were analyzed to determine whether provincial wait times from the decision to treat to treatment had decreased, and to assess how well wait times in the five areas aligned with wait time targets recommended by the clinical expert panels. From August/September 2005 to October/November 2006, Ontarians waited less time from the

**Table 2. Access and wait time expert advisory panels**

1. Access to Care eHealth Expert Panel (formerly the Wait Time Information Management Expert Panel): Sarah Kramer, chair.
2. Cancer Expert Panel (formerly the Cancer Surgery Expert Panel): Cancer Care Ontario, lead organization.
3. Cardiac Care: Cardiac Care Network of Ontario, lead organization.
4. Critical Care Expert Panel: Dr. Tom Stewart, chair.
5. Diabetes Management Expert Panel: Dr. Catherine Zahn, chair.
6. General Surgery Expert Panel: Dr. Ori Rotstein, Chair.
7. MRI and CT Expert Panel: Dr. Anne Keller, chair.
8. Ontario Hospital Association Reference Group: Murray Martin, chair.
9. Ophthalmology Expert Panel (formerly the Cataract Surgery Expert Panel): Dr. Philip Hooper, chair.
10. Orthopaedic Expert Panel (formerly the Hip and Knee Joint Replacement Expert Panel): Dr. Allan Gross, chair.
11. Paediatric Surgery Expert Panel: Cathy Séguin, RN, chair
12. Primary Care-Family Practice Wait Times Expert Panel: Dr. Philip Ellison, chair.
13. Surgical Process Analysis and Improvement Expert Panel: Valerie Zellermeier, RN, chair.
14. Trauma Expert Panel: Dr. Murray Girotti, chair.

**Table 3. Number of procedures completed in Ontario hospitals that received wait time funding**

Procedure	Baseline 2003–2004	Fiscal Year 2004–2005*	Fiscal Year 2005–2006*	Fiscal Year 2006–2007†	Increase from 2003–2004 to 2006–2007
Cancer surgery	44,950	46,653	49,767	50,066	5,116 (11%)
Cardiac procedures	88,449	96,300	103,298	112,686	24,237 (27%)
Cataract surgery	102,182	104,182	119,857	140,832	38,650 (38%)
Hip and knee joint replacement surgery	24,006	26,366	31,553	35,996	11,990 (50%)
CT scans	1,035,436	1,035,436	1,116,736	1,188,594	153,158 (15%)
MRI scans	276,448	316,448	386,193	491,636	215,188 (78%)

CT = computed tomography; MRI = magnetic resonance imaging.

\*Fiscal years range from April 1 of one year to March 31 of the following year.

†Volumes in 2006–2007 reflect procedures completed from April 1, 2006, to September 12, 2006, plus procedures hospitals committed to complete from September 12, 2006, to March 31, 2007, as stipulated in their Wait Time Strategy conditions of funding.

decision to treat to treatment for all wait time procedures using the 90th percentile as the measure of wait time (i.e., the point at which 90% of patients received their treatment).

**Cataract Surgery**

Ontarians waited 102 days less for cataract surgery compared with 16 months prior (311 to 209 days; Figure 2). This represents a 32.8% decrease in cataract surgery wait times. Although Ontario did not meet the 90th percentile priority 4 access target for cataract surgery set by clinical experts (182 days), trends indicate that the cataract surgery target will be met in the near future.

Figure 3 provides a more detailed analysis of the shifts in cataract surgery wait times from August/September 2005 to October/November 2006. Trends indicate shorter wait times (90% of completed cases are moving closer to the priority 4, or least urgent, target), more cases being performed sooner (the curve has become highly skewed to the left) and fewer cases waiting for longer periods of time (i.e., fewer outliers).

**Cancer Surgery**

Ontarians waited three days less for cancer surgery compared with 16 months prior (81–78 days; Figure 4). Although this decrease is slight, waits for cancer surgery remain within the priority 4 wait time target of 84 days set by cancer clinical experts. A detailed analysis of hospital data indicates that wait times for cancer surgery have increased in three of 11 cancer groups (gynecology, lung and brain), whereas wait times for cancer surgery have decreased or stayed the same in the other eight cancer groups. Wait time information by cancer group in each of the 14 LHINs and in every hospital is being examined to identify the issues, and Cancer Care Ontario is working closely with the regional vice-presidents of cancer in targeted LHINs for solutions.

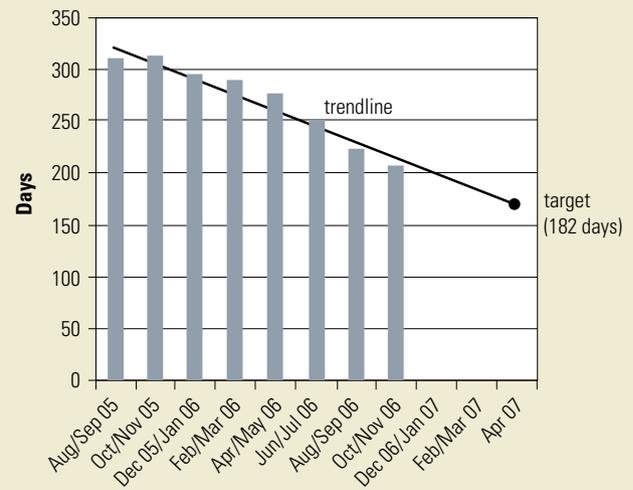
**Cardiac Bypass Surgery**

Ontarians waited two days less for cardiac bypass surgery compared with 16 months ago (49–47 days; Figure 5). Although cardiac surgery wait times fluctuated between 41 and 62 days from August/September 2005 to October/November 2006, waits remained well within the target set by clinical experts for safely receiving routine bypass surgery (182 days).

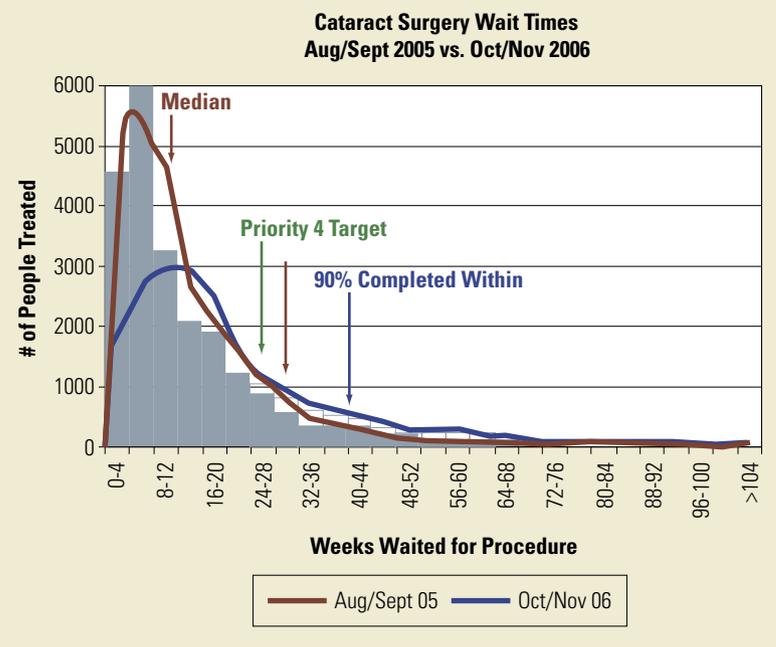
**Hip and Knee Replacement Surgery**

From August/September 2005 to October/November 2006, Ontarians waited 73 less days for a hip replacement (351–278

**Figure 2. Cataract surgery wait times (days), August/September 2005–October/November 2006**



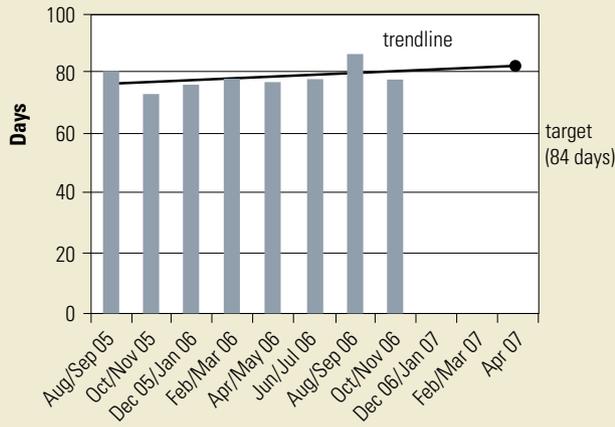
**Figure 3. Cataract surgery wait time trends, August/September 2005 and October/November 2006**



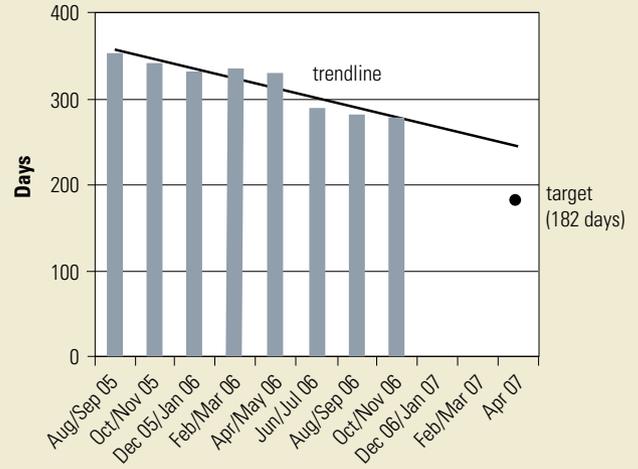
days; Figure 6). Ontarians also waited 83 fewer days for a knee replacement (440–357 days; Figure 7). Ontario is not yet meeting its access targets for hip and knee joint replacement surgeries set by clinical experts (182 days). Trends indicate that Ontario will likely meet its target for hip replacement wait times sooner than that for knee replacements.

Figure 8 provides a more detailed analysis of the shift in hip

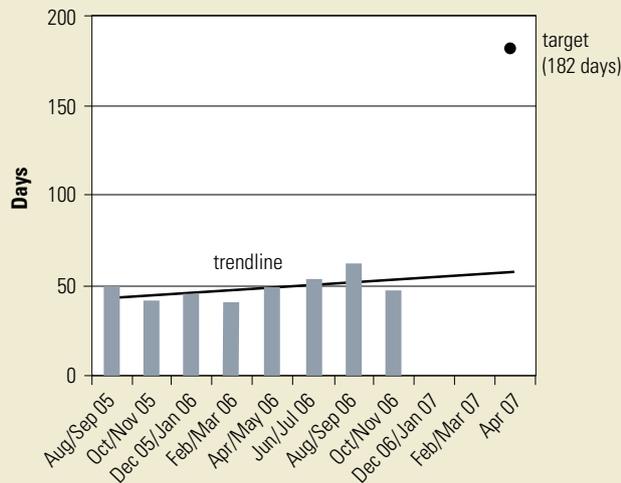
**Figure 4. Cancer surgery wait times (days), August/September 2005–October/November 2006**



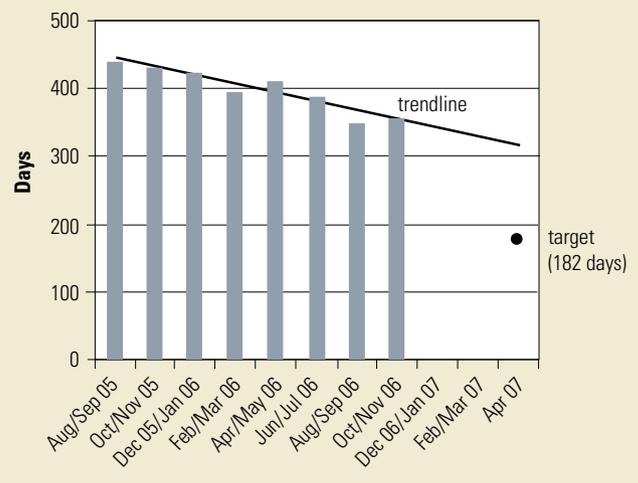
**Figure 6. Hip replacement surgery wait times (days), August/September 2005–October/November 2006**



**Figure 5. Cardiac bypass surgery wait times (days), August/September 2005–October/November 2006**



**Figure 7. Knee replacement surgery wait times (days), August/September 2005–October/November 2006**



replacement wait times. As with cataract surgery, a number of trends are evident including lower wait times (90% of completed cases are moving closer to the priority 4 wait time target), more cases being performed sooner (the curve has become highly skewed to the left), and fewer cases waiting for longer periods of time.

**MRI and CT Scans**

Ontarians waited seven days less for an MRI scan from August/September 2005 to October/November 2006 (120–113 days or 6% fewer days; Figure 9). Ontarians also waited 11 days less for a CT scan (81–70 days or 14% fewer days; Figure 10). Ontario

is not yet meeting its access targets of 28 days for priority 4 MRI and CT scans set by clinical experts. Scheduled follow-up scans may be skewing the wait times data to a certain degree. Detailed wait time information for MRI and CT by LHINs and hospitals are being examined to identify the issues and solutions. As well, the strategy has commissioned the Institute for Clinical Evaluative Sciences to audit hospital data to determine clinical indications and appropriateness of MRI and CT scans being performed in Ontario. The report is expected to provide insights into the appropriateness of ordering practices for these diagnostic tests.

Summary of Provincial Wait Time and Access Targets  
 Table 4 summarizes provincial wait times from the decision to treat to treatment in the five service areas. From August/September 2005 to October/November 2006, wait times decreased 102 days for cataract surgery, 83 and 73 days, respec-

tively, for knee and hip replacement surgery, 11 and seven days, respectively, for CT and MRI scans, three days for cancer surgery and two days for bypass surgery. The percentage decrease in wait times ranged from 33% (cataract surgery) to 4% (cancer and cardiac bypass surgery).

Figure 11 compares the priority 4 wait time target (90th percentile) recommended by clinical experts in each of the five service areas with actual performance (as of October/November 2006). In Ontario, the percentage of adult patients who received their procedure within the recommended priority 4 target is as follows:

- 100% of patients waiting for cardiac bypass surgery
- 91% of patients waiting for cancer surgery
- 87% of patients waiting for cataract surgery
- 78% of patients waiting for hip replacement surgery and 66% of patients waiting for knee replacement surgery
- 71% of patients waiting for CT scans and 43% of those waiting for MRI scans

**Outcomes of Substantive Importance that Reflect Significant Measurable Changes in Behaviour**  
 All Ontario physicians receiving wait time

Figure 8. Hip replacement surgery wait time trends, August/September 2005 and October/November 2006

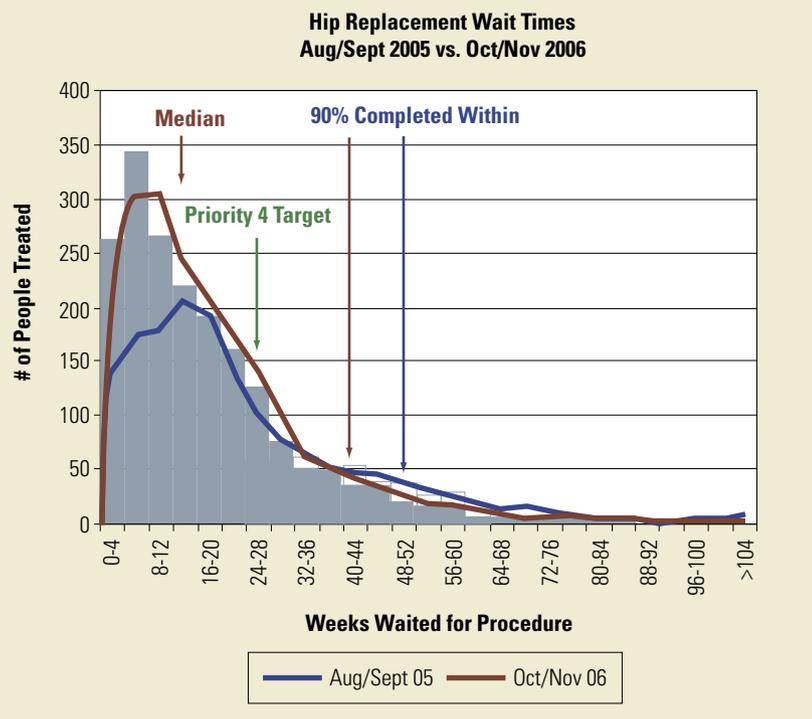


Figure 9. Wait times (days) for magnetic resonance imaging scan, August/September 2005–October/November 2006

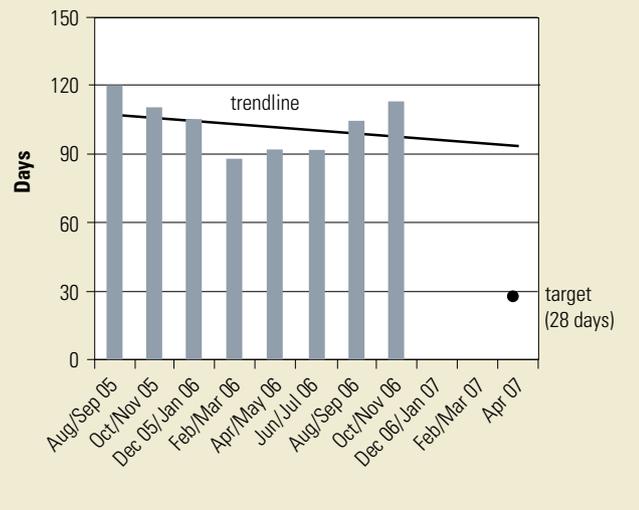
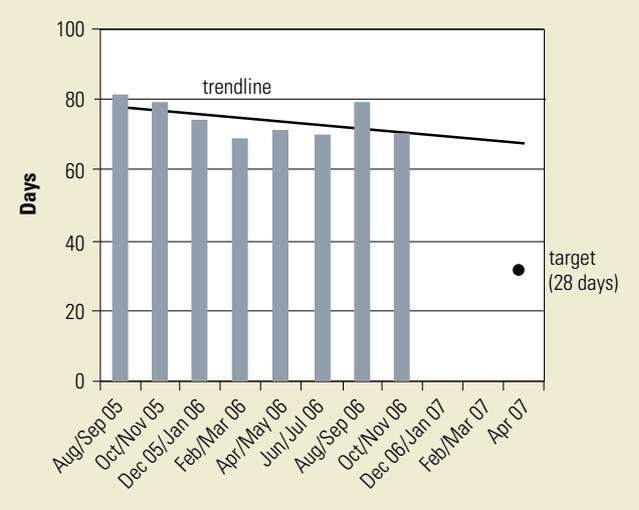


Figure 10. Wait times (days) for computed tomography scan, August/September 2005–October/November 2006



**Table 4. Ontario wait times from the decision to treat to treatment, August/September 2005–October/November 2006**

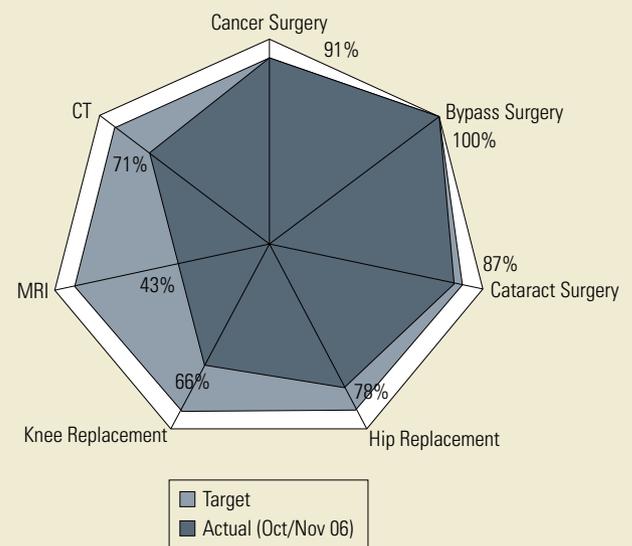
Service	Time to Treat 90% of Patients					
	Baseline (Aug/ Sept 2005)	Current (Oct/Nov 2006)	Access Target* (Days)	% Completed within Target*	Current vs. Baseline	
					Net change	% change
Cancer surgery	81	78	84	91	-3	-3.7
Cardiac bypass surgery	49	47	182	100	-2	-4.1
Cataract surgery	311	209	182	87	-102	-32.8
Hip replacement	351	278	182	78	-73	-20.8
Knee replacement	440	357	182	66	-83	-18.9
MRI scan	120	113	28	43	-7	-5.8
CT scan	81	70	28	71	-11	-13.6

CT = computed tomography; MRI = magnetic resonance imaging.  
 \*Priority level 4 target (least urgent).

–funded cases are using the same priority rating scale to help determine the urgency of a patient’s condition. The expert panels in the five service areas developed priority rating scales to guide physicians in determining the urgency of a patient’s condition. The panels also identified corresponding wait time targets for each priority level. Significantly, all physicians in Ontario receiving wait time–funded cases are now using a consistent method and tool to help determine the urgency of a patient who needs cancer, cardiac or cataract surgery, a hip or knee joint replacement, or an MRI or CT scan. (Under the leadership of the Cardiac Care Network of Ontario, cardiac surgeons in the province have been using a consistent priority rating scale since 1990 to help determine the urgency of patients who need cardiac surgery.) This consistent approach supports the principle of equity since all patients needing these procedures are being prioritized the same way.

All physicians receiving wait time–funded cases are using one provincial electronic wait time information system. Developing a single electronic information system across Ontario is unprecedented, requires a massive effort, builds on the advice and efforts of thousands of clinical and information leaders across the province and will result in major information developments in healthcare that go well beyond tracking wait times. This impressive achievement is made even more impressive by the fact that all physicians in Ontario receiving wait time–funded cases are using this one system.

**Figure 11. Ontario priority 4 (least urgent) access target (90th percentile), actual as of October/November 2006 and recommended target. CT = computed tomography; MRI = magnetic resonance imaging**



Two years ago, there was no WTIS. As Figure 12 indicates, by November 30, 2006, 55 facilities representing 90% of the Wait Time Strategy–funded cases had implemented a single provincial WTIS/EMPI system. In total, 1,400 surgeons were using the system and had entered wait time information on over 235,000 cancer, cardiac, cataract and hip and knee replacement surgeries, and 1.1 million MRI and CT scans (annually). These surgeons were also entering provin-

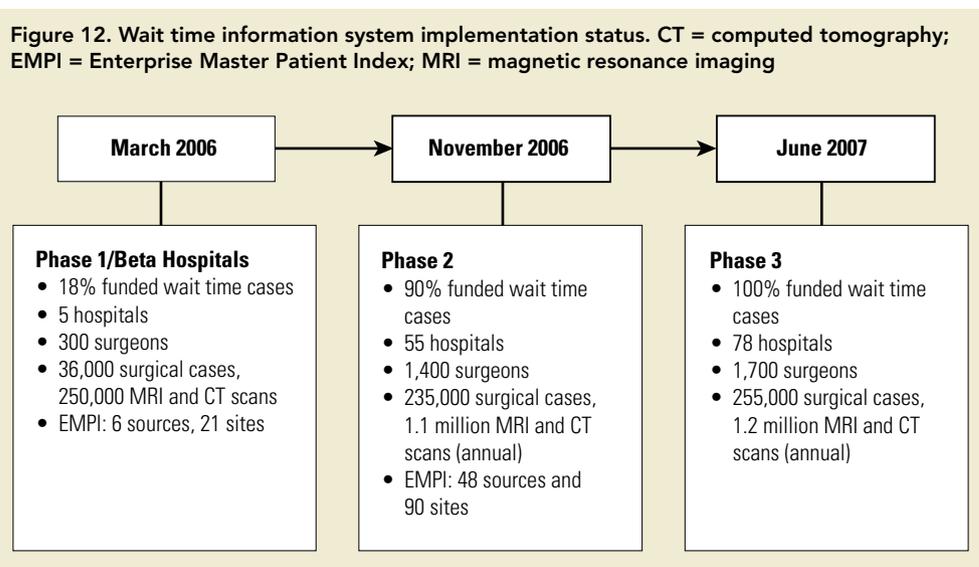
cial priority ranking scores for their wait time cases. By June 2007, 23 more hospitals will have implemented the provincial system and over 1,700 surgeons will have entered 100% of wait time–funded cases (i.e., 255,000 surgical cases and 1.2 million MRI and CT scans).

**Public interest in Ontario's wait times information appears to be high.** There appears to be a great deal of public interest in Ontario's wait time information using the number of website hits as an indicator of interest. From the time hospital-specific wait time data were first posted on October 24, 2005, to December 31, 2006, the website has had over 2.25 million hits. The site receives an average of 6,000–7,000 hits a day. Significantly more daily hits occur when the ministry makes funding announcements.

**With few exceptions, all hospitals are meeting the terms of their accountability agreements.** Hospitals are being regularly audited to determine whether they are meeting the terms of their accountability agreements. For the most part, all hospitals are meeting the terms of these agreements and fulfilling the conditions of funding. These include maintaining the base number of procedures, performing additional funded volumes, submitting required wait time information to the WTIS and meeting efficiency conditions.

**Outcomes Whose Impact Is Too Early to Assess although Some Anecdotal Evidence Exists**

**Wait time–related initiatives to improve efficient and effective practices have not been operational long enough to evaluate.** It is still too early to assess in objective and measurable ways whether the wait time–related initiatives have improved efficient and effective practices. Initiatives such as the Innovation and Education Grant projects, the Peri-operative and Critical Care



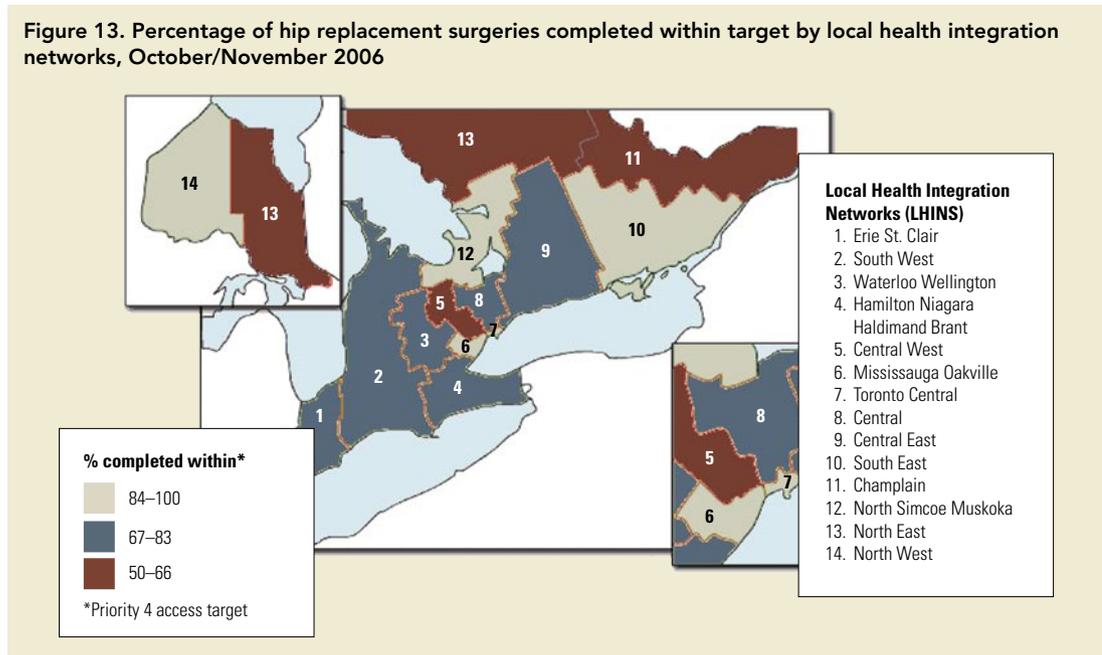
Improvement Coaching Teams, the Surgical Efficiencies Program and the innovative care initiatives focus on changing management and clinical processes and behaviours. It is challenging to identify valid and reliable performance indicators for these initiatives, and they need to be in place long enough before their impact can be evaluated objectively. There is anecdotal evidence to suggest that many of these wait time–related initiatives are having positive impacts. For example, hospitals that have been assessed by Peri-operative Improvement Coaching Teams have evaluated the process highly. Currently, a rigorous formal evaluation is being conducted of this initiative to measure the impact of the preliminary coaching visits on hospital peri-operative improvements.

**Concluding Remarks**

There is clear evidence to show that the numbers of surgeries and scans performed in the five wait time areas have increased significantly since Ontario's Wait Time Strategy began in November 2004. The data also indicate that provincial wait times from the decision to treat to treatment have decreased in the five areas, quite significantly in some. Substantial behavioural changes have also been observed within the healthcare system, which augurs well for sustaining the strategy in the long term.

Ongoing evaluation efforts are focusing on a number of areas. The impact of wait time–related initiatives to improve efficient and effective practices is being assessed. In addition, the number of procedures completed within the targets set for each of the four priority levels will be evaluated as these data become available. As well, increasing attention is being focused on equity of access to procedures within and across LHINs. Although average provincial wait times have decreased, wait

**Figure 13. Percentage of hip replacement surgeries completed within target by local health integration networks, October/November 2006**



times by LHINs and hospitals have decreased at varying rates. To illustrate, Figure 13 shows the percentage of hip replacements completed within the priority 4 access target by LHIN in October/November 2006. The percentage of cases completed within target varies from 50 to 100%, depending on the LHIN. The Wait Time Office is working closely with LHINs to determine why inequities exist and what LHINs and hospital boards can actively do to address wait time imbalances, manage their wait lists and improve access to services.

The Wait Time Strategy has gone well beyond its goal of reducing the time that adult Ontarians wait for services in five areas by December 2006. Indeed, the foundational building blocks of the strategy will support ongoing improvement and expansion beyond the original five services areas. Having said that, it bears repeating that the strategy is a significant change management initiative whose successes are largely due to the thousands of dedicated individuals across the province who are helping to implement this transformation initiative (Trypuc et al. 2006b).

### Acknowledgements

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