

Wait times for general surgery in BC: Moving beyond measurement

An assessment of the current status of wait times for general surgical procedures in BC and discussion of activity-based funding as a model to help decrease surgical wait times.

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Surgical wait times have been a central focus for health policy since the 2003 First Ministers' Accord on Health Care Renewal,¹ which allocated \$34 billion for health care. The 2004 Accord and Ten-Year Plan to Strengthen Health Care² allotted \$5.5 billion to the Wait Time Reduction Fund to improve access to surgery, track wait times, and develop prioritization tools. Subsequently, the 2005 Chaoulli decision³ in Quebec raised public awareness of the potential for patient harm due to long waits for nonemergency surgery.

Five areas (cataracts, hip and knee arthroplasty, hip fracture repair, cardiac surgery, and radiation oncology) were designated surgical priority areas. Benchmarks of maximal acceptable waits were set to achieve "meaningful reductions."² Consequently, the surgical field was divided into have and have-not specialties competing

for limited perioperative resources.

Despite increased funding and improved data collection, it has been difficult for data to be used meaningfully to drive resource allocation for surgery. This is especially true for non-prioritized areas like general surgery.

Canadian health policy on wait times since 1984

The 1984 Canada Health Act⁴ structured health care responsibilities with the federal government setting national standards and individual provinces directly responsible to allocate spending to achieve these standards. This division of responsibility limited the federal role to tax collector, with provincial silos in which standards and data tracking differ.

Before 2004 wait-time information was limited to survey data. Between 2001 and 2010, 25% of survey patients reported a wait of 4 or more months for nonemergent surgery.^{5,6} British Columbia, Alberta, Saskatchewan, and Ontario were the first provinces to set up provincial data tracking for surgical waits. These early registries lacked uniformity in inclusion criteria, wait definitions, and summary measures, resulting in an inability to make interprovincial comparisons until 2008–2009.⁷

Wait times measurement methodology and challenges

The BC Surgical Patient Registry (SPR) was created in 2008. The intent of SPR is to support surgical decision making and resource allocation by providing prioritization information.⁸ The operating budget is \$875 000 annually. While no data regarding the initial setup cost in 2003–2004 are available in the public domain, the experience of other provinces suggests a range between \$2 and \$11 million.^{9,10} Wait-time definitions are summarized in **Table 1**. The SPR aggregates booking data from individual surgeon offices. Average wait times are calculated using the date of booking to the date of operation. This methodology understates the overall wait time and burden of waiting from a patient's perspective, particularly if delays occur before surgical consultation.

National evaluation of wait-times progress and current data gaps

Over the past decade there have been major improvements in the reporting of wait-time data for priority procedures, with all provinces publicly reporting wait times. While the crude number of procedures performed

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Table 1. Wait-time definitions and current collection status.

Wait time segment	Definition	Currently collected
Wait one	Time period from referral by general practitioner for specialist consultation to the date of specialist consultation	Collection started April 2014, not yet reported
Wait two	Time period from the hospital's receipt of the operating room booking form from the specialist to the date of surgery	Yes, reported
Wait three	Time for diagnostic tests (e.g., CT scan, MRI) to be completed before decision is made regarding surgery	No
Wait four	Hypothesized time from after surgery to functional recovery and optimization	No

has increased, wait times in the last 3 years have remained virtually unchanged, and the percentage of procedures completed within benchmark times has decreased.¹¹ A comparison of BC's performance in relation to provincial targets and national benchmarks is summarized in **Table 2**.

Despite recommendations and independent efforts to create benchmarks for all specialties^{12,13} there has been no federal reassessment in the last 10 years.¹⁴ Tracking of waits for nonpriority specialties occurs independently within individual provinces. In 2013 national cancer surgery statistics were reported for the first time, though there are currently no national benchmarks. As of 2014, general surgery wait times are be-

ing tracked in seven provinces (except Newfoundland, Prince Edward Island, and Manitoba), though not reported nationally. It is impossible to make national comparisons about waits for general surgery.

Within BC wait time targets were developed across multiple specialties in 2010. Examples of common general surgery diagnoses and their associated wait-time target are summarized in **Table 3**. Every elective surgical booking is accompanied by a prioritization code that designates the target time from booking to surgical date, ranging from 2 to 26 weeks.

Status of wait times in BC

Overall BC's surgical wait times have not declined and performance is slip-

ping. The 90% target set by the BC provincial government¹⁵ is rarely met. In 2002–2003, 90% of patients received nonemergency procedures within 23 weeks, with a total of 206 000 procedures performed. Ten years later, while the number of non-emergency procedures performed per year increased marginally to 218 000, the 90th percentile wait had increased to 26 weeks. The overall percentage of nonemergency surgeries completed within target wait times in BC currently stands at 65% (2013–2014), down from 82% (2010–2011).¹⁶

Increases in wait times are partly due to the push from health authorities to expedite cases that have been waiting more than 52 weeks. This increases the calculated average wait

Table 2. Comparison of Canadian vs British Columbia benchmarks for priority areas.

	Canada			British Columbia		
	Benchmark (days)	% within benchmark		Change in number of procedures (%)	% within benchmark	Change relative to 2010 (%)
Year		2010	2014	2010–2014	2014	
Procedure						
Hip replacement	182	84	83	28	67	↓
Knee replacement	182	80	79	24	57	↓
Hip fracture repair*	48 hrs	78	84	5	89	↑
Cataract surgery	112	83	80	7	70	↓
Radiation therapy	28	98	98	34	95	—

Wait-times measures are reported between April and September of the specified calendar year

*Quebec wait times for hip fracture repair not included due to methodological differences in data

↑ or ↓: at least a 5 percentage point change since 2010 (after rounding to nearest percent)

—: No substantial change in percentage meeting benchmark since 2010

Source: Canadian Institutes of Health Information Wait Times for Priority Procedures in Canada, 2015

based on current methodology. A secondary effect of this policy is that surgeons are discouraged from booking new, potentially more urgent, cases into elective time until the long waiters are addressed. From a patient's perspective, this makes the wait-list data difficult to interpret. While the reported wait for a procedure may be 4 weeks, access to the operating room is not linear, making the actual wait time difficult to predict. Patients who wait exceedingly long may suffer exacerbation of symptoms, requiring emergent or expedited surgery with downshifting of others still waiting.

The limitations in access to operating rooms results in large numbers of patients dropping off the wait list. In 2011–2012, despite 123 599 cases being completed, 20 852 patients dropped off the wait list (Table 4). The average time to drop-off was 42.8 weeks. Alarming almost two-thirds (63%) of the drop-offs came from the top four priority groups (wait target ≤ 16 weeks). Of these 12% were priority one (wait target ≤ 2 weeks) who had waited an average of 24.1 weeks (correspondence with L. Vertesi, previous executive director of BC Health Services Purchasing Organization, 17 April 2015). While drop-offs can occur for various reasons (e.g., death on wait list, requirement

Table 3. British Columbia wait-time targets for general surgery procedures.

Anatomic site	Diagnosis	Wait-time target (weeks)
Breast	Benign breast disease	12
	Breast cancer	4
	Breast cancer – inflammatory	2
	Breast lump NYD (rule out malignancy)	4
Benign anorectal disease	Hemorrhoid	12
	Anal fistula with sepsis	6
	Anal fistula	26
Colon	Colonic cancer	4
	Diverticular disease of the colon	6
	Diverticular stricture	2
Rectum	Rectal carcinoma with short course preoperative radiation	2
Hepatobiliary/pancreatic	Hepatocellular carcinoma	4
	Pancreatic adenocarcinoma	4
Biliary	Biliary colic–chronic (infrequent symptoms)	12
	Biliary colic–intermediate (frequent pain)	6
	Biliary colic–severe (daily pain)	2
Endoscopy	Positive FIT	8
	Screening colonoscopy for personal or significant family history	26
Hernias	Inguinal or femoral	12
	Incarcerated hernia without bowel obstruction	4
Skin	Malignant melanoma	4
Stomach	Stomach carcinoma	4
	Gastrointestinal stromal tumor	4
Thyroid	Asymptomatic benign mass, goiter, or cyst	26
	Thyroid mass (rule out malignancy)	12
	Well-differentiated thyroid cancer (not medullary or anaplastic)	6

Table 4. Wait list and drop-offs by health authority, 1 April 2011 to 31 March 2012.

Health authority*	Waitlist 1 Apr 2011	New arrivals	Cases done	Cases dropped off	Waitlist 31 Mar 2012	Net change		Drop-offs as % of cases done
						Cases	%	
Fraser	12 396	42 151	33 586	8116	12 845	449	3.6%	24%
Island	8597	27 769	23 692	3576	9098	501	5.8%	15%
Northern	2476	11 957	10 723	1223	2487	11	0.4%	11%
Vancouver Coastal	10 625	35 273	29 937	4142	11 819	1194	11.2%	14%
Vancouver Island	8646	30 092	25 661	3795	9282	636	7.4%	15%
All BC	42 740	147 242	123 599	20 852	45 531	2791	6.5%	17%

*Excludes Providence Health

Cases refer to day surgery only; excludes routine cataract extractions

Source: Dr Les Vertesi, as part of ongoing communications between the Health Services Purchasing Organization and the BC Ministry of Health

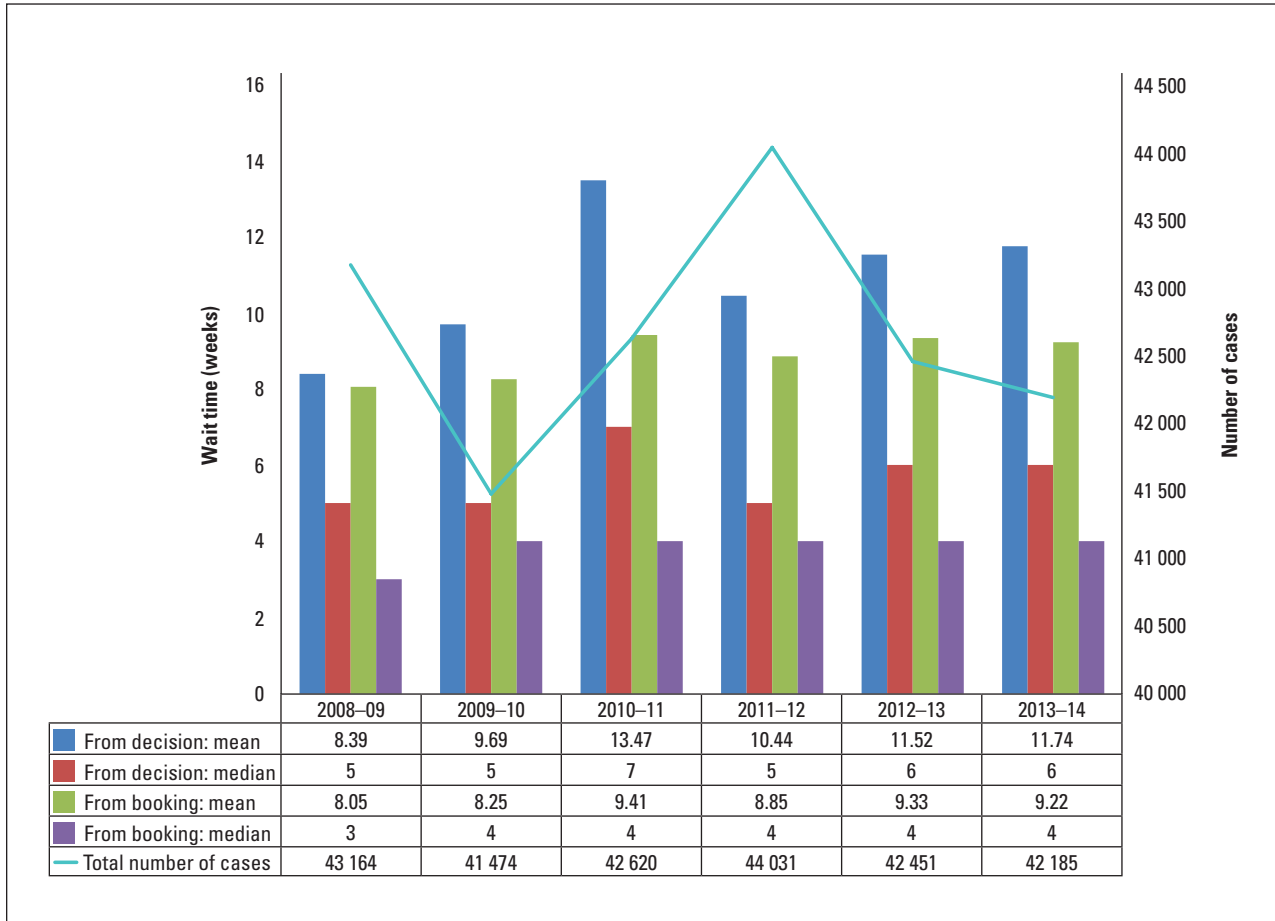


Figure 1. Adjusted wait times for adult and pediatric general surgery cases completed, by year.

for emergency surgery, obtaining private or out-of-province procedures), the enormous proportion of patients exiting the wait list has unfortunately become a component of keeping the wait list in check.

General surgery wait times in BC

All available wait-time data for general surgery were obtained from the BC Surgical Patient Registry from April 2009 to April 2015. Tracking of percentage of cases meeting target was implemented in 2011. Yearly caseload and average wait times are summarized in **Figure 1**. General surgery caseloads for overall, cancer, and non-cancer cases as well as their associated percentage meeting benchmark are summarized in **Figure 2a**, **Figure 2b**,

and **Figure 2c** respectively. Average waits for patients who have undergone procedures (cases completed) and those who remain waiting at the end of the fiscal year (cases waiting) are reported separately.

For cancer surgery, over the last 4 years the number of cases performed per year appears to have remained stable around 10 000 per year, while the percentage of cases completed within target decreased, from 80% in 2011–2012 compared with 73% in 2014–2015. Of the patients who were still waiting at the end of each fiscal year, the proportion who had waited beyond the target remained relatively stable, from 41% to 39%. For general surgery cases where cancer is not suspected, the proportion of cases completed within target increased from

48% to 54%, but this was accompanied by a concurrent increase in the proportion of still-waiting patients who waited beyond targets for their noncancer surgery from 32% to 38%.

Discussion

Overall, there has been worsening in the status of wait times for general surgery procedures in British Columbia. Despite substantial financial investment and policy making, advances in measurement have not translated into meaningful reductions in wait times. Clinicians are striving to ensure that cancer patients receive surgery in a timely manner, resulting in ever-longer wait times for patients with non-oncological diagnoses. Going forward, funding and informatics must be leveraged simultaneously to

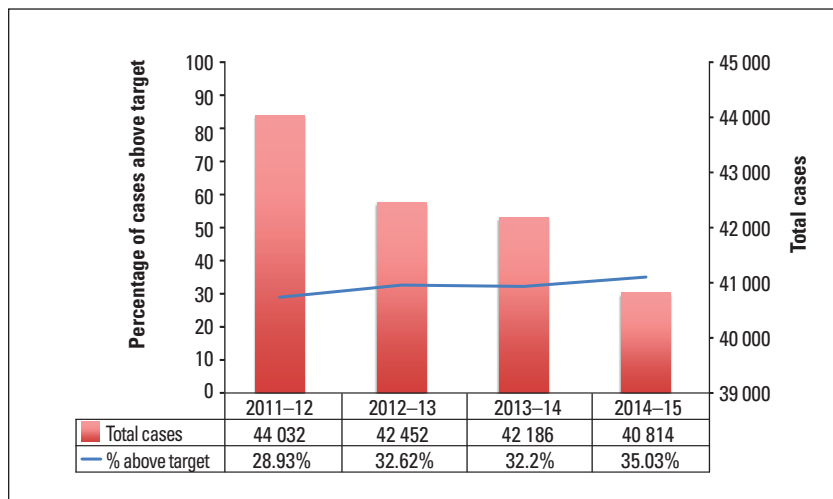


Figure 2a. Overall cases completed and percentage above target, by year.

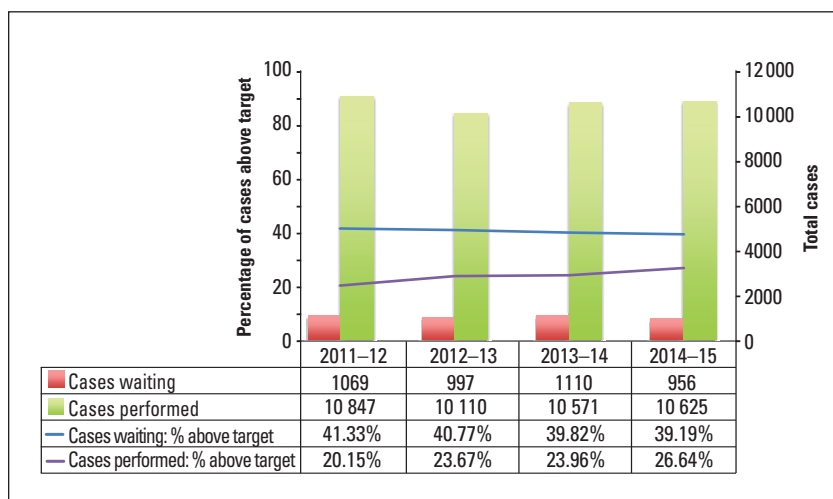


Figure 2b. General surgery, cancer cases: Total cases and percentage above target, by year.

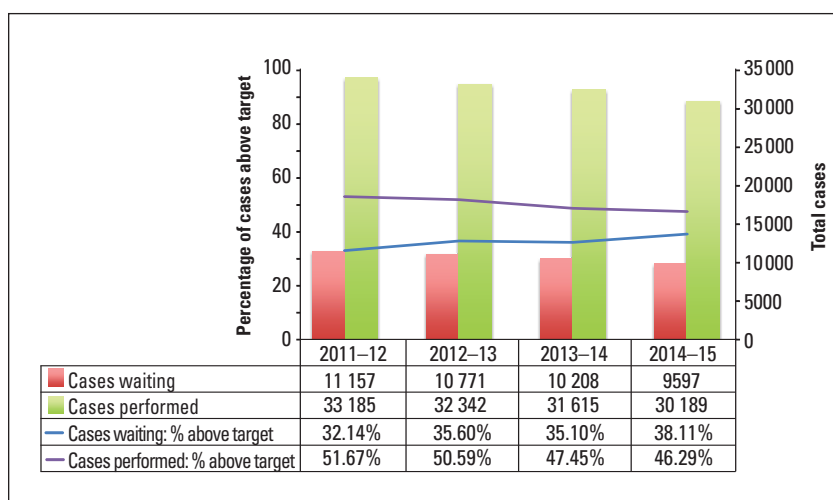


Figure 2c. General surgery, noncancer cases: Total cases and percentage above target, by year.

drive strategies for improving surgical capacity.

An analysis of 20 OECD countries suggested that higher availability of doctors and number of acute care beds was significantly associated with decreased wait times.¹⁷ A 2013 study cited decreased surgical resources as a significant reason that 16% of new subspecialist graduates in Canada were unable to find work in surgical disciplines.¹⁸ In the same year the National Physician Survey found that 35% of Canadian general surgeons felt they had unsatisfactory access to the operating room.¹⁹ This finding was echoed by a study on BC general surgeons, highlighting that the surgeon shortage in BC is primarily driven by a lack of available operating room time and resources.²⁰

In December 2011 the federal government committed to an additional annual 6% increase in health transfers from 2014 to 2017.²¹ In the current model of block funding for hospitals, provision of surgical care is a major cost centre to hospital and health authority budgets, which can reduce incentives to invest undirected funds toward perioperative care. Operating room closures over the holidays are an additional example of cost-avoidance strategies currently employed. Health care funding reform incorporating activity-based funding becomes not only a financial incentive, but also a necessary element for continuous and timely care delivery to surgical patients.

Activity-based funding

In activity-based funding (ABF) models, funds are allocated to hospitals based on the type and volume of services provided, adjusting for the complexity of the patient population.²² The United States Medicare program was the first federally run program to adopt this model in 1983. The Canadian Senate Committee recommended implementation of ABF in 2002.¹¹

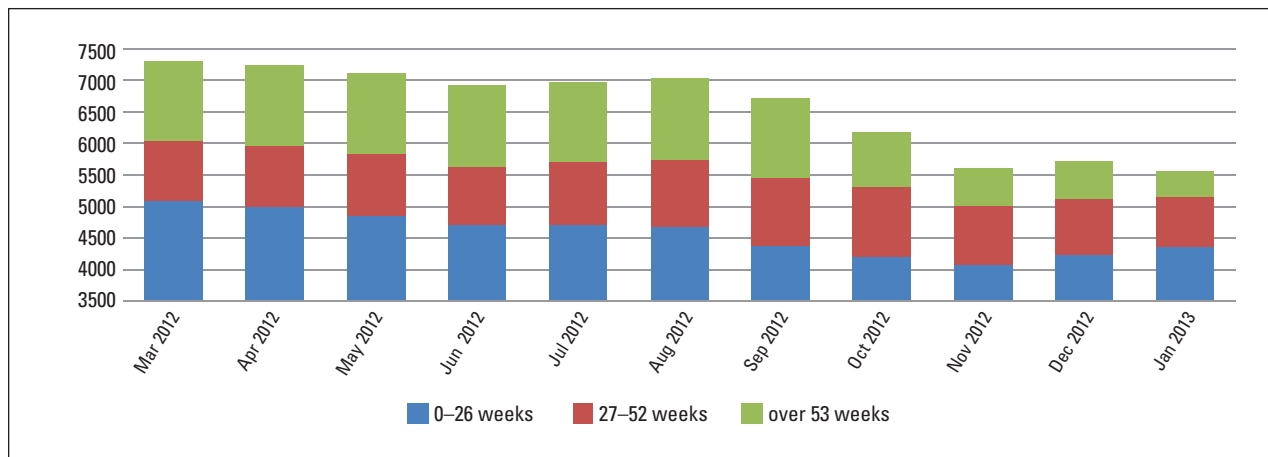


Figure 3. Wait times at Vancouver Acute, March 2012 to January 2013.

Potentially ABF provides increased accountability of public funds, equity in fund distribution, and increased investment in capital. Given the focus on care delivery, ABF offers flexibility in setting priorities to suit community needs and creates an environment that encourages competition and collaboration to provide the best services. In an ideal system, ABF balances patient illness and complexity in order to equitably allocate resources.

Potential disadvantages include gaming of financial structures of ABF models to preferentially provide services to patients who maximize financial surplus or limiting access to patients whose care would result in costs exceeding the funding amount. ABF can contribute to uncontrolled increases in expenditure driven by increased activity. In order to mitigate potential downsides, careful monitoring is required to keep spending in check and prevent undermining of the principles of equitable access and quality care.

A generally consistent outcome following ABF implementation is a reduced length of hospital stay.^{23,24} ABF is also associated with improved patient satisfaction from reduced wait times.²⁵ However, findings regarding cost efficiency are mixed²⁶⁻²⁹ as a higher intensity of services tends to

be used during shorter stays. Robust cross-country comparisons remain difficult due to variation between methods of costing, implementation, and measuring outcomes. A recent systematic review and meta-analysis summarized 65 studies from the US and Europe on ABF implementation

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between 1980 to 2012,³⁰ finding no increase in mortality or hospital readmission rates. There was an increase in discharge to post-acute care facilities, highlighting the need for ABF to be implemented as part of more global reform. The authors were not able to specify in which settings ABF may be beneficial or deleterious, empha-

sizing that ABF has to be tailored to the context of a given health region.

Ontario adopted a funding model incorporating ABF on 1 April 2012 under the umbrella of Health System Funding Reform (HSFR). For the 2015–2016 fiscal year HSFR will comprise 70% of the funding structure provided to hospitals, with the remaining 30% based on block funding; 30% of HSFR will be based on quality-based procedures using a “price X volume” approach.³¹ Reimbursement structures will integrate quality measures of outcome including evidence-based reviews of best practice and cancer surgery benchmarks. Theoretically, this approach will lead to funding being allocated to hospitals according to actual need, more equitable service provision, and better value for money.

Activity-based funding in BC

In April 2010 the BC Ministry of Health allotted \$250 million to launch its Patient Focused Funding initiative to reduce wait times and increase same-day surgical procedures. As a result, wait times for the top-10 day procedures decreased at Vancouver Acute over a 9-month period of wait list-drive intensive funding. This translated to a 24% reduction in the surgical wait list (1800 cases) as well as a 69% reduction in cases waiting

over 1 year (900 cases) (oral and written communication with L. Vertesi, previous executive director of BC Health Services Purchasing Organization, 17 April 2015) (**Figure 3**). Though much promise was demonstrated, the ABF program was discontinued in 2013.

The early success of ABF observed in BC supports its reimplementation as a method to address the specific concerns regarding surgical wait times, but must be implemented in the context of global health reform. Isolated data tracking can lead to solutions that are not patient focused, as is in evidence with the large number of patients dropping off wait lists. Expansion of data tracking and quality-of-care measures should be integrated to ensure that isolated data tracking and ABF incentives are not accompanied by an associated decrease in patient access/experience and quality care. This approach is in keeping with the 2014 BC Ministry of Health report, which aims to complete a population needs-based funding model for BC, as well as implement a multi-dimensional funding strategy that will incorporate global, patient-focused funding, and ABF.¹⁵

Conclusion

For general surgery in BC the establishment of the BC Surgical Patient Registry and advances in wait-times tracking is a significant achievement. The ability to track a patient's journey through a complex system is laudable and must be continued. Moving forward, data tracking must be expanded to reflect surgical wait times across all specialties, track performance, and create a feedback system for tailored policy making to fit evolving needs within a surgical system that places the highest value on the patient's illness experience. BC is poised at an opportune time to use activity-based funding strategies to deliver quality care to the right patient at the right time.

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