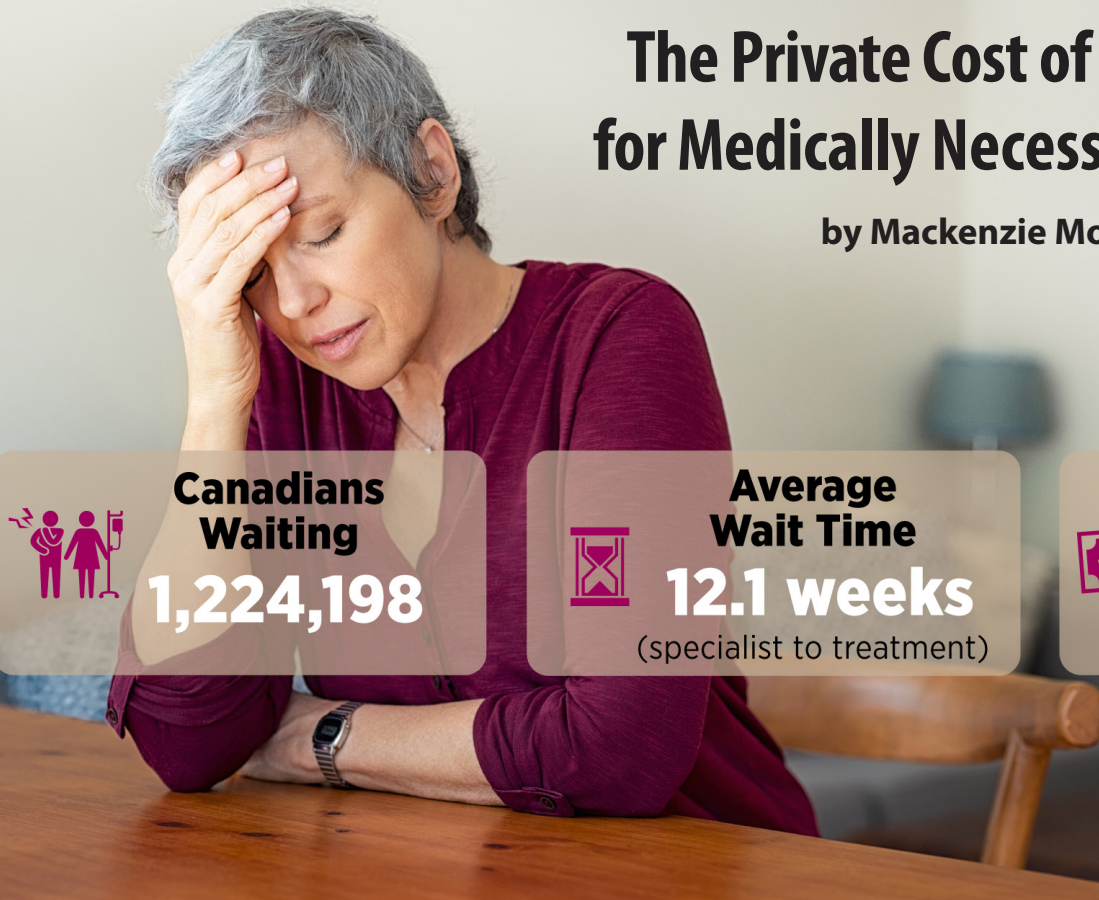


The Private Cost of Public Queues for Medically Necessary Care, 2021

by Mackenzie Moir and Bacchus Barua




Canadians Waiting
1,224,198



Average Wait Time
12.1 weeks
(specialist to treatment)



Cost per Person Waiting
\$2,254

SUMMARY

- One measure of the privately borne cost of wait times is the value of time that is lost while waiting for treatment.
- Valuing only hours lost during the average work week, the estimated cost of waiting for care in Canada for patients who were in the queue in 2020 was about \$2.8 billion. This works out to an average of about \$2,254 for each of the estimated 1,224,198 Canadians waiting for treatment in 2020.
- This is a conservative estimate that places no intrinsic value on the time individuals spend waiting in a reduced capacity outside of the work week. Valuing all hours of the week, in-

cluding evenings and weekends but excluding eight hours of sleep per night, would increase the estimated cost of waiting to almost \$8.4 billion, or about \$6,838 per person.

- This estimate only counts costs that are borne by the individual waiting for treatment. The costs of care provided by family members (the time spent caring for the individual waiting for treatment) and their lost productivity due to difficulty or mental anguish are not valued in this estimate. Moreover, non-monetary medical costs, such as increased risk of mortality or adverse events that result directly from long delays for treatment, are not included in this estimate.

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Introduction

In December 2020, the Fraser Institute released its 30th annual measurement of waiting times for medically necessary treatments in Canada (Barua and Moir, 2020). The study reported that the national median waiting time from specialist appointment to treatment was 12.1 weeks in 2020, which is 1.3 weeks longer than in 2019. The total wait between referral from a general practitioner and receipt of treatment was 22.6

weeks in 2020—longer than the 20.9 weeks reported in 2019. Due to the potential impact of COVID-19 on wait times, Barua and Moir (2020) caution readers while interpreting the results presented in their study. As the estimates included in this report are based on their study, the same limitations and notes of caution apply here when interpreting data.

The measurement of waiting times, or the examination of the absolute delay Canadians must

Table 1: Estimated Number of Procedures for which Patients are Waiting after Appointment with Specialist, by Specialty, 2020

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	CAN
Plastic Surgery	5,820	3,631	295	578	6,969	2,134	862	610	—	—	20,900
Gynaecology	5,269	5,804	821	1,033	10,834	4,954	1,156	431	164	2,895	33,360
Ophthalmology	40,146	24,512	10,278	9,320	58,003	28,044	5,893	5,961	2,740	8,401	193,296
Otolaryngology	4,582	6,790	3,806	846	9,303	7,049	899	1,318	144	576	35,313
General Surgery	22,064	15,620	4,423	5,019	32,172	8,706	1,807	26,316	832	1,907	118,866
Neurosurgery	3,321	1,406	630	222	2,614	2,681	163	328	—	—	11,366
Orthopaedic Surgery	19,243	15,942	1,407	7,219	44,488	24,037	4,377	8,311	—	1,449	126,474
Cardiovascular Surgery	203	262	10	1	608	643	323	—	—	41	2,092
Urology	6,625	9,461	5,011	631	17,690	11,023	1,923	4,362	—	1,819	58,545
Internal Medicine	17,592	18,351	1,697	3,103	17,831	2,860	1,047	6,174	247	2,188	71,090
Radiation Oncology	125	—	—	7	465	176	43	13	—	7	835
Medical Oncology	372	243	39	—	1,456	194	17	122	5	—	2,448
Residual	81,967	80,094	23,242	22,884	183,774	76,508	14,350	43,723	3,001	20,068	549,613
Total	207,329	182,118	51,657	50,863	386,207	169,010	32,860	97,670	7,132	39,351	1,224,198
Proportion of Population	4.0%	4.1%	4.4%	3.7%	2.6%	2.0%	4.2%	10.0%	4.5%	7.5%	3.2%

Notes: a) Totals may not match sums of numbers for individual procedures due to rounding.

b) All data regarding oncology refer only to procedures done in hospitals. Most cancer patients are treated in cancer agencies. Therefore, the oncology data must be regarded as incomplete.

Source: Barua and Moir, 2020.

endure in order to receive medically necessary care, is only one way of looking at the burden of waiting for health care. We can also calculate the privately borne cost of waiting: the value of the time that is lost while waiting for treatment.¹

The privately borne cost of waiting for care

One way of estimating the privately borne cost of waiting for care in Canada was originally developed by Steven Globerman and Lorna Hoyer (1990).² They calculated the cost of waiting by estimating the amount of time that could not be used productively by a patient while waiting for treatment.

Globerman and Hoyer's methodology is relatively straightforward. First, multiply the number of patients waiting for treatment by the wait times for those treatments in order to derive an estimate of the total number of weeks all patients will spend waiting for care. Then multiply this value by a measure of the proportion of time spent waiting for treatment that is rendered unproductive owing to the physical and emotional impact of an untreated medical condition. The monetary value of this lost productive time can then be projected.

In 2020, an estimated 1,224,198 Canadians were waiting for care after an appointment with a specialist (table 1). These Canadians were expected to wait, on average, for 12.1 weeks in order to receive medically necessary treatment. Of course, the wait times patients faced varied significantly across provinces and medical specialties (table 2). Multiplying the number of Canadians waiting in each of the 12 medical specialties in each of the 10 provinces by the weighted median wait time for that medical specialty in that province gives a rough es-

timate³ of the total amount of time that Canadians waited for treatment in 2020: about 19.6 million weeks. This estimate is much higher than the 15.5 million weeks estimated for 2019 due to an increase in wait times for this segment and the estimated number of Canadians waiting for care (Barua and Moir, 2019, 2020).

Globerman and Hoyer's original estimate for the cost of waiting, which came from responses to a survey of physicians, used specialty-specific measures of the proportion of patients who were "experiencing significant difficulty in carrying on their work or daily duties as a result of their medical conditions" (1990: 26). The proportions they estimated ranged from 14% of patients in gynaecology to 88% in cardiovascular surgery, and averaged 41% overall (Globerman with Hoyer, 1990; Esmail, 2009). The estimates of lost productivity measured by Globerman and Hoyer cannot necessarily be applied today because of advances in medicine and the medical system's ability to deal with pain and discomfort with pharmaceuticals. These advances may allow many Canadians who are suffering significant difficulties to function at a higher level today than they would have in 1990, or even to maintain their normal activity levels. For this reason, our estimation of the cost of waiting in 2020 is based on more recent data from Statistics Canada's Canadian Community Health Survey [CCHS]. Specifically, the survey's Health Services Access Subsample [HSAS] provides estimates for the number of patients whose lives were affected by the wait for non-emergency surgery. Using data from the most recent HSAS, Ren and Barua (2017) estimated that 13.2% of people were adversely affected by their wait for non-emergency surgery in 2013 (Statistics Canada, 2014). This percentage is below even the lowest specialty-specific measure estimated by Globerman and Hoyer (1990).⁴

Table 2: Median Patient Wait for Treatment after Appointment with Specialist, by Specialty, 2020 (in Weeks)

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	CAN
Plastic Surgery	34.4	22.6	26.4	17.3	15.6	11.2	25.2	31.1	—	—	19.6
Gynaecology	14.6	14.1	7.4	7.9	9.6	10.3	14.4	5.1	9.2	24.6	11.4
Ophthalmology	24.6	20.6	27.5	31.6	16.4	12.1	23.9	21.0	64.0	56.0	19.2
Otolaryngology	18.3	28.2	35.4	9.2	9.2	10.3	14.4	19.6	14.2	10.1	13.7
General Surgery	7.8	9.2	7.2	7.5	5.4	6.1	10.0	43.3	10.6	4.2	8.2
Neurosurgery	21.3	14.1	18.8	11.5	6.9	13.7	8.1	12.4	—	—	12.2
Orthopaedic Surgery	22.4	23.9	6.3	31.3	18.2	19.8	28.6	43.6	—	16.8	20.9
Cardiovascular Surgery (Urgent)*	1.7	1.9	0.5	0.7	1.1	1.5	8.1	—	—	2.9	1.6
Cardiovascular Surgery (Elective)	5.0	17.9	1.5	1.9	3.9	8.2	22.6	—	—	29.5	7.6
Urology	6.0	14.2	18.0	4.8	4.4	16.1	13.1	18.1	—	8.2	7.8
Internal Medicine	11.4	18.5	6.2	9.3	6.9	5.1	11.8	25.8	3.9	11.8	10.3
Radiation Oncology	7.9	—	—	2.5	2.2	3.1	3.6	2.0	—	1.6	2.7
Medical Oncology	4.3	3.8	2.0	—	2.0	1.2	1.0	5.0	3.0	—	2.2
Weighted Median	13.6	16.1	13.6	14.4	8.7	10.9	17.3	30.1	19.3	15.2	12.1

Note: To calculate the total weeks of waiting for care, only Cardiovascular Surgery (Urgent) was used.

Source: Barua and Moir, 2020.

Table 3: Average of Average Hourly and Weekly Wages, by Province, January to December 2020

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	CAN
Nominal average hourly wage (\$)	29.79	32.77	29.15	26.34	30.27	28.21	24.48	25.39	24.13	27.37	29.54
Nominal average weekly wage (\$)	1,081.07	1,231.02	1,087.50	962.58	1,115.53	1,005.21	919.40	942.84	904.02	1,058.91	1,082.27

Notes:

a) Wages reported are earned wages or salaries including tips, commissions, and bonuses before taxes and other deductions for all occupations, both sexes, ages 15 and over.

b) The nominal average hourly/weekly wage is an average of the hourly/weekly wage of January to December.

c) Previous reports used wage information from Statistics Canada's CANSIM table 282-0069, which has been discontinued and replaced by table 14-10-0306-01 (formerly CANSIM 282-0151).

Source: Statistics Canada, 2021a; calculations by authors.

Table 4: Estimated Cost of Waiting for Medically Necessary Health Services from Specialist Appointment to Treatment, by Province and Specialty, 2020 (\$ thousands)

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	CAN
Plastic Surgery	28,600	13,352	1,120	1,270	16,050	3,179	2,638	2,366	—	—	68,574
Gynaecology	11,012	13,330	874	1,032	15,393	6,768	2,027	273	181	9,967	60,856
Ophthalmology	141,189	82,089	40,559	37,398	140,275	44,936	17,083	15,600	20,935	65,757	605,821
Otolaryngology	12,002	31,152	19,330	986	12,676	9,642	1,577	3,214	245	816	91,639
General Surgery	24,417	23,241	4,566	4,816	25,666	7,037	2,193	141,838	1,050	1,131	235,955
Neruosurgery	10,076	3,223	1,696	324	2,650	4,888	161	508	—	—	23,527
Orthopaedic Surgery	61,653	61,899	1,279	28,740	119,450	63,239	15,197	45,074	—	3,413	399,943
Cardiovascular Surgery	50	80	1	0	95	128	318	—	—	17	689
Urology	5,703	21,797	12,949	386	11,451	23,559	3,064	9,847	—	2,087	90,844
Internal Medicine	28,649	55,088	1,511	3,659	18,039	1,955	1,498	19,838	116	3,626	133,979
Radiation Oncology	140	—	—	2	147	72	19	3	—	2	385
Medical Oncology	231	151	11	—	429	31	2	76	2	—	933
Residual (using est. median data)*	159,393	210,038	45,524	41,963	234,960	110,451	30,172	163,944	6,929	42,551	1,045,924
Total Cost	483,115	515,440	129,421	120,576	597,280	275,885	75,949	402,579	29,458	129,366	2,759,068

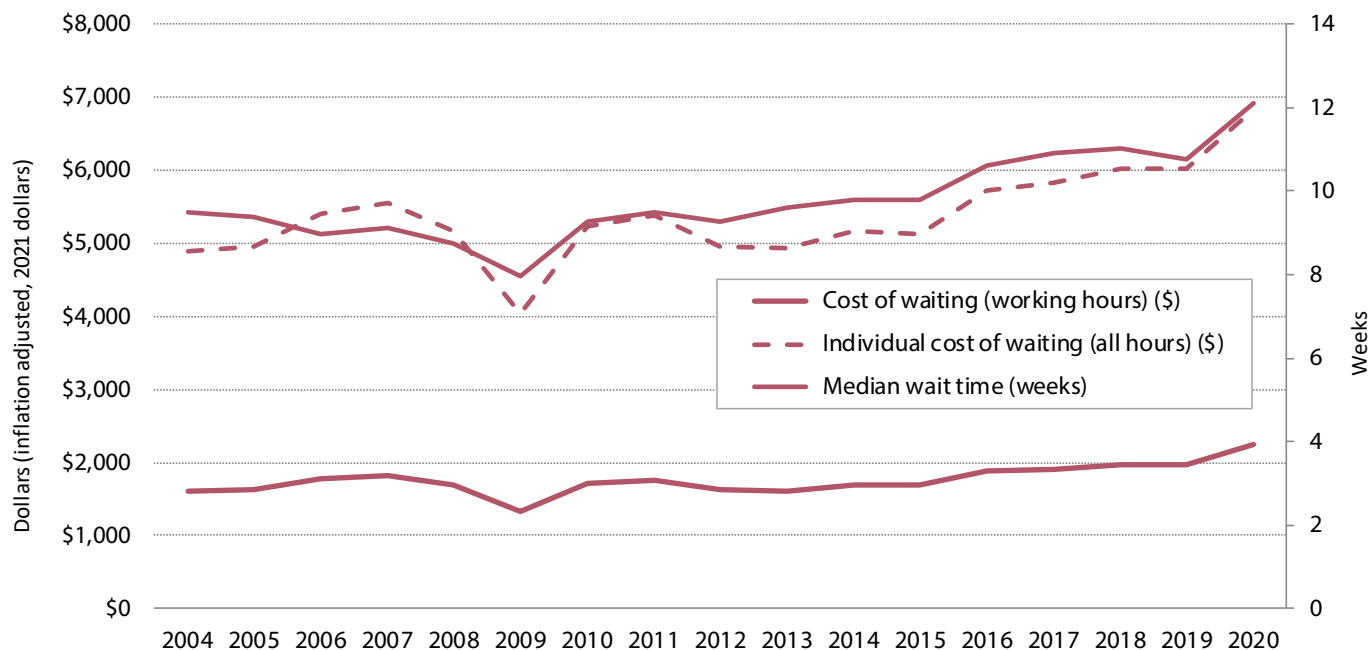
* The “residual” count is a count of the number of non-emergency procedures for which people are waiting in Canada that are not included in the Fraser Institute’s survey. The wait time used for calculating the residual cost is each province’s weighted median wait time for all specialties included in *Waiting Your Turn*.

Sources: Table 1; Table 2; Statistics Canada, 2014; calculations by authors.

An assumption that 13.2% of people waiting for treatment in 2020 experienced significant difficulties in their daily lives as a result of their untreated medical condition, and thus lost productivity while waiting for treatment, results in an estimate that roughly 2.6 million weeks were “lost” while patients waited for treatment. However, because this estimate is based on the assumption that all individuals face the same wait time for treatment in each specialty/province combination, it is mathematically equivalent to

assuming that 13.2% of the productivity of all Canadians waiting for care was lost to a combination of mental anguish and the pain and suffering that can accompany any wait for treatment. Multiplying this lost time by an estimate of the average weekly wage of Canadians in 2020 (given in table 3), which provides an estimate for the value of the lost time to each individual,⁵ gives an estimate of the cost of productive time that was lost while individuals waited for medically necessary treatments in 2020 (table 4).

Figure 1: Calculated Cost of Waiting per Patient and Median Wait for Treatment after Consultation with Specialist, 2004–2020



Sources: Esmail 2005–2014; Barua and Hasan 2018; Barua and Jacques, 2019; Barua and Moir 2020a, 2020b; Barua and Ren, 2015–2017; Statistics Canada, 2004–2014; Statistics Canada 2021a & 2021b.

The estimated cost of waiting for care in Canada for patients who were in the queue in 2020, according to calculations based on the methodology produced by Globerman and Hoye (1990), was almost \$2.8 billion—an average of about \$2,254 for each of the estimated 1,224,198 Canadians waiting for treatment in 2020. Alternately, that cost works out to roughly \$17,074 for each individual among the 13.2% of patients in the queue who were suffering considerable hardship while waiting for care.⁶

With the exception of Manitoba and New Brunswick, every province experienced an increase in the total cost of waiting for medically necessary care.⁷ Provinces with the largest increases in the total private

cost of public queues include Nova Scotia (\$268,697,000 or 201%),⁸ British Columbia (\$187,990,000 or 64%), and Ontario (\$108,899,000 or 22%) (table 4). Drops in the total cost of public queues were seen in Manitoba (-\$75,140,000 or -38%) and New Brunswick at (-\$9,737,000 or -11%). The largest driver for increases in these totals were the higher costs associated with waiting for Ophthalmology procedures. For example, both British Columbia (\$62,723,000 or 80%) Ontario (\$62,112,000 or 79%) saw the largest increases in the cost of waiting for Ophthalmology procedures. Interestingly, Manitoba saw a decrease (-\$41,388,000, or -53%) in the cost of waiting for ophthalmic surgery. The largest absolute increase overall came

from those waiting for General Surgery in Nova Scotia (\$133,125,000 or %1,528).⁹

Of course, this number is a conservative estimate of the private cost of waiting for care in Canada. It assumes that only those hours during the average work week should be counted as lost. It places no intrinsic value on the time individuals spend waiting in a reduced capacity outside of the working week. Valuing all hours of the week, including evenings and weekends but excluding eight hours of sleep per night, at the average hourly wage (given in table 3) would increase the estimated cost of waiting to almost \$8.4 billion or about \$6,838 per person.

This estimate only counts costs that are borne by the individual waiting for treatment. The costs of care provided by family members (in time spent caring for the individual waiting for treatment) and their lost productivity due to difficulty or mental anguish, are not valued in this estimate.¹⁰ Non-monetary medical costs, such as increased risk of mortality or adverse events that result from long delays for treatment, are also not included in this estimate (Day, 2013). Moreover, we only estimate the cost of the wait time from specialist to treatment, and do not include the cost of the 10.5 week wait time from referral by a general practitioner to seeing a specialist,¹¹ or other delays in the care pathway.

From a historical perspective, the estimated \$2,254 private cost of waiting for treatment per patient in 2020 is 40% higher than the \$1,604 (inflation adjusted, 2020 dollars) estimated for 2004 (see figure 1) with a 14% increase from the \$1,977, estimated for 2019. If hours outside of the work week are included, the estimated \$6,838 private cost of waiting per patient in 2020 is 40% higher than the \$4,895 estimated for 2004 with a 14% change from the \$6,016 estimate for 2019.

Update in methodology

Editions of this report from 2005–2016 used a Statistics Canada finding that 11.0% of people were adversely affected by their wait for non-emergency surgery in 2005 (Statistics Canada, 2006). Ren and Barua (2017) calculated a newer estimate of this figure (13.2%) based on raw data (weighted population estimates) contained in the 2014 Data Dictionary of the Canada Community Health Survey's (CCHS) Health Services Access Subsample (Statistics Canada, 2014).¹² This year's report also uses this more recent estimate. The two estimates are, however, not directly comparable because the 11.0% used in the past reports was calculated using data that “do not reflect the waiting times of those still waiting at the time of the survey” (Statistics Canada, 2006). By including those still waiting at the time of the survey, the updated estimate for 2005 would be 14.4%. This suggests that previous reports may have underestimated the cost of waiting for treatment.

This year's report therefore also contains Ren and Barua's (2017) revised estimates of the cost of waiting since 2004 based on updated estimates of the percent of patients whose life are affected by the wait for non-emergency surgery calculated using data from successive iterations of the Canada Community Health Survey's [CCHS] Health Services Access Subsample Data Dictionaries¹³ (2003 to 2013).

Conclusion

The rationing of health care in Canada through queues for medically necessary health services imposes direct costs on those waiting for care. The ability of individuals who are waiting to enjoy leisure time and earn an income to support their families is diminished by physical and

psychological pain and suffering. In addition, friends and family may be asked to help those waiting for treatment, or may suffer similar reductions in their productive lives because of their own psychological pain.

In 2020, the estimated 1,224,198 Canadians who were waiting for treatment endured an estimated private cost of almost \$2.8 billion, and possibly substantially more, in lost productivity and leisure time.

Notes

¹ The calculation here measures only the cost of the wait time from specialist to treatment, and does not include the cost of the 10.5 week wait time from referral by a general practitioner to seeing a specialist (Barua and Moir, 2020), or other delays in the care pathway. Thus, this estimate of the privately borne cost of waiting is an underestimate of the true privately borne cost of waiting.

² Globerman and Hoye employed this methodology in 1990 to develop an estimate of the cost of waiting for medically necessary treatment in the first measurement of waiting times in Canada published by the Fraser Institute. Follow-up examinations of the privately borne cost of queuing since 2004 published by the Fraser Institute also employ this methodology.

³ This estimate includes the number of non-emergency procedures for which people are waiting that were not included in the survey, reported as the “residual” number of procedures for which people are waiting. For the purposes of calculation, it is assumed that the wait time for these procedures is the same as the weighted median for the 12 specialties in the province in question. For further details on how this number is calculated, see Barua and Moir, 2020.

⁴ Statistics Canada’s findings are based on the percentage of survey respondents who reported that “waiting for non-emergency surgery affected their life.” Globerman and Hoye’s estimate measures the number of patients who “experienced significant difficulty carrying on their work or daily duties as a result of their medical conditions.” Notably, in 2013, 11% of those who reported being affected by their

wait reported a loss of income, while 21% experienced loss of work. At the same time, 45% experienced worry, anxiety, and stress, 54% experienced pain, and 42% experienced problems with activities of daily living (Statistics Canada, 2014; calculations by Ren and Barua, 2017). The methodology employed here for the estimate of the private cost of waiting attempts to measure much more than just lost work or lost income. Rather, it estimates lost productivity in total, including lost on-the-job productivity, lost enjoyment of life, inability to play sports, etc. In other words, the private cost of waiting for care estimated here values the amount of time Canadians spend waiting for care during which these individuals are unable to participate fully in their lives.

⁵ Though extending this value of time to all individuals may seem questionable (given that some children and retired seniors will be included in the number of patients in the queue), one need only understand that the lost leisure or ability to concentrate that these individuals endure must have some value. Since seniors are enjoying increasing opportunities to engage in part-time employment, their labour/leisure trade off will be such that the last unit of leisure a senior citizen enjoys is equal in value to the last unit of work he or she undertakes. Seniors who choose not to work are clearly placing a higher value on their leisure time than the labour market will offer for their labour. For children, the value of their leisure (which can potentially be viewed as time for personal growth) or productivity at school (which can be viewed as an investment for the future) is assumed to be, for simplicity, not significantly different from that of a working adult. Furthermore, as there are likely to be few children waiting for treatment, any variation from the value of time for adults is not likely to have a marked effect on the average calculation.

⁶ Globerman and Hoye estimated the cost of queuing for medically necessary care to be about \$2,900 per patient in 1989. In 2020 dollars, this works out to approximately \$5,311.

⁷ The COVID-19 crisis led many provinces to take drastic measures both to limit the spread of the virus and to ensure scarce medical resources were available in the event of a surge in cases. One of these measures was the cancellation of thousands of elective surgeries across a number of provinces. These measures were announced a little more than half way through Barua and Moir’s (2020) initially intended survey period and had an obvious impact on

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survey responses. By design the measures will likely lead to longer expected wait times than otherwise. However, a complete analysis of the impact of these cancellations is yet to be conducted.

⁸ Barua and Moir (2020) note that the number of survey responses in parts of Atlantic Canada are notably lower than in other provinces, which may result in reported median wait times being higher or lower than those actually experienced.

⁹ The large changes in the total cost of waiting for care in these provinces also reflect significant changes in the estimated cost of waiting for residual procedures. These are based on the wait times for treatment (after specialist consultation) weighted across 12 specialties in each province. While some provinces like Manitoba saw a reduction in the cost of residual procedures (-\$28,510,000 or -40%), others like Nova Scotia (\$115,668,000 or 240%) and British Columbia (\$60,710,000 or 62%) both saw significant increases this year.

¹⁰ In 2013, 13% of individuals whose lives were affected by the wait times for treatment reported an increased dependence on family or friends based on the *CCHS 2013 Subsample Data Dictionary* (Statistics Canada, 2014; calculations by Ren and Barua, 2017).

¹¹ In 2013, approximately 19.4% of individuals who visited a specialist indicated that waiting for the visit affected their life (Statistics Canada, 2014; calculations by Ren and Barua, 2017).

¹² Ren and Barua (2017) estimated the rate using (population weighted) responses to WTM_28 in the *CCHS 2013 Subsample Data Dictionary* (Statistics Canada, 2014). Due to the changes made by CCHS over time, the variable name may vary depending on the edition; however, the concept has stayed the same.

¹³ The subsample (which includes estimates for all 10 provinces) on access to health care services (ACC) and waiting times (WTM) has been conducted within the CCHS every odd year from 2001 to 2013. For even years, Ren and Barua (2017) calculated an average based on the preceding and following year. For example, in 2012, they took an average of the rate in 2011 (14.8%) and 2013 (13.2%) to get the 14.0%. In 2015, the HSAS subsample was discontinued.

The authors therefore use the 13.2% from the 2013 edition for all subsequent calculations.

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