

# Electroconvulsive Therapy in Canada During the First Wave of COVID-19

## Results of the “What Happened” National Survey

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**Objectives:** The COVID-19 pandemic has disrupted the provision of essential and potentially life-saving procedural treatments such as electroconvulsive therapy (ECT). We surveyed ECT providers across Canada to understand how the first wave of the pandemic affected ECT delivery between mid-March 2020 and mid-May 2020.

**Methods:** The survey was administered to ECT team members and decision makers at 107 Canadian health care centers with a focus on 5 domains: operations, decision-making, hospital resources, ECT procedure, and patient impact. Responses were obtained from 72 institutions, and collected answers were used to derive representative responses reflecting the situation at each ECT center. For specific domains, responses were split into 2 databases representing the perspective of psychiatrists (n = 67 centers) and anesthesiologists (n = 24 centers).

**Results:** Provision of ECT decreased in 64% centers and was completely suspended in 27% of centers after the onset of the pandemic. Outpatient

and maintenance ECT were more affected than inpatient and acute ECT. Programs reported a high level of collaboration between psychiatry and hospital leadership (59%) but a limited input from clinical ethicists (18%). Decisions were mostly made ad hoc leading to variability across institutions in adopted resource allocation, physical location of ECT delivery, and triaging frameworks. The majority of centers considered ECT to be aerosol-generating and incorporated changes to airway management.

**Conclusions:** Electroconvulsive therapy services in Canada were markedly disrupted by the COVID-19 pandemic. The variability in decision-making across centers warrants the development of a rational approach toward offering ECT in pandemic contexts.

**Key Words:** electroconvulsive therapy, COVID-19, pandemics, clinical decision-making, vulnerable populations

(*J ECT* 2022;38: 52–59)

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Received for publication March 18, 2021; accepted June 21, 2021.

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I.D., M.A., K.F., J.R., A.V., and D.K. do not have any disclosures. D.M.B. has received research support from the Canadian Institutes of Health Research (CIHR), National Institutes of Health, Brain Canada, and the Temerty Family through the Centre for Addiction and Mental Health Foundation and the Campbell Family Mental Health Research Institute. He received research support and in-kind equipment support for an investigator-initiated study from Brainsway Ltd, and he is the principal site investigator for 3 sponsor-initiated studies for Brainsway Ltd. He receives in-kind equipment support from MagVenture Inc for investigator-initiated research. He received medication supplies for an investigator-initiated trial from Indivior. A.J.F. has received grant support from the National Institutes of Health, Patient-Centered Outcomes Research Institute, CIHR, Brain Canada, Ontario Brain Institute, Alzheimer's Association, and AGE-WELL. In the last 5 years, Z.J.D. has received research and equipment in-kind support for an investigator-initiated study through Brainsway Inc and MagVenture Inc. His work is supported by the CIHR, the National Institute of Mental Health, Brain Canada, and the Temerty Family and Grant Family, and through the Centre for Addiction and Mental Health Foundation and the Campbell Family Mental Health Research Institute. S.H.K. has received honoraria or research funds from Abbott, Alkermes, Allergan, Boehringer Ingelheim, Brain Canada, CIHR, Janssen, Lundbeck, Lundbeck Institute, Ontario

Brain Institute, Ontario Research Fund, Otsuka, Pfizer, Servier, Sunovion, and Sun Pharmaceutical, and holds stock in Field Trip Health. K.K. is supported in part by Merit Awards from the Department of Anesthesiology and Pain Medicine, University of Toronto, and has received support from Octapharma, Instrumentation Laboratory, and Bayer. K.S.L. is supported in part by Merit Awards from the Department of Anesthesiology and Pain Medicine at the University of Toronto. S.V.P. has received research support from the CIHR, the Ontario Brain Institute, the Flinn Foundation, Sage, Takeda, and Assurex (Myriad); is a consultant to Assurex, Aifred, Mensante, Sage, Takeda, Janssen, and Otsuka; and has equity in Mensante. V.B. is supported by an Academic Scholar Award from the Department of Psychiatry at the University of Toronto, and has received research support from CIHR, Brain & Behavior Research Foundation, Ministry of Health Innovation Funds, The Royal College of Physicians and Surgeons of Canada, Department of National Defence Canada, and an investigator-initiated trial from Roche Canada. This study was supported by the CIHR (grant number 442743). The funder had no role in the study design, data acquisition, interpretation of results, and the decision to publish.

Author contributions: I.D. and V.B. conceptualized and designed the survey, coordinated data acquisition and technical aspects of the project, analyzed and interpreted results, and drafted the manuscript. D.M.B., A.J.F., and S.V.P. helped design, pretest the survey, interpret the results, and critically reviewed the manuscript. Interdisciplinary contribution to the conception and design of the project: I.D. (psychiatry), D.M.B. (psychiatry/ECT), A.J.F. (psychiatry/ethics/ECT), AM (library search), Z.J.D. (psychiatry/ECT), K.F. (anesthesia/ECT), K.K. (anesthesia/ECT), S.H.K. (psychiatry), K.S.L. (anesthesia/ECT), J.R. (ethics), A.V. (infection prevention and control), D.K. (psychiatry/knowledge translation/hospital and Association of General Hospital Psychiatric Services of Ontario leadership), S.V.P. (psychiatry/knowledge translation), and V.B. (psychiatry/ECT). All authors revised the article for intellectual content from the perspective of their respective discipline, gave final approval of the version to be published, and agreed to act as guarantor of the work. The CIHR ECT COVID-19 team has recently articulated the ethical considerations in providing ECT during the COVID-19 pandemic (doi:10.1177/0706743721993617).

Supplemental digital contents are available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (www.ectjournal.com).

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 DOI: 10.1097/YCT.0000000000000801

Widespread disruption in the delivery of electroconvulsive therapy (ECT) is one consequence of the coronavirus disease 2019 (COVID-19) pandemic.<sup>1</sup> Similar to other procedure-based interventions, ECT was postponed or canceled as health authorities considered it “elective.”<sup>2–5</sup> This decision largely overlooks the morbidity and mortality of severe psychiatric illness and perpetuates the historic stigma surrounding mental health care. Although the critical need to preserve access to ECT care was largely ignored, the lives of thousands of highly vulnerable individuals were placed at increased risk of severe exacerbation of acute psychiatric symptoms and death by suicide.<sup>2</sup>

Electroconvulsive therapy is performed under general anesthesia, which often necessitates bag-valve-mask (BVM) ventilation—an aerosol-generating procedure that increases the likelihood of exposure to the SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2).<sup>6</sup> Since the start of the pandemic, members of the international ECT community have shared their experience and published recommendations for ECT caseload management and anesthesia best practices.<sup>1,2,7–13</sup> To our knowledge, no survey conducted at a national level has systematically examined how different treatment centers managed the delivery of ECT during COVID-19. However, having a detailed understanding of how the pandemic changed ECT practice is essential for the development and revision of relevant policies, practices, and procedures. This knowledge may be disseminated internationally, offering an insight into existing pandemic frameworks, informing ECT decision-making within other health care systems, and helping effectively advocate for access to ECT by vulnerable patient groups.

The objective of the current survey was to collect the data from ECT providers and hospital decision makers to understand the impact of COVID-19 across 5 specific domains: ECT unit operations, decision-making, hospital resources, ECT procedure, and patient impact. The survey also explored whether decision-making involved the perspective of clinical ethicists, as determining which treatments should be curtailed in pandemic-related contexts is both a clinical and an ethical issue.<sup>14,15</sup>

## MATERIALS AND METHODS

### Survey Development

The methodology of the “what happened” e-survey followed the Checklist for Reporting Results of Internet E-Surveys (CHERRIES)—a set of reporting recommendations designed to ensure the quality of Internet-based research<sup>16,17</sup> (see Text Document, Supplemental Digital Content 1, which presents survey methodology according to the CHERRIES guidelines, <http://links.lww.com/JECT/A134>). As a multidisciplinary team composed of experts and potential

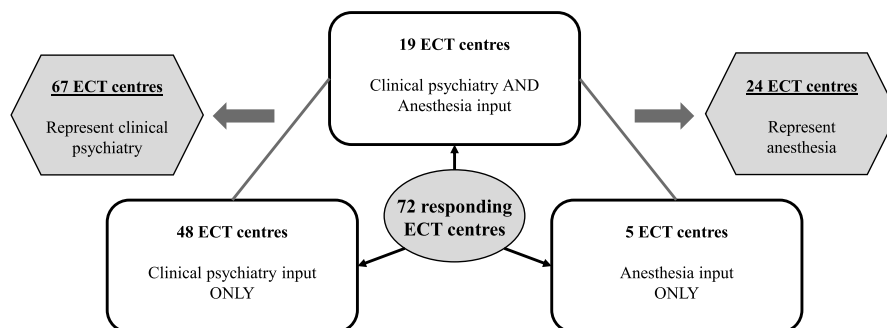
survey respondents specializing in psychiatry, anesthesia, infection prevention and control (IPAC), ethics, hospital leadership, and knowledge translation, we designed a questionnaire available in English and French that contained 47 items (37 general, 10 adaptive) grouped into 5 domains corresponding to specific constructs of interest (see Text Document, Supplemental Digital Content 2, which contains the full version of the administered questionnaire in English and French, <http://links.lww.com/JECT/A135>). A full description of the project planning and the questionnaire development steps are provided as supplementary material (see Text Document, Supplemental Digital Content 3, which provides an in-depth description of the survey design methodology, <http://links.lww.com/JECT/A136>).

### Survey Administration

Data collection took place during November and December 2020. In collaboration with the Canadian Psychiatric Association/ Association des psychiatres du Canada and the Association of General Hospital Psychiatric Services of Ontario, we invited 107 ECT programs to participate in the survey (see Text Document, Supplemental Digital Content 3, which describes the criteria for identifying target ECT centers and potential respondents, <http://links.lww.com/JECT/A136>). Responses were collected from direct ECT providers (ie, psychiatrists, anesthesiologists, nurses), hospital leadership members (ie, department chiefs/chairs, directors of mental health), and hospital program managers. The questionnaire was distributed in a closed-access mode via a Web-based survey tool LimeSurvey (LimeSurvey GmbH, Hamburg, Germany, <https://www.limesurvey.org>).<sup>18</sup> All responses remained anonymous, and the collected data were stored in a secure database with encrypted connection on a local server of the Interventional Psychiatry Program, St Michael's Hospital (Toronto, Ontario) hosted in Canada.

### Analysis

The sampling unit of analysis was ECT center, which represented the response of one professional. Centers that had partial responses were included in the analysis. For the psychiatry data set, responses from ECT leads were prioritized, followed by the most complete response from a psychiatrist providing ECT. Responses from ECT nurses, department of psychiatry chiefs/chairs, directors of mental health, and ECT program managers were considered if no data from an ECT lead or a psychiatrist were available, or if “I do not know” answers were given for certain items. For the anesthesia data set, the most complete response from an anesthesiologist or a department of anesthesiology chair/chief was considered. Categorical data are presented as percentages with Wilson's confidence intervals (CIs) for proportions.<sup>19–21</sup> All results presented



**FIGURE 1.** Electroconvulsive therapy centers across Canada ( $n = 72$ ) grouped into 2 data sets representing responses from psychiatrists ( $n = 67$  centers) and anesthesiologists ( $n = 24$  centers). full color online

in this report concern ECT programs and service delivery, as opposed to ECT treatments or the number of patients.

## RESULTS

### Participating ECT Centers

Of 107 institutions contacted, responses were collected from 72 ECT centers across Canada, with a participation rate of 67% (see Text Document, Supplemental Digital Content 4, which lists ECT centers that participated in the survey, <http://links.lww.com/JECT/A137>). Our sample included centers that were categorized as metropolitan (60%) versus regional (40%), general (81%) versus specialized (19%), and teaching (63%) versus community (37%). All programs were publicly funded. Complete responses were provided by 65 centers (90%), and partial responses were provided by 7 centers (9%). Electroconvulsive therapy program size and the affiliation of its lead with academic institutions were important factors that influenced our response rate, because nonresponding institutions largely represented general hospitals serving regional communities and offering ECT to a small number of patients at a time. Respectively, 48 centers conveyed the perspective of professionals affiliated with psychiatry, 5 centers with anesthesia, and 19 centers provided 2 sets of responses for both professional groups (Fig. 1). Based on this, we defined 67 centers as those representing psychiatry and 24 centers representing anesthesia. The psychiatry responses were reviewed for all 5 questionnaire domains, whereas the anesthesia responses were reviewed only for the hospital resources and the ECT procedure domains. Table 1 displays the characteristics of surveyed ECT centers.

### ECT Unit Operations

Ninety-one percent of centers indicated that COVID-19 disrupted their ECT service between mid-March 2020 and mid-May 2020 (Fig. 2). The pandemic caused 67% of ECT programs to reduce their volumes by more than 50%, including 27% that discontinued service completely. Between mid-May and August 2020 (ie, the resumption phase), 89% of affected hospitals tried to, at least partially, normalize the program capacity, including 37% that fully resumed their operations. Throughout the resumption phase, service remained discontinued in the 11% of affected ECT centers.

Outpatient and maintenance ECT service was more affected by the onset of the pandemic than inpatient and acute ECT service, respectively. The details are summarized in Figure 2. Seventy percent of surveyed centers noted that in the spring 2020 they continued providing inpatient ECT either in full or reduced capacity, whereas only 30% reported so for the outpatient ECT. Similarly, only 44% of polled facilities that offered maintenance ECT pre-pandemic provided it during the first wave of COVID-19, whereas acute ECT was offered at the 69% of centers. Fifty-three percent of ECT programs continued accepting new patients for acute treatment, compared with only 23% for maintenance treatment. The pandemic caused an increase in the time intervals between individual ECT treatments in 86% of surveyed centers, thereby reducing the overall operational capacity and limiting the number of patients that could be offered treatment in a single day.

### Decision Making

When asked to identify key decision makers, respondents reported that the ECT team, the department of psychiatry, and anesthesia and surgical programs largely played a similar role in the pandemic clinical and administrative decision-making (Fig. 3). Moreover, their input was greater than that of the hospital

**TABLE 1.** Characteristics of Participating ECT Centers

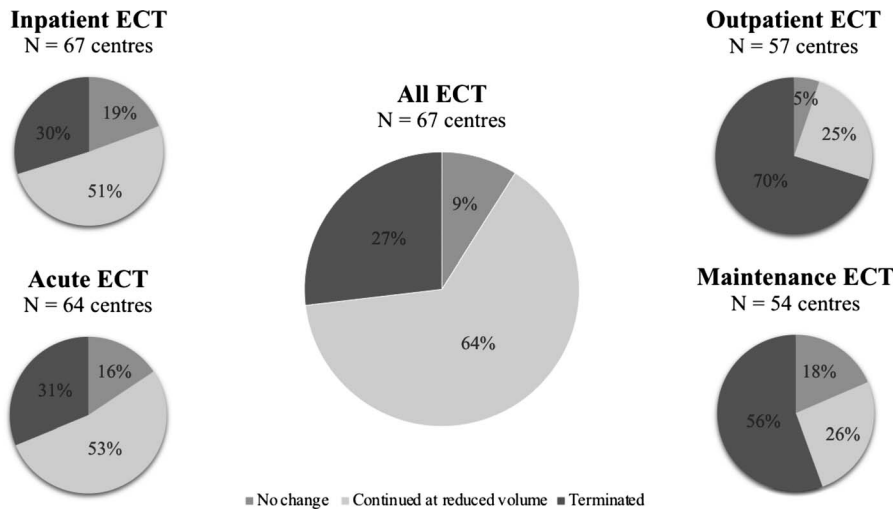
Item	% of ECT Centers (95% CI*)	
	Psychiatry, n = 67	Anesthesia, n = 24
Professional background		
Psychiatrist	87 (76–93)	8 (2–26)
Anesthesiologist	3 (1–10)	100 (86–100)
Nurse	9 (4–18)	0 (0–14)
Department chief/chair (psychiatry or anesthesiology)	13 (7–24)	33 (18–53)
Director of mental health	10 (5–20)	0 (0–14)
ECT lead	43 (32–55)	4 (1–20)
Other†	15 (8–25)	8 (2–26)
Role in ECT service delivery		
ECT provider	79 (68–87)	29 (15–49)
ECT team member	84 (73–91)	50 (31–69)
Clinical and/or administrative decision maker	78 (66–86)	58 (39–76)
Provides referral	61 (49–72)	0 (0–14)
Province or territory		
Alberta	4.5 (1.5–12.4)	8.3 (2.3–25.8)
British Columbia	9.0 (4.2–18.2)	8.3 (2.3–25.8)
Manitoba	3.0 (0.8–10.2)	0.0 (0.0–13.8)
New Brunswick	0.0 (0.0–5.4)	0.0 (0.0–13.8)
Newfoundland and Labrador	3.0 (0.8–10.2)	4.2 (0.7–20.2)
Northwestern Territories	0.0 (0.0–5.4)	0.0 (0.0–13.8)
Nova Scotia	4.5 (1.5–12.4)	4.2 (0.7–20.2)
Nunavut	0.0 (0.0–5.4)	0.0 (0.0–13.8)
Ontario	46.3 (34.9–58.1)	41.7 (24.5–61.2)
Prince Edward Island	1.5 (0.3–8.0)	0.0 (0.0–13.8)
Quebec	23.9 (15.3–35.3)	29.1 (14.9–48.9)
Saskatchewan	4.5 (1.5–12.4)	4.2 (0.7–20.2)
Yukon	0.0 (0.0–5.4)	0.0 (0.0–13.8)
Provided ECT service before COVID-19		
Inpatient acute	100 (95–100)	100 (86–100)
Outpatient acute	72 (60–81)	71 (51–85)
Outpatient maintenance	84 (73–91)	75 (55–88)

Values with the tenths decimal  $\geq 5$  were rounded up.

\*95% CIs computed using the Wilson's method for binomial proportions.<sup>19–21</sup>

†Includes the following positions: IPAC specialist, ECT program manager, chief of staff, medical chief of outpatient services in mental health, provincial director of ECT services, health authority clinical chief, professional practice educator, manager of inpatient psychiatry, bed placement coordinator, scientist, family physician.

leadership/administration or the IPAC team. Sixty-two percent of centers identified that ECT teams led the change and directly contributed to the development of COVID-19 hospital policies pertaining to ECT practice. Clinical ethicists were not involved in the development of new ECT delivery directives in 82% of participating institutions. In 54% of centers, respondents perceived that decisions were shaped by stigma related to mental illness, the negative cultural perception of the procedure, or a lack of understanding of ECT as a life-saving procedure.



**FIGURE 2.** Status of ECT service in Canada during the first wave of the COVID-19 pandemic (ie, between mid-March and mid-May 2020). [full color online](#)

**Hospital Resources**

Since mid-March 2020, 47% of ECT centers introduced virtual assessment as part of care and 48% limited the number of physicians or nurses providing service on site. Electroconvulsive therapy practice was affected by the redeployment of professionals in areas of anticipated or actual surge (46%), the availability of personal protective equipment (PPE) (41%), and the need for hospitals to facilitate social distancing on their premises (62%) (Table 2). During ECT administration, 54% of centers required all staff members to wear full PPE (defined here as gloves, gown, face protection, and N95 respirator), 30% required all staff members to wear droplet/contact PPE (defined here as gloves, gown, face protection, and procedural mask), and 16% assigned each PPE type based on one's risks of COVID-19 exposure.

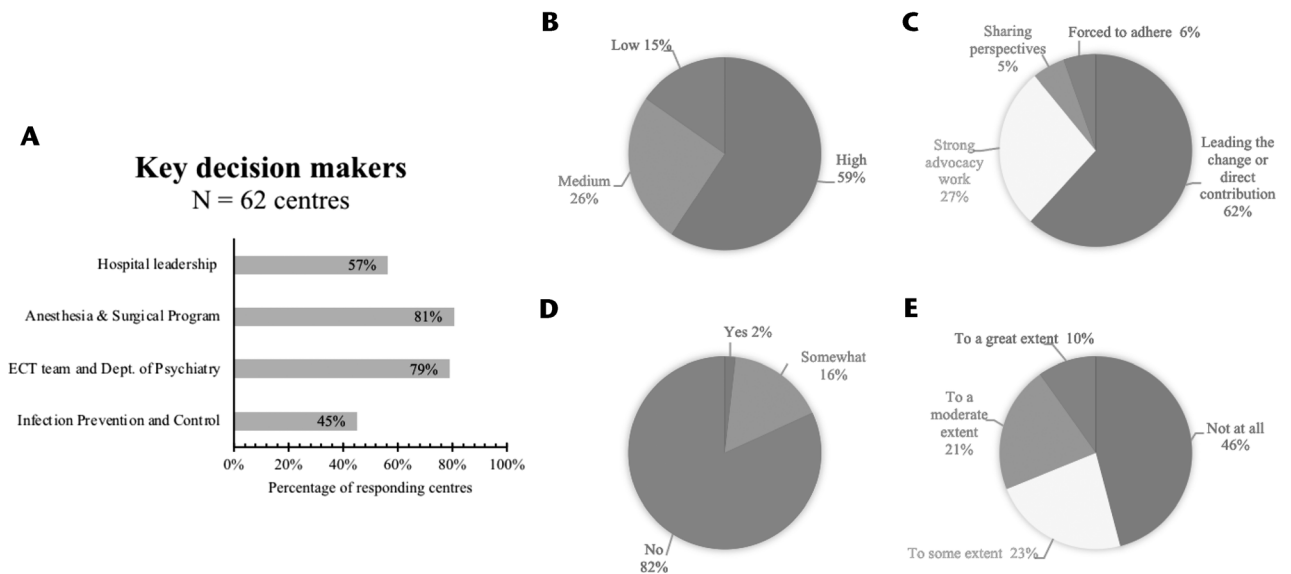
**ECT Procedure**

Thirty-one percent of centers modified the existing ECT delivery room, and 42% changed it to the negative pressure room,

the operating room, or the postanesthesia care unit (Table 2). The pandemic necessitated changes to the airway management in 78% of centers. Minimizing BVM ventilation was the most common form of change observed (63%), followed by the addition of high-efficiency particulate air (HEPA) filter between the valve and the bag mask (22%). The pandemic largely did not affect the ECT technical protocol (88%) and did not warrant changes to the class (95%) or dosage (92%) of administered anesthetics. The corresponding percentages for the anesthesia data set are presented in Table 2.

**Mitigating Patient Impact**

When asked if decision makers developed a new patient prioritization system that determined who would be given access to limited available ECT resources, 75% of centers reported that a novel framework was adopted. Thirty-three percent offered ECT only to severely depressed, psychotic, manic, catatonic, or suicidal



**FIGURE 3.** Questionnaire items of the decision-making domain. A, Key decision makers (n = 62 centers). B, Level of collaboration between the department of psychiatry and hospital leadership (n = 59 centers). C, Contribution of ECT team and the department of psychiatry to decision-making and policy development (n = 55 centers). D, Involvement of clinical ethicists in decision-making (n = 55 centers). E, Perceived role of stigma and a lack of understanding of ECT as a life-saving procedure in decision-making (n = 61 centers). [full color online](#)

**TABLE 2.** Changes to ECT Practice Adopted by Treatment Centers in Canada During the First Wave of COVID-19

Item	% of ECT Centers (95% CI*)			
	Psychiatry, n = 67		Anesthesia, n = 24	
	“Yes”	“No”	“Yes”	“No”
<b>ECT practice was affected by</b>				
Redeployment of professionals	46 (34–59)	54 (41–66)	17 (6–39)	83 (61–94)
Availability of PPE	41 (29–54)	59 (46–71)	29 (14–50)	71 (50–86)
Need to facilitate social distancing	62 (49–73)	38 (27–51)	65 (41–83)	35 (17–59)
<b>ECT is considered an AGMP†</b>				
	76 (64–85)	24 (15–37)	91 (71–97)	9 (3–29)
<b>COVID-19 measures required a change to the</b>				
ECT delivery room‡	73 (59–84)	27 (16–41)	79 (57–92)	21 (9–43)
Modifications to existing suite	31 (20–46)		37 (19–59)	
Negative pressure room	16 (8–29)		37 (19–59)	
Operating room/surgical suite	24 (14–39)		0 (0–17)	
Postanesthesia care unit	2 (0–12)		5 (1–25)	
Class of administered primary anesthetics	5 (1–16)	95 (84–99)	16 (6–38)	84 (62–95)
Dosage of administered primary anesthetics	8 (3–21)	92 (79–97)	24 (10–47)	76 (53–90)
ECT technique‡	12 (5–26)	88 (75–95)	13 (2–47)	87 (53–98)
Less seizure threshold titration sessions	10 (4–23)		0 (0–32)	
Early switch to bilateral electrode placement	7 (3–19)		13 (2–47)	
Switch to the “half-age” method for dosing	5 (1–16)		0 (0–32)	
Airway management procedure‡	78 (63–88)	22 (12–37)	74 (51–88)	26 (12–49)
Eliminating BVM ventilation	5 (1–16)		26 (12–49)	
Minimizing BVM ventilation	63 (48–76)		68 (46–85)	
Adding HEPA	22 (12–37)		47 (27–68)	
Eliminating intubation	2 (0–13)		5 (1–25)	
Minimizing intubation	7 (3–19)		0 (0–17)	
Using laryngeal mask	5 (1–16)		0 (0–17)	
Preoxygenating longer and/or by mask	10 (3–23)		11 (3–31)	

Values with the tenths decimal  $\geq 5$  were rounded up.

\*95% CIs computed using the Wilson's method for binomial proportions.<sup>19–21</sup>

†In 3.4% (95% CI, 1.0–11.7) of responding centers, ECT was initially considered an AGMP but then reclassified as a non-AGMP.

‡No follow-up answer options were presented if the “no” response was provided to the screener questions.

AGMP indicates aerosol generating medical procedures.

cases, whereas 42% determined the priority on a case-by-case basis, taking into consideration multiple demographic and vulnerability factors (eg, age, sex, ethnicity, socioeconomic status, medical and treatment history, and so on). Fifty-six percent of facilities that reduced operations or stopped ECT completely indicated that they facilitated access to care in alternative ways. Providing more frequent monitoring/follow-up (45%) and collaborating with other service providers (45%) were the most commonly adopted strategies, followed by changing treatments (eg, replacing ECT with pharmacotherapy) (26%), transferring patients to other facilities providing ECT (26%), and hospitalizing outpatients (19%). Psychiatric relapse rates were seen as a bigger source of worry than suicide rates, with 36% of respondents rating their concerns as “great” for the former risk of relapse versus 18% for the risk of suicide.

## DISCUSSION

In this survey, we explored how COVID-19 affected the delivery of ECT in Canadian health care facilities between mid-March 2020 and mid-May 2020. The first wave of the pandemic markedly disrupted the operations of ECT units, resulting in

increased time intervals between individual treatments. Inpatient acute ECT was affected to a smaller extent than outpatient acute and maintenance treatments. Although with a high level of collaboration among psychiatry, anesthesia, and hospital leadership, decisions were mostly made in an ad hoc manner with limited attention to ethical aspects or specific vulnerable populations. There was a high variability across institutions in adopted frameworks of resource allocation and modifications to ECT delivery space, as reflected in the proportions and wide CIs. Availability of PPE, redeployment of professionals, and need to facilitate social distancing were significant factors that affected ECT provision across Canada, with approximately half of the surveyed institutions introducing virtual assessment as part of care. Because ECT was classified as aerosol-generating in the majority of centers, modifying or changing the ECT delivery room and minimizing BVM ventilation were the most commonly seen strategies for attenuating the risk of SARS-CoV-2 transmission. Changes in the class of anesthesia, delivered dosage, and ECT stimulus parameters were minimal. Each treatment center tried to alleviate the impact of service disruptions on patients receiving care at the facility contingent upon local resources, leading to diverse patient prioritization frameworks.

Health care facilities prioritized essential over nonurgent treatments, postponing or canceling procedure-based interventions.<sup>3–5,10</sup> Despite the fact that ECT can be both life-enhancing and life-saving, one quarter of Canadian facilities suspended all ECT, whereas some facilities offered it on a limited basis.<sup>22</sup> Although common medical practice for the reduction of any psychiatric treatment includes considerations of tapering treatment under close monitoring, 91% of Canadian programs faced rapid closures and service disruptions thereby placing patients at greater risk of psychiatric relapse and suicide.<sup>10</sup> Inpatient and outpatient services were reduced unequally, reflecting the disproportionate impact of the pandemic on these 2 patient populations (Fig. 2). Although the percentages of ECT centers that were affected by COVID-19 were high for both inpatient and outpatient services (81% vs 95%), 70% of centers continued offering service to inpatients at full or limited capacity, whereas only 30% did so for outpatients. To mitigate this, 19% of hospitals that were providing alternative access to care during the first wave of COVID-19 offered hospitalization as one way for outpatients to receive ECT. This strategy not only strains the health care system in terms of costs and resources but also puts the outpatient population at a great economic disadvantage bearing the cost-effectiveness of inpatient psychiatric treatment in comparison to ambulatory programs.<sup>23,24</sup> A somewhat similar trend was seen for acute and maintenance ECT, where the respective percentages of centers that continued providing service were 69% and 44%. It should be noted, however, that acute ECT was offered to both inpatients and outpatients, whereas maintenance ECT was provided in the outpatient setting only.

Authors from various countries have published “expert opinion” pieces making recommendations on modifications to the ECT procedure in the context of general anesthesia, IPAC, and clinical management.<sup>9–11,25,26</sup> Because ECT is classified as a procedure at high-risk for aerosolization, providers were recommended to relocate treatment to a negative pressure room, as well as to minimize BVM ventilation with the adoption of safer airway management strategies using supraglottic air devices.<sup>7,10,26–28</sup> Additional measures included securing HEPA for mask ventilation and performing preoxygenation of patients with low flow oxygen.<sup>7,12,13</sup> Electroconvulsive therapy titration method and anesthesia dosing generally remained unchanged.<sup>10</sup> The results of our survey demonstrate that Canadian centers followed these recommendations, with the exception of using HEPA and preoxygenation, where only a small percentage of centers adopted these strategies to minimize aerosolization risks. In addition, we report that centers used variable approaches toward modifying the location of ECT delivery, contingent upon local resources and the design of hospital ventilation systems.

According to our results, the percentage of Canadian centers that reported ECT practice being affected by the availability of PPE was 41% (perspective of psychiatrists) and 29% (perspective of anesthesiologists) (Table 2). Although N95 respirators were considered mandatory at some locations, some centers were unable to provide them at all and offered ECT team members to wear procedural masks (30% of centers). Procedural masks are not designed to block small particle aerosols of less than 5 µm, prompting several authors to advocate for the use of N95 for aerosol-generating medical procedures instead.<sup>29,30</sup> Although our data generally do not allow us to establish a causal link between PPE availability and the viability of ECT programs, several strategies fostering better IPAC could be proposed. Because less than half (45%) of surveyed centers reported that IPAC representatives were involved in the decision-making, ECT teams and psychiatry departments could consider establishing a closer collaboration with IPAC divisions at their institutions to be able to rapidly adapt to evolving pandemic circumstances. A systematic screening process for COVID-19 symptoms before administering ECT is important to

reduce exposure risk, although a possibility of asymptomatic carriers cannot be neglected.<sup>12,26,31</sup> Staff members in the ECT treatment room must therefore consistently use PPE, adhering to protocols developed by IPAC as per local resource allocation strategies and redeployment necessities.<sup>7,10,13,26,32</sup> Finally, organizing an ECT schedule based on relative infection risk, creating a systematic staffing plan with a master list of the team, having longer intervals between team changes, and designing backup plans are ideal.<sup>13,26,32</sup>

Providers generally reported a high level of collaboration among psychiatry, anesthesia, and hospital leadership in the decision-making process, but with a limited input from clinical ethicists.<sup>15</sup> With the goal of facilitating ethical decision-making and improving patient care, hospital-based centers for clinical ethics typically provide services to patients, families, and hospital staff members on a variety of issues, including treatment decisions, resource allocation, hospital restructuring, and institutional ethics.<sup>33</sup> In Canada, however, input from clinical ethicists is obtained in an ad hoc manner based on local institutional standards and available hospital resources. Although these could present a significant barrier to clinical ethics consults, a lack thereof might place patients with psychiatric conditions at a greater risk of losing access to life-saving treatment and being subjected to health care inequities.<sup>2,34</sup> Careful ethical reflection guided by the principles of proportionality, duty to care, equity, solidarity, inclusiveness, and transparency is therefore imperative for mitigating harm to service users and moral injury among service providers.<sup>15</sup> In reality, each treatment center in Canada developed its own ad hoc protocol, which often led to the adoption of arbitrary choices based on risk perceptions. This situation has been further exacerbated by “surge planning” and redeployment with scarcity of personnel and equipment, including PPE.<sup>1,35</sup> Although there is no definitive consensus on whether decision-making should be done at the local level or following national or international guidelines, a lack of harmonized procedures puts hospital personnel at a greater risk of infection and psychological distress in the workplace.<sup>8,9</sup> To reduce institutional variability, developing systematic framework toward ECT delivery in the context of a general public health crisis is pivotal. Beyond the current COVID-19 pandemic, this approach will also facilitate standardization of treatment protocols, manage the costs and quality of hospital services, and ensure adherence of providers to best practices.

Another notable example of variability among Canadian ECT centers relates to the clinical impacts incurred by the disruption of service. Although 27% of surveyed institutions discontinued ECT entirely, those that kept offering service reported adopting a variety of patient prioritization frameworks that determined who would access treatment. As evidenced by the results, the majority of centers (75%) developed a completely new approach toward triaging as opposed to opting for guidance by local prepandemic standards (25%). No clear preference, however, was given to either of the newly adopted strategies: 33% of centers provided ECT to severe clinical cases only and 42% considered individual vulnerability factors. However, of those institutions that had to reduce service or discontinue ECT entirely, only 56% facilitated access to care in other ways, whereas the other 44% were forced to leave a lot of people without the care they needed. Alternative options to care such as providing more frequent monitoring and follow-up, collaborating with other service providers, substituting treatments, transferring patients to other facilities, and changing a patient's status could all be viable and are sometimes necessary for protecting the lives of the most vulnerable and mitigating moral injury imposed upon practitioners and institutions.<sup>2,56–38</sup> To further streamline decision-making, we suggest that ECT could be evaluated against the backdrop of other procedural treatments according to 5 similarity factors<sup>5,11,25,29</sup>: (1) brevity of procedure; (2) need for anesthesia; (3)

need for specialized equipment; (4) need for multidisciplinary collaboration; and (5) postoperative recovery time. These categories could form the basis for a decision-making model that would rank procedural treatments according to a set of specific evidence-based and practice-based criteria. Subsequently, this model can further incorporate the analysis of relative risks and benefits associated with procedure termination, the assessment of morbidity and mortality of treated illness, and the evaluation of the severity of expected adverse events.

To our knowledge, this is the first survey that systematically examined the impact of COVID-19 on psychiatric treatments at a national level and one of the few published national analyses for procedural treatments in times of the pandemic. The next step of this initiative is to conduct a follow-up analysis, exploring the key differences in how ECT centers across Canadian provinces and territories responded to COVID-19. Since mid-March 2020, the public health crisis has been evolving unevenly across Canada, with Ontario and Quebec being the most severely affected and Atlantic Canada the least.<sup>39–41</sup> Treatment centers in different parts of Canada adhered to local ministerial, provincial, and institutional standards, which guided the ultimate decision-making around ECT practices during COVID-19.<sup>10,40,41</sup> The understanding of “what happened” is crucial for guiding further development of a rational approach toward ECT delivery in pandemic-like contexts, which will mitigate the impact of the crisis on vulnerable psychiatric populations, inform other targeted interventions, and identify key aspects of knowledge gap in the safe and effective delivery of ECT.

The current report intends to provide a general overview of how the COVID-19 pandemic might have affected ECT delivery in Canada and has certain noteworthy limitations. The data presented here do not consider input from patients in need of ECT and are restricted to the professionals from specific treatment centers that participated in the survey. A possible recall bias needs to be acknowledged because the survey was administered retrospectively: respondents' answers could have been influenced by subsequent events associated with the general resumption of medical procedures that supervened in the summer 2020.<sup>41</sup> Another limitation concerns a relatively small number of treatment centers that provided responses representing the perspective of anesthesiologists. This makes the results of this report more reflective of ECT practices adopted by psychiatrists but nevertheless informs the medical community about a relative consensus between the 2 professional groups in certain areas (ie, ECT unit operations, hospital resources, and ECT procedure). Despite a relatively equal contribution of psychiatrists and anesthesiologists to the decision-making (79% vs 81%), the majority of anesthesiologists in our sample did not provide specific answers to the questions of the respective domains (ie, decision-making and mitigating patient impact), instead indicating that those questions were not applicable to their expertise. Moreover, a relatively low response rate might reflect a tendency of anesthesiologists to overlook the critical impact of ECT disruption on morbidity and mortality of mood disorders, because this professional group is more likely to prioritize care for nonpsychiatric patient populations and not become involved in provider-patient communication for navigating postoperative care decisions.<sup>42</sup> Lastly, we identified the key issues surrounding ECT delivery during the first wave of COVID-19 based on individual experiences and opinions rather than standardized reports provided by institutions. The results of this survey may thus have been skewed by possible biases due to a preferential response of those centers where the perceived impacts of the pandemic were the most evident. Notably, this survey was conducted in a high-income country, where the health care system and types of services might drastically differ from those in other countries, so the generalizability of findings may therefore be limited.

## CONCLUSIONS

This survey showed that the COVID-19 crisis and the ensuing public health measures noticeably affected ECT delivery across Canada between mid-March 2020 and mid-May 2020. Despite existing recommendations, institutions showed a great variance in decision-making guided by risk perceptions and by the local interpretation of what constitutes an “elective” procedure, as ECT is not elective for all, essential for many, and may be potentially life-saving for some. To mitigate risks associated with the evolving “curve” of the pandemic, a need for a systematic consensus framework with input from multiple professionals representing treatment centers of different types is therefore warranted.

## ACKNOWLEDGMENTS

The authors thank the Association of General Hospital Psychiatric Services of Ontario and the Canadian Psychiatric Association/Association des psychiatres du Canada, ECT Committee for their help with the identification of ECT centers and survey advertisement. The authors thank all the facilities that provided their responses and shared their experience with the COVID-19 pandemic.

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