

## The impact of COVID-19 on Canadian urology residents

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### Introduction

The coronavirus disease 2019 (COVID-19) outbreak was declared a pandemic on March 11, 2020 by the World Health Organization.<sup>1</sup> Since this announcement, hospitals across Canada have made efforts to minimize the volume of elective surgeries and outpatient clinics in order to flatten the curve and preserve limited resources (i.e., mechanical ventilators and personal protective equipment [PPE]). Residency training programs have also made efforts to minimize trainee exposure to COVID-19 by removing residents from clinics and operating rooms (ORs), moving grand rounds and teaching sessions to online formats, and developing alternative work schedules based on the incubation period of COVID-19<sup>2</sup> (e.g., one week on, two weeks off). The effect of these changes has been felt at every level of residency training and at institutions around the world.<sup>3,4</sup> This paper explores some of the impacts that COVID-19 has had on Canadian urology residents.

### Education

#### OR

OR exposure has been restricted, as many of the cases are performed by attending urologists to complete procedures more efficiently. Surgeries are limited to urgent oncology and endourology procedures (i.e., priority 1).<sup>5</sup> Our program initially reduced resident participation in the OR due to limited PPE availability. As PPE became more accessible, residents were able to participate in more cases but in a decreased capacity. Despite a reduced role in the OR, there remains value for residents in the role of second assist or observation.

The loss of OR experience and decreased exposure to priority 3-4<sup>5</sup> procedures (e.g., renal transplantation, robotic surgery, and reconstructive procedures) particularly impacts chief residents and fellows, who operate more independently during the final six months of training. Opportunities at some institutions may exist for surgical simulation, such as the UroMentor™

(Simbionix, Tel Aviv, Israel) and da Vinci Trainer<sup>®</sup> (Mimic Technologies, Inc., Seattle, U.S.). Simulators may aid skill development<sup>6,7</sup> while reducing the risk of viral transmission.

### ***Virtual care***

To facilitate physical distancing, patient volume in clinics has also decreased. The corresponding rapid and mass adoption of virtual care has been considered the silver lining of the pandemic. Many urological conditions can be reasonably managed through virtual encounters,<sup>8</sup> and these visits allow residents to perform consultations semi-independently. Practicing during a pandemic has also reinforced the principles of ‘choosing wisely’ due to limited access to imaging, bloodwork, and cystoscopy. Residents have gained experience in selecting only the necessary investigations, determining urgency of followup, and triaging urological procedures.

Telemedicine has also allowed residents to understand the patient’s perspective, as many patients have been happy to have a virtual visit due to the decreased risk of COVID-19 exposure, travel time, time off work, parking fees, and burden for those with accessibility challenges.<sup>9</sup> Patients may also receive more time for counselling, resulting in higher patient satisfaction.<sup>10</sup> As virtual care will likely persist following the gradual reopening of clinical activity, developing expertise with this medium is an important skill for future practice. Virtual care with certain platforms has also allowed for attending physicians to “observe” and evaluate resident interactions without being intrusive, to teach around cases, and impart transition to practice skills based on direct observation.

### ***On the wards***

Minimization of resident exposure has meant that, at some teaching hospitals, there may only be one resident onsite providing inpatient care, performing consultations, participating in the OR, and completing administrative duties. At our institution, this has provided junior residents with the autonomy to make more management decisions with virtual supervision from senior residents, gaining valuable clinical experience. However, the loss of the team-based structure has resulted in increased burden and expectations on individual residents, and loss of “in-the-moment” teaching opportunities. The limitations on clinical activity has also decreased the frequency of entrustable professional activity (EPA) assessments, which is particularly challenging for Competency-by-Design (CBD) cohorts. In response, our institution has instituted weekly in-training evaluation reports (ITER) and developed a virtual objective structured clinical examination (OSCE), providing continued evaluations for use by the competency committee.

### ***Digital education***

At Western, grand rounds, teaching seminars, journal clubs, and OSCE sessions were cancelled on March 12 to reduce gathering and enforce physical distancing measures. The first virtual teaching seminar (on Zoom) was conducted on April 3. Weekly grand rounds and other academic activities resumed virtually thereafter. An unforeseen benefit of moving our teaching sessions online has been the participation of our alumni and adjunct faculty at other centers.

Additional time off clinical duty has also meant increased opportunity for self-directed learning. Many residents have taken the time to focus on academic reading or research. The global reduction of clinical volume also catalyzed the development of a number of webinar series. The first was Urology Collaborative Online Video Didactics<sup>11</sup>, a multi-institutional collaboration developed by Dr. Lindsay Hampton at UCSF. This was followed by a number of other webinar series, including: Urology 60 Minutes (USC),<sup>12</sup> EMPIRE Urology lecture series (NYAUA),<sup>13</sup> PedsUroFLO (UCSF),<sup>14</sup> EDGE Talks (EDGE),<sup>15</sup> among others. Residents have also taken the time to learn from and attain certifications from leading universities through online platforms such as Coursera<sup>16</sup> and edX.<sup>17</sup> Porpiglia et al have identified a number of smart-learning applications for supplementation of urology resident training and suggest integration of these routinely into residency training.<sup>18</sup>

### ***Well-being***

While less time in hospital means more time at home, this may not always equate to increased wellness. Internal and external pressures to read and complete research continue to exist, and the expectations may be even greater. Milestone events, such as weddings and graduations, have been postponed or cancelled. Family members have been laid off, creating additional dependents for some residents. Trainees with children may be burdened by the additional responsibilities of childcare and home schooling. Nonetheless, residents have valued the time they have been able to spend with their household under these unique circumstances.

The pandemic has also caused personal health-related anxiety, particularly for those with medical conditions that make them more susceptible to respiratory infections. While the morbidity of COVID-19 in Canada has been less severe than some other countries,<sup>19</sup> more than one in 10 healthcare workers in Ontario have tested positive for COVID-19.<sup>20</sup> Surgical residents compose a higher-risk group due to the nature of their work. A retrospective study from Wuhan, China identified that prolonged work hours (>10 hours/day) and involvement in surgical procedures or intensive care units are risk factors for COVID-19 infection (relative risk 2.13; 95% confidence interval 1.45–3.95).<sup>21</sup> While the complications of COVID-19 infection are more common in older age,<sup>22</sup> resident physicians are not immune to its potential for morbidity.<sup>23</sup>

The paranoia of contracting COVID-19 is magnified by the possibility of transmission to one’s family. Residents may avoid returning to their homes in other cities or provinces to minimize transmission. The time spent away from friends, family, and coworkers is socially isolating and can interfere with existing support systems that residents rely on.<sup>24,25</sup>

Residents may also be concerned about redeployment, directing their focus towards COVID-19 case-tracking, and reviewing ventilator mechanics and critical care medicine. The mental health challenges faced by healthcare workers during this pandemic has been described.<sup>26</sup> Greenberg et al recommends managers proactively take steps to protect the mental well-being of staff, be honest about the situations they are facing, and provide regular contact to discuss decisions and check in on them.<sup>26</sup> At Western, we have been hosting “fun” journal clubs and

weekly virtual checkins to discuss program structure changes and institutional policies, and to allow residents to bring up concerns and remain connected with one another. The Professional Association of Residents of Ontario (PARO) has also provided a number of resources available online for residents working during the COVID-19 pandemic.<sup>27</sup>

### **Next steps**

As we begin to return to clinical activity over the coming months, what remains uncertain is the long-term effects of COVID-19 on surgical education. The loss of exposure to urology may result in decreased interest in our specialty for upcoming applicants.<sup>28</sup> At Western, we plan to hold virtual meetings with applicants to provide them with a tour of our institution and opportunities talk to the selection committee about our program. Incoming residents may be apprehensive about beginning their medical careers in the midst of a pandemic. Many components of transition to residency and surgical foundations will likely be modified to a digital format. Off-service rotations may be restructured to reduce exposure to high-risk areas, such as the emergency department, intensive care units, and ORs.

Junior residents may have difficulty progressing through CBD due to changes to curriculum changes and fewer completed EPAs and achieved competencies. This raises concerns regarding additional training time necessary to be achieve competence, especially for those who have taken parental leave or completed graduate degrees during residency. The Royal College has provided guidelines on how to manage evaluation barriers that have occurred as a result of coronavirus.<sup>29</sup> For senior residents, the loss of OR time, elective and community rotations, and presentation opportunities at research meetings will be difficult to make up. As they progress into their chief year, there may be reservations about how this will affect their future employment and fellowship prospects.

### **Conclusions**

The COVID-19 pandemic has had several impacts on the surgical education and well-being of Canadian urology residents. While we each face individual challenges during this unprecedented time, many innovative solutions have come to the forefront. This includes the adoption and acceptance of virtual care and the increased availability of smart-learning applications. Furthermore, residents and attendings have been hardened by the experience of training in a resource-scarce period, where practice changes have been instituted often and abruptly. As clinical activity continues to resume in graded fashion, it is important to recognize that the surgical training environment will never be the same. Increased safety precautions are likely to be pervasive, as COVID-19 will persist for the foreseeable future.<sup>30</sup> In the interim, we must continue to be progressive in developing education programs to train urology residents safely and effectively. This may include the development of a universal national curriculum that incorporates virtual education and increased use of surgical training simulators. While the future

remains uncertain, there is no doubt Canadian urology residents will continue to adapt and overcome the challenges ahead.

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